



Gaiaweb: a new tool for the collection of FADN/FSDN data in Italy

S.Cafarelli, A.Giampaolo, M.Martino, S.Marongiu

CREA Policy and Bioeconomics - Via Barberini, 36 – 00187 Roma

Graphics: **A. Di Cesare**



CONTENTS



- **General overview about GAIA.**
- **Why the transition from GAIA to GAIASWeb?**
- **Technical features of GAIASWeb.**
- **GAIA: what's left and what has been improved?**
- **The benefits of a web application.**
- **Users profiles.**
- **GAIASWeb in the new framework of FSDN.**



GENERAL OVERVIEW ABOUT GAIA



The software GAIA has been presented to the Pacioli community in 2009 (XVII workshop in Ettenhausen), 15 years ago! (CREA was named INEA). GAIA has been developed as an accounting tool for FADN but also for agricultural holdings. During the time GAIA has evolved into

- Information-technology tool (software).
- A support system for farms and data collectors.
- An accounting methodology (double-entry bookkeeping and coherence between the national and international accounting rules).

CONTINEA (since 1992) --> GAIA (since 2008) --> GAIAWeb

- Multiple window user interface.
- Compatibility with Windows environment.
- Hierarchic structure of the menu (horizontal and vertical).
- Availability of report and files (outputs; *.pdf, *.doc, *.txt).

PACIOLI – XVII Workshop
Innovation in the management and use of microeconomic
databases in Agriculture
Ettenhausen (Switzerland)
7-10 June 2009

**Innovation in the Italian FADN/RICA
survey system approach:
the new software GAIA and its implication on
the Italian agricultural accounting system**

Antonella Bodini
Sonia Marongiu
INEA – National Institute of Agricultural Economics

bodini@inea.it
marongiu@inea.it

INEA

PACIOLI

ricca



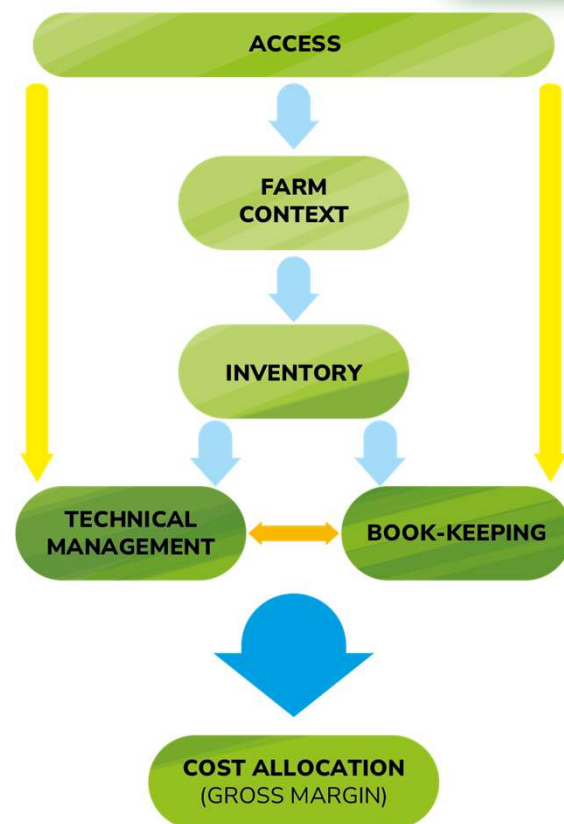
GENERAL OVERVIEW ABOUT GAIA

Logical sequence of data entering:

- Farm context.
- Opening stocks.
- Technical management.
- Accountancy management (book-keeping by double-entry).
- Closing procedures.

Innovative elements of GAIA

- Labour (hired and family work).
- Off-farm activities.
- Gross margin by production process and allocation of specific costs.
- Indicators of income (ROE, ROI, ROS, etc.).
- Different schemes of the Financial Statement Schemes (Civil Law and IV European Directive).
- Access to the data.
- Integration between technical and accounting information.





GENERAL OVERVIEW ABOUT GAIA

GAIA is one piece of the Italian FADN cloud that is a complex system including a long list of applications aimed to:

- manage efficiently the FADN system (from farm classification to data dissemination).
- Improve the accounting practices.
- Disseminate the results.
- Run the data quality control.
- Answer new information needs.





FROM GAIA TO GAIANet, WHY?



GAIA has served the Italian FADN since 2009 (with the collaboration of the entire staff of FADN). Some years ago, the need to improve/update the software has led the staff to design a new tool, GAIANet on the basis of these considerations:

- The outdated computer technology, not supported by the recent Microsoft upgrades of GAIA.
- The changes in agriculture (precision farming, Farm to Fork strategy, innovations, etc.) that raised new information needs.
- The increasing importance of environmental concerns in FADN.
- The alignment with the new structure of FSDN.
- The complexity in the management of the Italian FADN (21 regions and 800 data collectors) that requires a tool like GAIANet to improve the functionality of the survey at national level.



