

# International Symposium IUFRO – Viterbo, 19-21 May 2011

## Multiple Forest Outputs: Silviculture, Accounting and Managerial Economics



### **RICA-FOR: a pilot project to extend FADN accounting system to forestry sector in Veneto region**

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# Objectives

Differently from other European Member States and from the agricultural sector, in Italy does not exist a forestry accounting network to collect income and economic information about forestry enterprises.

This lack has different consequences:

1. Fragmentary knowledge about costs, revenues and income situation of forestry farms
2. Difficulties in the implementation of some policies
3. Scarce quality of economic evaluation results (i.e. impact evaluation of rural development policies)

To fill this gap INEA (responsible for Italian FADN survey) started with a project applying FADN scheme to forest sector:

***Milestone: MOSEFA (Monitoring the Socio-Economic Situation of European Farm Forestry), FAIR (1997)***

***Coordinated by EFI***

## Objectives

**to extend the FADN survey to forestry sector  
to evaluate rural development measures**

Agenda 2000 → EU finance forestry sector

Forest related policies designed for:

- Forestry and Agro-forestry Farms
- Logging enterprises

Regional administrations

→ increasing demand for economical data over the forestry sector

National Institute for Agricultural Economics (INEA) and Italian National Rural Network (FADN)

→ **policy impact evaluation tools**

## **1st Work -Phase**

Literature review: analysis of publications and other European experiences.  
New forestry accounting principles (IAS/IFRS 41)

## **2nd Work -Phase**

Analysis of GAIA software used to collect agricultural data for Italian FADN:  
how to adapt it to meet the requirements of a forestry accounting scheme?

## **3rd Work -Phase**

Analysis of statistics (national and regional) and creating the sample

## **4th Work -Phase**

Field survey (in progress)

# 1st Phase: theoretical framework

## Italian works and analysis:

- Merlo, Campedel, Frison
- Cost Analysis made in Tuscia University (Carbone, Venzi)

## Other references


- Jobstl, *Contributions to Managerial Economics in Forestry*. 1995
- Openshaw, *Cost and financial accounting in forestry*, 1980
- IUFRO: *harmonization of forestry accounting systems*

## IAS/IFRS 41

- Argilés, Slof (as concern IAS 41)
- Herbohn, *International accounting standard 41: what implications for reporting forest assets?*, 2006
- Penttinen, Rantala, *The International Financial Reporting Standards (IFRS) accounting system as applied to forestry*, 2008

## Forestry accounting notes

### Methodological aspects of the forestry FADN application (RICA-for)

- 
- Description of the problem and literature review
  - Evaluation and computation of capital timber value and variations
  - Accounting registration and computation of some kind of multi-annual costs

Particular aspects:

- Organization of accounting procedures with respect to IAS/IFRS principles
- Application of accrual method for some cost and revenue items.

## 2nd phase: how to adapt GAIA to forestry accounting

### **GAIA = new accounting methodology for FADN (2008)**

30 types of accounting records, divided into 80 types of accounting transactions

280 accounts moved directly by user

300 types of agricultural machinery and equipment

70 types of farm buildings

380 crop species and 6800 cultivars

60 animal species (terrestrial and aquatic) and 100 breeds

54 types of plant products (primary and secondary)

