



Event	Montreal (CA), ICAR 2022 Annual Conference	Title of the presentation
Subject	Abstract presented manuscript as ORAL presentation	LEO: A National-wise open big-data facility on livestock.
Presenter:	Riccardo Negrini, Associazione Italiana Allevatori (A.I.A.), Italy E-mail: negrini.r@aia.it	

Session: Artificial intelligence for adding value (to be confirmed)

Authors: Riccardo Negrini

Title of the presentation: LEO: A National-wise open big-data facility on livestock.

ABSTRACT

LEO (Livestock Environment Opendata; URL: www.leo-italy.eu) is the Opendata Platform for Animal husbandry merging existing and novel information on Italian livestock population.

The recently released beta version, up to now, contains more than 2,5 billion of Linked Open Data freely usable and distributed, following a set of design principles for sharing machine-readable interlinked data on the Web.

The overall six-year project aims to enhance knowledge and helps overcome future challenges of livestock production as the sustainable use of resources, climate changes, food safety, and biodiversity protection.

LEO involves more than 18,000 livestock farms representing 4,5 million animals belonging to 109 breeds, of which 103 local and autochthonous.

Leo open database allows two modes of data sharing: a direct download of preconfigured and easy-to-use datasets in Json and csv format or the querying of the source using a unique query language (SPARQL).

Data are categorized into five clusters: laboratory data that include about 40 parameters on milk quality, reproductive and productive field data collected routinely on a single individual, data from Precision Livestock devices (e.g.s ruminometers, activometers, milking robots etc.), health and welfare data, and climate data. The climate data includes two large datasets: the Atmospheric global coverage model ECMWF with a spatial resolution of 0.1 x 0.1 degree (9 square Km), and the forecasting weather model COSMO-IT with a spatial resolution 0.025 x 0.025 (2.5 square km).

Furthermore, the available open data in LEO is constantly enriched by the applicative cooperation of several running national databases like BDN (National livestock database) and Si@alleva (DHI National database). A steady refresh of the Ontology grants the updated description of the data domain of interest and the complete navigability of the environment. The project is coordinated by the Italian Breeding Association (A.I.A.) supported by a multidisciplinary partnership ranging from Universities, Veterinary Departments, and computer engineers.



**THE GLOBAL STANDARD
FOR LIVESTOCK DATA**



**THE GLOBAL STANDARD
FOR LIVESTOCK DATA**