TECHNOLOGICAL FEATURES

GAIAWeb is a web application, operating on the most recent computer technologies:

- Programming language: Microsoft ASP.NET.
- Database: relational database Microsoft SQL.
- Reports: dynamic reports designed with MS PowerBi.

As GAIA, also GAIAWeb has been designed to meet several needs: the tool is used by FADN data collectors but also by other users (advisors, agronomists, farm outside the FADN sample, etc.).

The application is scalable on more server and this makes it more flexible and user-friendly.



GAIA: WHAT'S LEFT?



GAIAWeb maintains several features of GAIA:

- The double-entry accounting principle (every entry to an account requires a corresponding and opposite entry to a different account).
- The management of farm livestock (breeding and fattening animals) .
- The management of stocks (divided in crops, livestock and technical products).
- The depreciation of all the farm assets (excluding land) done on the basis of the financial depreciation.
- The calculation of the gross margin at production process level.
- The extra-accounting section remains as an important source of information about farm management (integration between the two aspects).
- Financial statement: the scheme is maintained (aligned with national and international accounting rules).



WHAT HAS BEEN IMPROVED?



Regarding the improvements of GAIAWeb, the most important points are:

- Redesigning the user-interface on the basis of the most common web standards.
- Simplification and optimisation of the data entry.
- Contextualization of the accounting survey in the extra-accounting masks.
- New organization of the information logic by "topic" (all the information related to a specific topics are provided by a unique mask, specific for that topic).

Fattening and breeding animals managed on the same mask

OVINI

Fattening Animals

Copy CSV Print

Animal Category	Initial Inventory		Born	Dead	Transf.	Purchased		Sales		Self Consumption		Cat. Passes		Final inventory		Given trust	Medium Cons.
	No.	Val.				No.	Val.	No.	Val.	No.	Val.	Exits	Incoming	No.	Val.		
Agnelli da latte		\$0	2			20	\$2,400					2		20	\$6,000		20.00
Agnelle da riproduzione		\$0		1	1	23	\$4,450	6	\$1,000			8	2	6	\$1,200		18.00
Altri ovini da macello		\$0				10	\$100							10	\$100		10.00

Showing 1 to 3 of 3 entries

Previous 1

Breeding Animals

Copy CSV Print

Animal Category	Group Name	Year	Init. Inv.	Start of Career	Group creation			Dead	Transf.	Exit from Accounting		Final inventory		Given trust	Medium Cons.
					Accounting	Int. Return	Group Val.			No.	Val.	No.	Val.		
Pecora da riproduzione	Pecos	2023			15		\$2,250					15	\$1,500		15.00
Pecora da riproduzione	azz	2023				5	\$100					5	\$100		0.00

Showing 1 to 2 of 2 entries

Previous 1

Livestock fostered / to agistment

Copy CSV Print

Animal Category	Animals Management Type	Medium Consistency	No. of Cycles
No data available in table			

Unpaid labour, Paid labour and Temporary workers managed in the same mask

IDAzienda=693 and IDAziendaAnno=67 ROSSI CARLO Torignano | Year: 2023 | State Farm Gaia: I

JOB

Unpaid Labor

Copy CSV Print

Name	Company Head	Conductor	Year of Birth	Kinship type	Job Qualification	Total Hours	Work In Company (%)
GGGGG	<input type="checkbox"/>	<input type="checkbox"/>	1960	Coniuge	Operaio - Comune	900	100
LUCA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1968	(non indicato)	Non lavora in azienda	0	100
LUCA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1968	Altro parente	Non lavora in azienda	2000	100
LUCA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1968	(non indicato)	Imprenditore	2000	100

Showing 1 to 4 of 4 entries

Previous 1

Paid Labor

Copy CSV Print

Name	Company Head	Year of Birth	Type of Paid Labor	Job Qualification	Total Hours	Work In Company (%)
1	<input type="checkbox"/>	1980	A tempo indeterminato	Operaio - Comune	2000	100

Showing 1 to 1 of 1 entries

Previous 1

Temporary Workers

Copy CSV Print

Temporary Labour Group	Job Qualification	Work Activity	Number of People Employed	Number of Women Employed	Total Group Hours
No data available in table					

Showing 0 to 0 of 0 entries

Previous

Service Outsourcing

Copy CSV Print



THE BENEFITS OF A WEB APPLICATION



Structuring a web application for FADN data collection has several opportunities and benefits:

- Constant monitoring of the data collection activities of all the surveyors.
- Promptness in the software upgrades releases and check.
- Simplification in the activities of technical assistance.
- Easier access for the data collectors (via web, not necessarily having a specific hardware uploaded on their computer).
- Dynamic and updated reports.
- Unique Database.
- Historicized data between different accounting years (continuity).
- Interoperability with external sources.