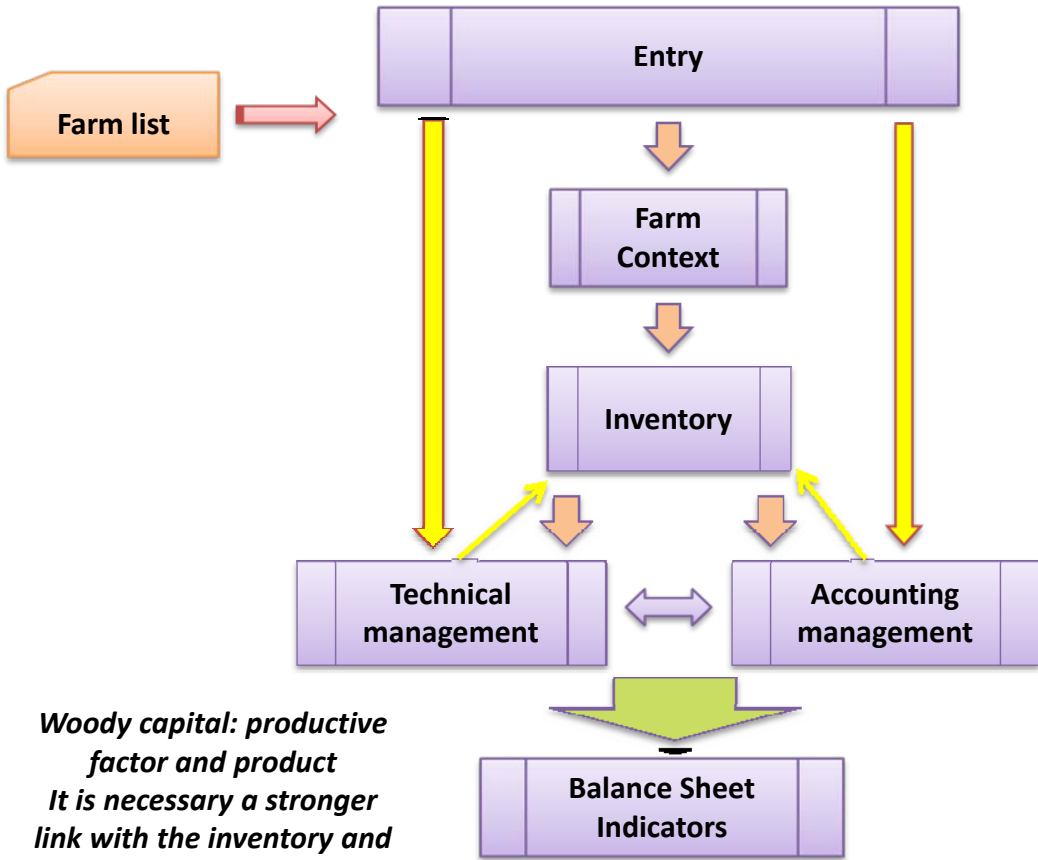
35 types of animal products (primary and secondary)

110 categories of technical inputs

400 types of government grants and 100 types of management aids

- **Development Tools**
  - MS Visual Basic 6, for basic module
  - MS Visual Studio .NET, procedures for files management, cost allocation process, quality control, advanced data extraction
  - B.O. Crystal Report XI, reporting
  - ComponentOne, for additional modules
- **Database**
  - MS SQL Server 2005/2008: express version for end users, the standard version for regional offices and national database
- **Website**
  - Dreamweaver: website of GAIA
  - PHP – MySQL: website of Italian FADN

# GAIA structure (I)



*Woody capital: productive factor and product  
It is necessary a stronger link with the inventory and the stock accounts*

|  |
|--|
| <b>Inventory</b>   |
| <u>Arboriculture</u> (bare soil separated)<br><u>Semi-natural forests</u> (a single value for stand and bare soil) |

|   |
|---|
| <b>Technical manag. ↔ Accounting manag.</b>   |
| The increase of value due to the <u>annual growth</u> of wood volume is computed every year with a book keeping entry linked to the technical management mask (that take into account the stock).<br>The <u>increase in the woody capital value</u> (changes in the stumpage price) is computed in the accounting management mask |
| IAS 41 biological transformation<br>+<br>Assets revaluation   |
| <b>FAIR VALUE</b>   |

*Hyder et al. (1999) These changes can modify the balance sheet results  
Net profit (loss) of enterprise  
Change in forest value (+/-)  
Calculated profit (loss) of the enterprise*



# GAIA structure (II)

**Inventory:** woody capital value (stocks)

**Every year:**

Annual growth of wood → Woody capital value increase

Provision of increase in value of woody capital

*(Profit and Loss account – right side of the T account)*

**If necessary:**

Increase (decrease) in the economic value → Woody capital increase (decrease)

Revaluation surplus: Revaluation of woody capital (Revaluation reserve)

Revaluation deficit: as a loss in the Profit and Loss Account

**In case of logging:**

**Selling price versus Woody capital value**

→ Capital loss (selling price < woody capital value)

→ Capital gains (selling price > woody capital value)

As concern subsidies, in GAIA it is possible to compute them as

- Capital revenues
- Revenues grants

## 3rd phase: Creating the sample (I)

The survey starts with two kind of information:

1. Accounting data (following GAIA farm return scheme)
2. Information about the application of measure 122 *Improving the economic value of forests* of Rural Development Plan (the same scheme of 2000-2006 ex post evaluation)

### Three actions in Veneto region

1. Road construction and maintenance
2. Improvement of the forests
3. Investment for the first timber processing phases

## 3rd phase: Creating the sample (II)

A first problem in the survey starting phase has been how to define the sample.

