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Data Article

# Data on 2341 grass fields from 100 mountain-area dairy farms in France: Agricultural uses and geographical characteristics



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## ABSTRACT

This article reports data collected by survey from 100 dairy farmers located in a mountainous area (France), including 72 farmers engaged in the traditional Salers system and 28 farmers engaged in a specialised dairy system. The questionnaire covered all uses of all grass fields during the entire outdoor period, considering 'field' as an area that was used in the same way throughout the entire period. Cutting dates, grazing dates, animal categories and numbers were recorded using a grazing and harvesting schedule. We also recorded key geographical and physical characteristics of each field, i.e. main slope, altitude, area, and distance from the farmstead. Each field in the presented database is thus described by 47 quantitative and qualitative variables.

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## Specifications Table

Subject	Agricultural sciences
Specific subject area	The data provides general information on mountain-area dairy farms and on the agricultural uses and geographical characteristics of grass fields throughout the grazing period.
Type of data	Table (Excel)
How the data were acquired	Farmers were surveyed by questionnaire (see Supplementary files for the original French version and the translated English-language version)
Data format	Raw analysed
Description of data collection	We collected the data through a direct survey of 72 farmers engaged in the traditional Salers system in 2005 and 28 farmers engaged in a specialised dairy system in 2009. Both survey questionnaires were designed to collect the same information (see Supplementary files for the original French version and the translated English-language version).
Data source location	The Cantal department and the Puy-de-Dôme department, both geographically in the Massif central and administratively in the Auvergne-Rhône-Alpes region, France
Data accessibility	With this article or Repository name: Entrepôt-Catalogue Recherche Data Gouv <a href="https://entrepot.recherche.data.gouv.fr">https://entrepot.recherche.data.gouv.fr</a> Data identification number: UNF:6:9SfvzKKg+G5nvaYsUR1DcA== UNF:6:ivCD3ovFveQQFkgtsE63A== UNF:6:uvujuSeGNqQ4EY2qfYarzQ== Direct URL to data: <a href="https://entrepot.recherche.data.gouv.fr/privateurl.xhtml?token=85df93a5-a7ec-4d2b-94b5-8dc4fb8ac007">https://entrepot.recherche.data.gouv.fr/privateurl.xhtml?token=85df93a5-a7ec-4d2b-94b5-8dc4fb8ac007</a>
Related research article	[1] C. Sibra, G. Brunschwig, 2021. Generic relationships between field uses and their geographical characteristics in mountain-area dairy cattle farms. <i>Agriculture</i> , 11 (10), 915. <a href="https://doi.org/10.3390/agriculture11100915">https://doi.org/10.3390/agriculture11100915</a>

## Value of the Data

- The data shows the on-farm reality, including all the grass fields used by the farmers over the entire length of the grazing period.
- The data is unusual as it corresponds to a large number of farms and fields and provides a comprehensive picture of grass fields used by mountain-area dairy farms.
- The data can usefully serve to relate grass field uses to their geographical characteristics in dairy and mixed-system (dairy and suckler) farms.
- The data could serve as a reference for comparison with data of the same type in other areas or other farming systems.
- The data can usefully serve researchers analysing how farmers manage their forage system in mountainous grassland areas and how they adapt grass field uses and strategies to different contexts or different purposes.
- The data can usefully serve researchers who analyse farming systems located in the Massif central (or other wet mountain areas) as it can supplement existing datasets that are smaller or less comprehensive.

## 1. Objective

Mountain farmers have to manage field patterns where slope, altitude and the harshness of the climate are added to other possible constraints (size, fragmentation, dispersion, and more). Mountain farming systems (especially dairy systems) are highly dependant on grass growth,

which requires careful management of grazing and harvesting, mainly if non-local fodder supply is prohibited (e.g. PDO cheese area). The enlargement of the field patterns and the recurrent climatic hazards (particularly droughts) make grass management even more complex. In this context, it is useful to have information on how mountain farmers use their fields, as well as information on the characteristics (geographical and physical) of the fields. The database gathers a large amount of on-farm data collected from the farmers themselves. It is exhaustive for each farm, as all the fields used are considered and all their uses are described throughout the entire outdoor grazing season, which is rare, given the time and resources needed to carry out this type of survey. The objective is to share this database in order to provide opportunities for researchers working on the functioning of grassland farms, with an agronomic and/or geographical approach, or an approach focusing on farmers' strategies for managing grassland fields.

