
Plan Overview

A Data Management Plan created using DMPonline

Title: Individually adapted lactation length for paying and sustainable milk production

Creator: Anna Edvardsson Rasmussen

Project Administrator: Anna Edvardsson Rasmussen

Affiliation: Swedish University of Agricultural Sciences

Template: SLU-General

Project abstract:

Planen fastställd februari 2026, överförs till Public 360./ Anna Edvardsson Rasmussen

The aim of the project is to develop tools which can be used for individually adapted lactation lengths based on the biological conditions of the cow. Today a one year calving interval and a short lactation period, is recommended. The recommendations are based on 30 years old information and do not take into account individual variations between cows. In this project 20 large dairy herds will be included. We will gain information from the individual cows in each herd related to milk yield, fertility and health and validate the tools as predictors of cows which benefit from an extended lactation. We will test the tools by selecting primiparous cows based on the developed predictive tools. We will create genomic breeding values which can be used to identify cows which benefit for an extended lactation. We envision that farmers who adopt the concept of individually adapted lactation lengths will experience better health and welfare, fertility and productivity in their herds.

ID: 115471

Start date: 01-06-2018

End date: 29-09-2023

Last modified: 23-02-2026

Grant number / URL: Beslutnr: AC-2025/0027

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Individually adapted lactation length for paying and sustainable milk production

1. General Information

1.1 DMP - DMP Title

INDILACT-SLF-2018-DMP

1.2 DMP - Date of Creation

2023-01-23

1.3 DMP - Date of Modification

2024-06-14

1.4 DMP - Version

v.1.2

1.5 DMP - Contact Person

Anna Edvardsson Rasmussen, anna.edvardsson.rasmussen@slu.se, SLU, <https://orcid.org/0000-0003-3026-9847>

1.6 Project - Project Title

Individually adapted lactation length for paying and sustainable milk production

1.7 Project - Project Description

Aim of the project (from the applicatopn):

The aim of the project is to develop tools which can be used for individually adapted lactation lengths based on the biological conditions of the cow. Today a one year calving interval and a short lactation period, is recommended. The recommendations are based on 30 years old information and do not take into account individual variations between cows. In this project 20 large dairy herds will be included. We will gain information from the individual cows in each herd related to milk yield, fertility and health and validate the tools as predictors of cows which benefit from an extended lactation. We will test the tools by selecting primiparous cows based on the developed predictive tools. We will create genomic breeding values which can be used to identify cows which benefit for an extended lactation. We envision that farmers who adopt the concept of individually adapted lactation lengths will experience better health and welfare, fertility and productivity in their herds.

1.8 Project - Project ID

SLU.huv.2017-111

1.9 Project - Project Leader

PI: Kjell Holtenius, kjell.holtenius@slu.se, SLU, <https://orcid.org/0000-0003-1739-263X>

Project administrator (PhD student): Anna Edvardsson Rasmussen,
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1.10 Project - SLU Focus Area

- SLU Research

1.11 Project - Start Date

2018-06-01

1.12 Project - End Date

2025-12-31

13. Project - Funding

- Yes

1.14 Project - Funder Name

- Other

<http://dx.doi.org/10.13039/501100004379>, "Stiftelsen Lantbruksforskning"

1.15 Project - Funder Grant ID

SLF adapted lactation O-17-20-875

1.16 Project - Contributor

PI, main supervisor, professor: Kjell Holtenius, kjell.holtenius@slu.se, SLU - HUV, <https://orcid.org/0000-0003-1739-263X>

Project administrator (PhD student): Anna Edvardsson Rasmussen, anna.edvardsson.rasmussen@slu.se, SLU - HUV, <https://orcid.org/0000-0003-3026-9847>

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Co-supervisor, part of application and project group, Professor: Renee Båge, Renee.Bage@slu.se, SLU - KV, <https://orcid.org/0000-0003-1413-6913>

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Co-supervisor, part of application and project group, Researcher and Advisor: Maria Åkerlind, maria.akerlind@vxa.se, Växa Sverige, <https://orcid.org/0000-0002-3538-7036>

2. Data Description and Collection or Reuse of Existing Data

2.1 Will newly collected/produced data, already existing data, both, or neither be used in the project? (multiple answers are allowed)

- Collecting/producing new data
- Reusing already existing data

New data:

Some new data: blood samples, milk samples, BCS, feed samples and daily milk yields will be collected during the project. These are collected during the random controlled study and hence was not available before the project was started.