The problem could be solved looking to national or regional databases:

At a national level:

1. National Agricultural Census
2. Farm Structure Survey (FSS): it collects forestry and agro-forestry farms.
3. RICA/FADN survey: it collects only agro-forestry farms

At a regional level

Regional administrative databases

For instance: in Veneto Region the database GUF (Gestione ed Utilizzazione Forestale) that collect information about forestry farms and logging enterprise.

# About National and European databases...

ISTAT Agricultural Census: in 2000 also pure forestry farms has been collected. The Census of 2010 has excluded the farms without UAA. As a consequence there are not information about pure forestry farms.

ISTAT Agricultural Census:

- In 2000 also pure forestry farms have been recorded
- In 2010 the Census excludes the farms without UAA as a consequence there are not informations about pure forestry farms.

This is due to the harmonization with other European surveys and in particular with FSS (see CE Reg. 1166/2008 about FSS and other surveys concerning agricultural production methods).

## **FADN and FSS survey:**

- there is not a Farm Type (FT) related to forestry production
- there is not at European Union a definition of Gross Standard Margin for forests
- there is not a common procedure to compute the forest assets

# Case study: Veneto Region



# Definition of the unit of analysis and sample size (I)

Unit of Analysis  
Definition

Type of Operator  
Threshold

Regional  
Data source

Number of  
units

A technical-economic unit which carries on forestry or forest related activities

- a. To grow standing trees (semi-natural forest and industrial forestry)
- b. to transform standing trees into raw materials (logging)
- c. both activities

**FORESTRY FARM**  
Forest land propriety

25  
mc/year

Administrative Dataset (GUF) of the authorization for logging operations

500 Forestry farms  
~ 90 Public proprieties  
~ 160 with Management Plan  
~ 90 with Rearrangement Plan

**LOGGING ENTERPRISE**  
Not propriety

No  
thresholds

Professional register of logging enterprises

~ 350 Logging enterprises

Payment agency (AVEPA)  
database (list of beneficiaries of measure 122 RDP)

## Definition of the unit of analysis and sample size (I)

The sample for Veneto Region has been defined comparing the GUF database with AVEPA database and applying a simple formula to calculate the average sample number for each category

|                     | Legal form                | Beneficiaries | Not beneficiaries |
|---------------------|---------------------------|---------------|-------------------|
| Forestry farms      | Private (> 25 mc)         | 40            | 115               |
|                     | Collective forestry farms | 15            | 37                |
|                     | Municipalities            | 9             | 93                |
| Logging enterprises |                           | 57            | 327               |
| Total               |                           | 121           | 572               |



$$n_s = 1.5 \sqrt{N_s}$$

|                     | Legal form                | Beneficiaries | Not beneficiaries |
|---------------------|---------------------------|---------------|-------------------|
| Forestry farms      | Private (> 25 mc)         | 10            | 17                |
|                     | Collective forestry farms | 6             | 10                |
|                     | Municipalities            | 5             | 15                |
| Logging enterprises |                           | 12            | 28                |
| Total               |                           | 33            | 70                |

# Field survey (in progress)

1. We are analyzing the firsts balance sheet to understand what are the most important items and how to allocate general cost in public and collective forestry farms;
2. How to include in GAIA the annual increase of value (growth and relevant stumpage price changes)?
3. How to consider agro-forestry farms?
4. What are the indicators useful to evaluate the impact do to the Rural Development measures?
5. It is not easy to implement a forestry accounting scheme at a national level because of the lack in the sources of information about the universe
6. There is a difficulties in collecting the direct and specific costs due to the lack of book keeping practice in forestry farms. Small farms maybe will be excluded. For logging enterprises, thing are easier.
7. Maybe the first results will presented in the next Congress in Rome.



## *Present and future role of forest resources in the socio-economic development of rural areas*

- 1) Forests, conservation of biodiversity, landscape protection and public services
- 2) Forests, agroforestry and bioenergies
- 3) Strategies for mitigation of and adaptation to climate change
- 4) Competitiveness of the forest production sector: wood&non-wood products, supply chains and strategies for a forest-based local governance

[www.reterurale.it/romaforest2011](http://www.reterurale.it/romaforest2011)