## 2. Data Description

The dataset is distributed between three files:

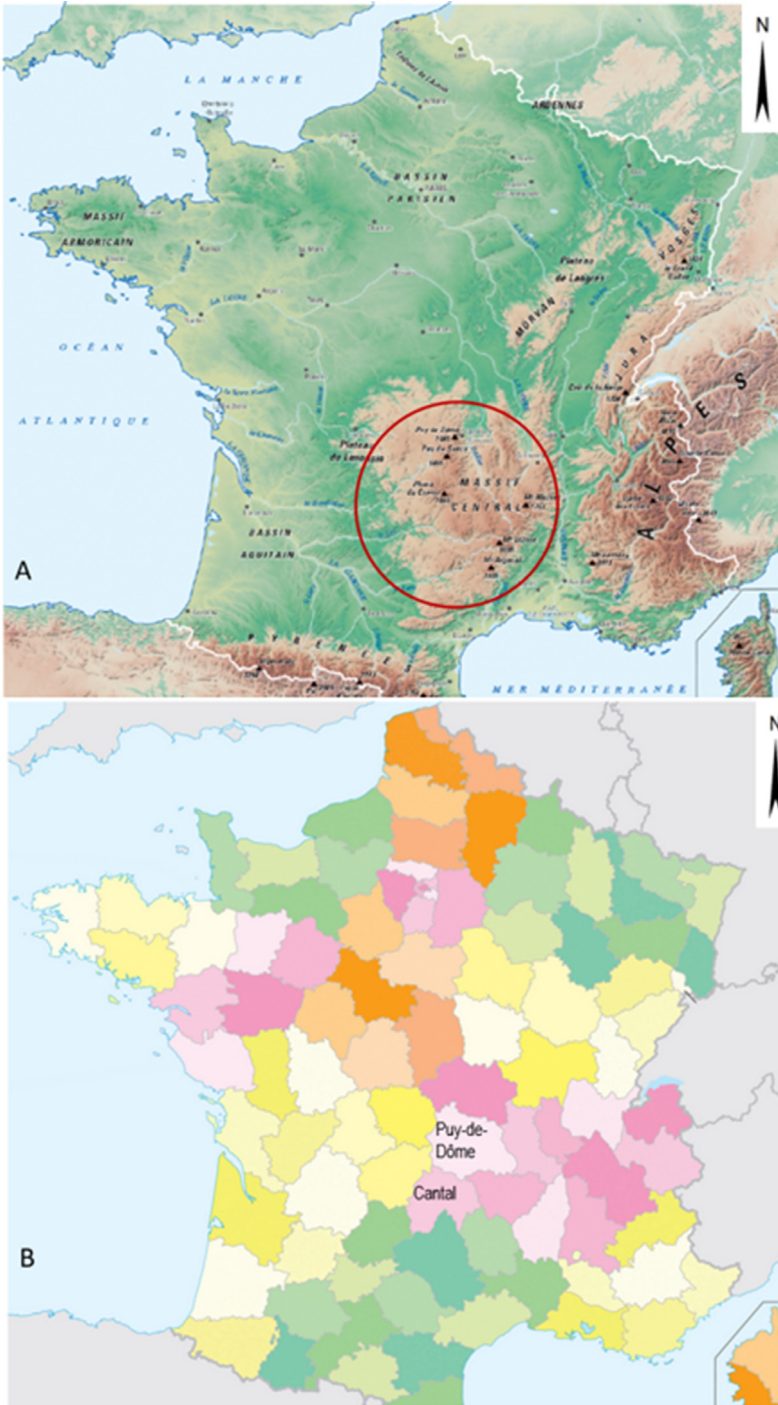
- The first file (named *Sibra\_Brunschwig\_Data\_Dictionnaire\_20230324.tab*) presents the definitions of all 76 variables produced from the farm surveys.
- The second file (named *Sibra\_Brunschwig\_Farm\_Data\_20230324.tab*) presents the data on the 100 farms (29 variables), where each line corresponds to a separate farm.
- The third file (named *Sibra\_Brunschwig\_Field\_Data\_20230324.tab*) presents the data on the 2341 grass fields, where each line corresponds to a single field within a farm. The variables concern first the geographical and physical characteristics of the field (9 variables, columns C to K), and then the uses of that field (33 variables, columns L to AR) and finally the on-field fertilisation practices (5 variables, columns AS to AW).