Reusing existing data:

We will receive data from the Swedish national herd reporting scheme, owned by the farmers and Växa Sverige. The availability of the data is restricted by agreements with Växa and the farmers and can not be openly published, however metadata is published in the Swedish National Dataservice.

We have user-agreements with all farm owners and Växa on how the information will be handled in the project, that the data may not be published openly but that SLU have to comply with legal requirements regarding archivation of data.

2.2 What type of data will be newly collected/produced and/or reused and how will new data be collected/produced and/or already existing data reused?

Data registrerades mellan augusti 2018 och september 2021.

Det finns data från tre olika källor. Tillgången till dessa data är begränsad på grund av avtal med ägaren av data (Växa Sverige).

1. Data (.txt filer) från Kokontrollen som sköts av Växa Sverige gällande ras, kalvningar, inseminationer, 305-dagarsavkastning, provmjölkningar och sindatum från 16 gårdar. Inklusionskriterier för gårdarna var > 100 kor i produktion, samt medelavkastning på minst 9 000 kg ECM/ko och år, medel KI på < 14 månader samt att de skulle ha ett system för daglig mjölmängdsregistrering. Flera datauttag gjordes under studien.
2. Excelfiler med data från gårdarnas egna mjölkningssystem (DeLaval, Lely och GEA) med dagliga

mjölmängder (från tre olika system: DeLaval, Lely och GEA). Innehåller: datum, tid, mjölmängd, KoID och gård. Flera datauttag från respektive gård gjordes under studien.

3. Samples collected during the random controlled study, blood and milk samples were taken simultaneously from 200 cows in early lactation (within 4 weeks from calving):
 1. Blood samples (blood metabolites: analyzed for IGF-1, insuline, NEFA, glucose and BHB),
 2. milk samples (milk spectra),
 3. Body condition score (BCS) - manual,
 4. feed samples (herd level).

Metadata (tillgängligt):

En metadatafil för respektive kategori av data har skapats med beskrivning av databearbetningen. Dessutom finns kodnycklar för hur koderna i textfilerna ska läsas ut samt kodlista för koder som använts i textfilerna. R-skript med statistisk analys finns också tillgängliga.

2.3 What kind of data will be collected/produced and/or reused? (multiple answers are allowed)

- Qualitative data
- Quantitative data
- Experimental data
- Derived/compiled data
- Numerical data
- Descriptive data

Data registrerades mellan augusti 2018 och september 2021.

Det finns data från två olika källor. Tillgången till dessa data är begränsad på grund av avtal med ägaren av data (Växa Sverige).

1. Data (.txt filer) från Kokontrollen som sköts av Växa Sverige gällande ras, kalvningar, inseminationer, 305-dagarsavkastning, provmjölkningar och sindatum från 16 gårdar. Inklusionskriterier för gårdarna var > 100 kor i produktion, samt medelavkastning på minst 9 000 kg ECM/ko och år, medel KI på < 14 månader samt att de skulle ha ett system för daglig mjölmängdsregistrering.

2. Excelfiler med data från gårdarnas egna mjölkningssystem (DeLaval, Lely och GEA) med dagliga mjölmängder (från tre olika system: DeLaval, Lely och GEA).

Metadata (tillgängligt):

En metadatafil för respektive kategori av data har skapats med beskrivning av databearbetningen. Dessutom finns kodnycklar för hur koderna i textfilerna ska läsas ut samt kodlista för koder som använts i textfilerna. R-skript med statistisk analys finns också tillgängliga.

New data: blood samples, milk samples, BCS, feed samples and daily milk yields will be collected during the project. These are collected during the random controlled study and hence was not available before the project was started.

2.4 In what format will the data collected/produced and/or reused come in?

Data registrerades mellan augusti 2018 och september 2021.

Det finns data från två olika källor. Tillgången till dessa data är begränsad på grund av avtal med ägaren av data (Växa Sverige).

1. Data (.txt filer) från Kokontrollen som sköts av Växa Sverige gällande ras, kalvningar, inseminationer, 305-dagarsavkastning, provmjölkningar och sindatum från 16 gårdar. Inklusionskriterier för gårdarna var > 100 kor i produktion, samt medelavkastning på minst 9 000 kg ECM/ko och år, medel KI på < 14 månader samt att de skulle ha ett system för daglig mjölmängdsregistrering.

