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PACIOLI 4

Project proposals for innovation

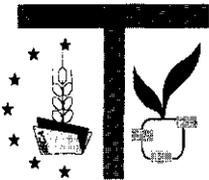
Workshop report

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Agricultural Economics Research Institute (LEI-DLO)

ABSTRACT

PACIOLI 4; PROJECT PROPOSALS FOR INNOVATION; WORKSHOP REPORT

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The PACIOLI project is a concerted action for the EC consisting of four workshops; the first workshop Farm accounting and information management was held in March 1995, the second workshop Accounting and managing innovation was held in September 1995, the third workshop Need for change was held in March 1996 and the last workshop was held in October 1996 in Parma, Italy. The objective of PACIOLI is to explore the needs for and feasibility of projects on the innovation in farm accounting and its consequences for the data-gathering with Farm Accountancy Data Networks (FADN).

The last step towards innovation was to work out the project indications, which were formed during the third workshop, into project proposals. These project proposals will be used in the EU Member States to innovate the FADNs. With this last step the platform of PACIOLI is really prepared for actual innovation. This workshop report documents the discussion in the creation of the project proposals. Special attention is given to the methods used to foster integration and quality in group work.

Accountancy/Innovation/FADN/Monitoring system/CAP reform

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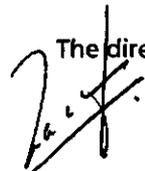
PREFACE

The changing conditions in agriculture during the last years have brought fundamental changes in agricultural decision making on the farm level but certainly also in agricultural policy making. Since decision-making processes determine the information requirements, it is clear that the activities that supply the necessary information should be adapted to a new situation too.

LEI-DLO as an institute that tries to fulfill the information needs of (Dutch) agriculture policy makers is also confronted with this changing environment. During the last five years serious changes in types of data that are gathered and in the data gathering process have taken place. In this respect we are very pleased to be able to discuss with colleagues throughout the EU, our process of change, the issues at stake and the ideas for future directions in the further development of our farm accountancy data network.

We hope that by sharing ideas and extensive collaboration, the FADNs will be able to generate the information that is required by our clients, in the near future as well as on the longer run. We are very much aware that this ambition will confront us with the need for major changes in our activities. We hope that the PACIOLI project will help us and our FADN colleagues to make a major step in the good direction. The fact that the PACIOLI-participants asked us to organize PACIOLI 5 shows that our colleagues share this feeling with us.

This workshop report follows the PACIOLI 4 workshop organized in Soragna (near Parma, Italy) from September 29-October 2, 1996. We are indebted to the Italian partners, and especially mr. Filippo Arfini, for the excellent local organizing activities. These contributed to a very positive atmosphere in the workshop and the good collaboration between the participants.

The director,


The Hague, September 1997

L.C. Zachariasse

SUMMARY

PACIOLI is a concerted action in the FAIR programme (AIR 3-CT94-2456) to explore the needs for and feasibility of projects on the innovation in farm accounting and farm accountancy data networks. This report documents the fourth workshop, organized in October 1996 in Soragna (near Parma), Italy. This workshop was the last one of the four workshops organized with the funding of the FAIR programme. The participants decided to keep the network in tact and to organize PACIOLI 5 in spring 1997 in Sweden.

In the 4th PACIOLI workshop the project indications of PACIOLI 3 had to be turned into project proposals. A number of hurdles had to be tackled. This included the orientation on stakeholder objectives, the links between budget winning projects with new products and investment projects in the FADN infrastructure itself, and creating support for projects that have a considerable effect on the FADNs in all the member states.

The design of the workshop intended to solve as much as possible all these problems. The project indications developed in PACIOLI 3 were discussed with national stakeholders. Then the problems were tackled in the first day in a number of steps. The first step was to investigate the impact of the project ideas on the process model of the FADN. The second step was to clearly label project ideas as front office or back office, and to identify target groups. The third step had to deal with the linkages between the budget winning projects and the back office. We therefore introduced a matrix of product-projects versus infra structural projects.

Based on the discussions in the working groups and the arising consensus, it was decided to split some front office projects, and to cluster some infrastructure projects. As a result the 16 project ideas from PACIOLI 3 were brought back to 13 project proposals.