Datapoints that could not be collected from the farms are noted "md" for "missing data". Datapoints that are not applicable are noted "na"; for example, grazing data for cut-only fields, or dairy cow forage data for fields not used by this animal category.

## 3. Experimental Design, Materials and Methods

The data comes from two survey campaigns led in 2005 and in 2009. The farmers were surveyed via questionnaire by two interviewers in a single visit. All the farms were located in the mountainous Massif central area of south-central France (Auvergne-Rhône-Alpes region, Cantal and Puy-de-Dôme departments; see [Fig. 1](#)) and had a very large proportion of their area (94% on average) under permanent grassland.

The first campaign surveyed 72 volunteer breeders engaged in the traditional Salers breed system, out of the total 90 breeders who were members of the 'Association Tradition Salers' [2]. This traditional farming system is specific in that it allows for the simultaneous production of milk and weanling calves. The Salers' cows are milked throughout their lactation or they become suckler cows after a few months of milking, and they need to be beside their calf to start milking [3]. The questionnaire gathered general farm-level information, mainly on areas, harvesting and herd management, using a specific scheme [4] to chronologically follow the management practices for all animal groups over the course of one year. The questionnaire also captured detailed information at grass-field level ( $n = 1586$ ) to precisely describe all the field uses from turn-out to pasture in spring until return to stall in the autumn (dates of cuts, dates of moving in and out of the field, type and number of animals), using a grazing and harvesting schedule. In addition, for each grass field, the farmers indicated its key geographical characteristics (area, distance from the farmstead, slope, altitude) and some physical characteristics (mechanizability, for example). We qualified the degree of slope according to the farmers' own perception. Field areas and distances from the farmstead were validated using aerial photographs and Common Agricultural Policy documents.



Scale 1 : 5 400 000 - Source: IGN 2016 Open licence <https://www.ign.fr/institut/ressources-pedagogiques>

**Fig. 1.** (A) Location of the Massif central in France, and (B) location of the Cantal and Puy-de-Dôme departments in France.

The value in livestock unit defined for each animal category was adapted from the EU system by expert knowledge (G. Liénard, Laboratoire d'Économie de l'Élevage, INRA, personal communication). The theoretical date of the beginning of ear emergence was calculated for each field using a specific reference adapted for the Massif central grasslands [5]. The location of each farm was characterized by a type of pedo-climatic area, according to the frame of reference for the Massif central [6].

We defined a field as an area used in the same way throughout the focal outdoor season. Consequently, the fields considered here could either match to those identified in the land register or to their subdivisions or aggregations. The survey covered every grass field used in each farm.

The second survey campaign involved 28 specialised dairy breeders recruited by the Puy-de-Dôme milk control authority [7]. The questionnaire used was designed to collect the same data on farms and on grass fields ( $n = 755$ ) as in 2005, working to the same definition of 'field'.

The database published in this data paper results from aggregation of the data collected in 2005 and 2009, thus providing data on a total of 100 mountain-area specialised dairy farms or mixed (dairy and suckler) system farms, and 2341 grass fields. Both survey questionnaires (the original French version and a translated English version) are available in Supplementary material, together with specific tables and schemes for collecting farm-level and field-level data.

## Ethics Statements

We anonymized all data collected on the farms after the surveys, which were carried out with voluntary breeders. The survey protocol used did not modify the conditions under which the animals were raised. No ethical approval was required.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data Availability

[Data on 2341 grass fields from 100 mountain-area dairy farms in France: agricultural uses and geographical characteristics. \(Original data\) \(Dataverse\).](#)

## CRedit Author Statement

**Cécile Sibra:** Supervision, Methodology, Data curation, Writing – original draft, Writing – review & editing, Validation; **Gilles Brunschwig:** Supervision, Methodology, Data curation, Writing – review & editing, Validation.

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## Supplementary Materials

Supplementary material associated with this article can be found, in the online version, at doi:[10.1016/j.dib.2023.109242](https://doi.org/10.1016/j.dib.2023.109242).

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