The interoperability between different sources is one of the most important characteristics of an efficient database. GAIASWeb is conceived as a unique database and this makes possible the interaction with external data sources (for instance, the databases of the Payment Agencies, etc.) to acquire the data (important for those information already collected or difficult to collect directly on the farm). Moreover, it will be easier to provide data for the users (for several purposes).

A high level of interoperability is a good opportunity to make the survey less burdensome for farms and data collectors.



USERS PROFILES

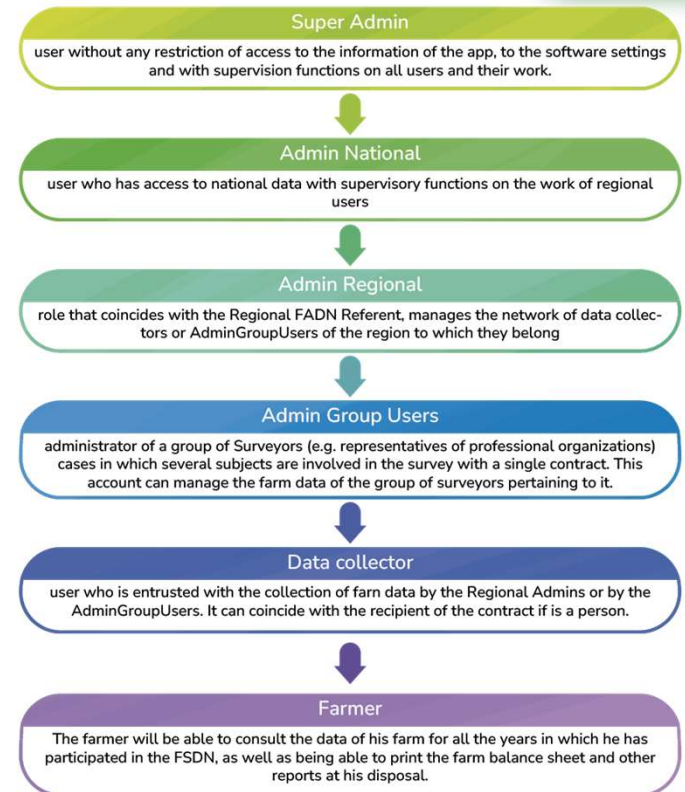
Differently from GAIA, GAIWeb is an application managed in a centralized way. This results in several access restrictions depending by the user.

The SuperAdmin is the high-level user, he is the supervisor of the whole system, the responsible for the software setting and has complete access to the software (no restrictions).

The farmer is the lower-level user, having access only to his/her own farm.

The configuration of users reflects the flow of FADN data collection in Italy where several subjects are involved: farms, data collectors, regional FADN users, national FADN users.

The data entry/quality check is always a responsibility of a single user: it is not possible to have two users working contemporarily on the same farm (no conflicts in the data entry).





GAIAweb IN THE NEW FRAMEWORK OF FSDN



The design of GAIAWeb started some years ago, when the transition from FADN to FSDN was not foreseen. The new variables added in FSDN will have an impact on the general system design, not only in terms of data entry but also in the quality control procedures and in the final output of the software.

More specifically:

- The ETL procedures for the Farm Report must be re-written and finalized.
- A new Database FSDN can be realized, with restriction in the access (as now for GAIA) but with a wide set of dynamic reports (PowerBI).
- A new tool to check the quality of data must be implemented for the new variables introduced in FSDN.
- A new area for the public data dissemination must be realised.
- A more complex data entry will require a specific training for the FSDN staff (data collectors and regional responsible) to align the capacity to the increased demand of FSDN.
- Incentive for farmers to participate in the FSDN: the feedback to the farmer and the benchmarking system is one of the most complete and complex among the Member States. However, the informative contents must be updated with the new aspects of the survey (environmental and social).



GAIWeb TEAMS

GAIWeb is the result of a coordinated work carried out by several groups



Software development

- Stefano Cafarelli
- Domenico Marulli



Methodology

- Luca Turchetti
- Nadia Gastaldin
- Luca Roffi
- Alessandro Bianchi



Quality check (test)

- Cristina Pilan
- Tiziana Prandi



FADN Coordination

- Luca Cesaro
- Antonio Giampaolo
- Matteo Martino
- Sonia Marongiu
- Alfonso Scardera



Reports and documents

- Federica Floris
- Stefano Palumbo
- Antonella Bodini
- Barbara Bimbati
- Andrea Di Cesare



Thank you for your attention