2. Excelfiler med data från gårdarnas egna mjölkningssystem (DeLaval, Lely och GEA) med dagliga mjölmängder (från tre olika system: DeLaval, Lely och GEA).

Metadata (tillgängligt):

En metadatafil för respektive kategori av data har skapats med beskrivning av databearbetningen (Word). Dessutom finns kodnycklar för hur koderna i textfilerna ska läsas ut samt kodlista för koder som använts i textfilerna. R-skript med statistisk analys finns också tillgängliga.

New data: blood, feed and milk samples, BCS, and daily milk yields are collected during the project. These are collected during the random controlled study and hence was not available before the project was started. All of these results are available in Excel files.

2.5 What volume of data will be collected/produced and/or reused throughout the project's lifetime?

- 1-100 GB

Grunddata: ca 10 GB (txt and Excel files)

Metadata + processed data + output: ca 5 GB (Word documents, figures, R-scripts)

The limited amount of data means that the volumes will not implicate difficulties with regard to storage and backup nor sharing within the project group.

3. Documentation and Data Quality

3.1 What metadata (i.e., contextual information describing the data) and documentation will accompany the data?

Metadata (tillgängligt):

En metadatafil för respektive kategori av data har skapats med beskrivning av databearbetningen. Dessutom finns kodnycklar för hur koderna i textfilerna ska läsas ut samt kodlista för koder som använts i textfilerna. R-skript med statistisk analys finns också tillgängliga.

Metadata del 1:	storlek	filtyp
filer.txt	1.24 KB	txt
Kodforteckning-2017.pdf	1.26 MB	pdf
Manus-1---Milk-final-Binomial-lact-1.Rmd	7.33 KB	R-script
Manus-1---Milk-final-Binomial-lact-2.Rmd	6.75 KB	R-script
Manus-1---Milk-final-LM-lact-1.Rmd	14.82 KB	R-script
Manus-1---Milk-final-LM-lact-2.Rmd	13.7 KB	R-script
Metadata-Harst-del-1.pdf	746.31 KB	pdf
Metadata-IngUtg-del-1.pdf	646.75 KB	pdf
Metadata-Kalvn-del-1.pdf	997.92 KB	pdf
Metadata-kokontrolldata-del-1.pdf	273.11 KB	pdf
Metadata-Laktavk-del-1.pdf	610.41 KB	pdf
Metadata-Mjolkmandsfiler-del-1.pdf	1.19 MB	pdf
Metadata-Provm-del-1.pdf	1.06 MB	pdf
Metadata-Semin-del-1.pdf	1.26 MB	pdf
Metadata-Sindatum-del-1.pdf	230.42 KB	pdf
Postbeskrivningar-med-sinuppgift-2021-11-16.pdf	1.31 MB	pdf
Metadata del 2:		
Metadata - Sjukdomskoder och kategorier	24 KB	Excel
Metadata - del 2	739 KB	pdf

3.2 How will the data be organised during the project? (multiple answers are allowed)

- By use of folder structure

3.3 How will the data be managed during the project? Will data be managed with the help of technical equipment/systems?

- Yes

Data collected in the field (milk/blood/feed samples) and analyzed by the laboratory of the department (HUV), the results from the lab was received in the form of excel files. Data was recieved from databases (Växa kokontrollen) in the form of txt files. The data was analyzed with Excel, Graphpad Prism and R.

3.4 What data quality control measures will be used?

Regarding lab analysis, the department lab running the analysis, run control samples and reports CV and reruns samples with high CV values. They also run calibrations, positive and negative controls. For more info about quality assurance in SLU labs:

<https://internt.slu.se/en/organisation--styrning/quality-research/>

4. Storage and Backup during the Research Process

4.1 How will data, metadata, and other documentation be stored and backed up during the project?

Data will be stored by making use of SLU's centralised file storage system. Thus, data is protected against loss and access to data is secured (i.e., via authorisation). Data is, furthermore, backed up daily (including a back-up at another location; i.e., data is backed up in two separate locations).

4.2 How will data be secured/protected during the project?

As data, metadata, and other documentation is stored and backed-up via SLU-IT's central storage system, SLU-IT ensures data recovery in the event of an incident (i.e., data will be able to be recovered through previously made back-ups).

Data is stored in a restricted folder. As personal/sensitive data will be managed as part of the project, the following protection policies and security measures will be followed and applied: SLU's management system on information security (LIS) (including compliance with ISO 27001), SLU's data protection handbook, Sweden's Public Access to Information and Secrecy Act (SFS 2009:400), the EU General Data Protection Regulation (GDPR).

4.3 Have SLU's IT department (support@slu.se) or your institution's IT support, Data Management Support (DMS; dms@slu.se), Data Protection Unit (dataskydd@slu.se), and/or Security (sakerhet@slu.se) Unit been contacted with regard to data storage and backup as well as protection? (multiple answers are allowed)

- SLU DMS
- SLU Legal Affairs, Data Protection, and Information Management Unit

5. Legal and Ethical Requirements, Codes of Conduct

5.1 Do you intend to process sensitive data (e.g., personal information, politically sensitive information, trade secrets, etc)?

- Yes

I work on data which can be connected to certain farms connected to personal informations about the owners.

5.2 How will compliance with legislation on personal data and on security be ensured? (multiple answers are allowed)

- Informed consent will be/has been gained.
- Approval by the Ethics Review Authority will be/has been met.
- Processing of personal data will be/has been reported.

The SLU Legal affairs have been involved in the creation of the agreements with Växa, Eurofins and the farms.

The project group are the ones that have been granted permission to access the restricted file with personal information.

For the files that are used for data management, the information about which data comes from which farm is encrypted.

5.3 How will other legal issues, such as intellectual property rights and ownership, be managed? What legislation is applicable?

We have user-agreements with all farm owners and Växa (the principle owners of the data) on how the information will be handled in the project, that the data may not be published openly but that SLU have to comply with legal requirements regarding archivation of data.

5.4 What ethical issues and codes of conduct are there, and how will they be taken into account?

Approved ethical applications is available for the project.

6. Data Sharing and Long-Term Preservation

6.1 How and when will data (or metadata) be shared (i.e., made publicly available)? Are there possible restrictions to data sharing and embargo reasons?

The metadata is published in SND at publication of the related article.

- Edvardsson Rasmussen, A. (2022). INDILACT - Förlängd frivillig väntetid för förstakalvare. Del 1: randomiserad kontrollerad studie (Version 1) [Data set]. Sveriges lantbruksuniversitet. <http://hdl.handle.net/20.500.12703/3994>
- Edvardsson Rasmussen, A. 2024. INDILACT - Förlängd frivillig väntetid för förstakalvare. Part 2: Individanpassad FVT - Metadata och R-script med statistiska beräkningar [Dataset]. Sveriges lantbruksuniversitet. <http://hdl.handle.net/20.500.12703/5377>

Yes, there are restrictions according agreements with farm owners and Växa:

We have user-agreements with all farm owners and Växa on how the information will be handled in the project, that the data may not be published openly but that SLU have to comply with legal requirements regarding archivation of data.

6.2 How will data for preservation be selected, and where will data be preserved long-term (e.g., a data repository or archive)?

The metadata will be published in SND at publication of the related article.

Metadata and data will be archived (with restrictions) in SLU's eArchive with the help of SLU's unit for archive and the institutions person in charge for archiving.

6.3 What methods/systems, software tools, source code or other types of services are needed to understand, access, and use the data?

No specific systems/software is needed to access (i.e., open and read the files) and reuse the data. The file formats are: Word, Excel, Text, R scripts and PDF.

6.4 Will a unique and persistent identifier (such as a Digital Object Identifier [DOI]) to each data set be pursued?

- Yes

Since the original data can not be openly published due to restrictions with the principle owner of the data there is no DOI to that, though there is a DOI to the SND metadata which contain a handle to the digital archive of SLU.

Handle: <https://hdl.handle.net/20.500.12703/3995>

7. Data Management Responsibilities and Resources

7.1 Who (e.g., role, position, and institution) will be responsible for data management?

Anna Edvardsson Rasmussen, anna.edvardsson.rasmussen@slu.se, SLU, <https://orcid.org/0000-0003-3026-9847>

7.2 Do agreements/contracts exist?

- Yes

Agreements with Växa Sverige, Eurofins (lab analysis of milk spectra and milk fatty acids in dataset

3), and with all farm owners participating in the study. All agreements are archived.

7.3 What resources (e.g., costs and time) will be dedicated to data management?

Time to create a DMP, time to store, organize and share data.

7.4 What resources (e.g., costs and time) will be dedicated to ensuring that data will be FAIR (Findable, Accessible, Interoperable, Reusable)?

Time to create a DMP, time to store, organize and share data.