Having reached this stage efficiently, the rest of the workshop (2 days) could be spent on actually writing the project proposals. Here the main problems to solve are the quality of the project proposals and keeping/creating the support of all the participants involved. It was therefore foreseen to write the project proposals *together*. That means that participants should be involved in the writing of as many project proposals as possible (for the support) and that each project proposal should be looked over by several participants (the quality issue). We therefore decided that each project proposal should be looked over in four stages, that each stage should be carried out by different persons. The ideas from PACIOLI 3 and a fixed format for a project proposal were supplied to be used on the laptop computers present. The allocation of persons to the project proposals and stages was mainly based on the interest of the participants themselves. As an extra quality measure, a number of stakeholders present were asked to work as a quality team, playing 'the devil's advocate'. The

total methodology led to an efficient use of the available time and to project proposals that have a high quality and the support of a large group of persons. The proposed projects are:

New areas for data recording in an FADN:

- A. **Economics of high-quality food production systems**
Gathering and analysing data on organic farming, high-quality food products (including special regional products) and good farming practice.
- B. **Management of rural development**
Gathering additional regional data in an integrated rural data network, presented in a Geographical Information System.
- C. **Recording environmental impact**
Gathering additional data on the environmental impact of the farming systems.
- D. **Evaluation of rural landscape**
Evaluating the contribution of particular farm systems to the rural landscape, as seen by the citizens.

Improved use of FADN data

- E. **Rapid results**
Providing users of FADN data with more timely data and forecasts.
- F. **Agricultural micro-economic information system**
Use of modern information technology to distribute the RICA data to researchers and the public in order to increase the use of the rich data set.
- G. **Using micro-economic data to analyse policy issues**
Creating econometric models to supply policy-relevant conclusions on the basis of micro-economic FADN data.

Application of FADN know-how in related domains

- H. **Towards RICA for PECO countries**
Creating a network of experts in order to promote micro-economic farm analysis and RICA development in Central and East European countries.
- I. **Simplification and development of farm accounting**
Making use of the know-how of farm accounting specialists to develop recommendations to policy makers on the simplification of accounting without losing its benefits for tax purposes and environmental control.

Improving FADNs

- J. **MACE: Managing Cost Effectiveness of the FADNs in the RICA Network**
Improving the cost/benefit ratio of FADNs by benchmarking.

- K. **Typology 2000+**
Create a new farm typology that is less complex, guarantees comparability and takes into account new developments like environmental issues, rural development etc.
- L. **Quality in harmonization of FADN data**
Installing an up to date quality program in the RICA network, as harmonization of data is a key success factor.
- M. **Standardization of data handling in FADNs and RICA.**
Improving the information infrastructure of the FADN/RICA administration as a basis for an efficient, effective and up to date system.

After the workshop the proposals have been edited and published in the final reflection paper of PACIOLI.

HOW TO READ THIS BOOK

This book is the result of the fourth PACIOLI workshop. The workshop was organized around three days of presenting papers, discussing them and discuss related subjects. This book follows the order of the performances in the workshop. Section 1.3 discusses the methodology and design of the workshop that created this order.

After the introduction to PACIOLI 4 (chapter 1), the participating countries were asked to present the ranking of the project indications (16 project indications were the result of the third workshop) made by important stakeholders in their country. The results of these presentations are presented after chapter 1.

Directly after this plenary session, working group session 1 was started. During this first session the participants identified the impact of the project indications on the processes in the process models of the FADNs. During working group session 2 the project indications were categorized. Are they developed to improve FADN products or to improve FADN infrastructure? Working group session 3a and 3b concluded this picture by linking the projects in the two categories: infrastructure and products. The results of these working group sessions are presented after each other.

At the end of the first day, during dinner, the linkage between Luca Pacioli (the Italian monk) and the PACIOLI project was investigated. This paper is presented after working group session 3b.

Before the participants started to write the project proposals, the management board held a meeting to discuss the project indications. They concluded which projects were going to be worked on, which were divided into more projects, and which were coupled. The report of this meeting is presented after the story on Luca Pacioli.

The last days of the workshop were spent to write the 13 project proposals. The project proposals are presented after each other. The advocate group, consisting of the stakeholders present, wrote down their remarks to the PACIOLI group. These remarks are presented after the project proposals.

Finally a plenary session was held to discuss the PACIOLI follow up. The report of this discussion is the last chapter of this workshop report.

In the appendices the *curricula vitae* of the participants of this workshop and the names and addresses of the participants of all the PACIOLI workshops are presented.

1. INTRODUCTION PACIOLI 4

George Beers

1.1 The PACIOLI project

PACIOLI is a concerted action for the EU in collaboration with the RICA/FADN unit. The objective of the concerted action is to explore the needs for and feasibility of projects on the innovation in farm accounting and its consequences for data-gathering on a European level by Farm Accountancy Data networks (FADN). The long term objective of PACIOLI is to come to an infrastructural network of experts for continuous development of FADNs. More specific, the concerted action is a step in preparation and development of projects in which information models will be developed that support the development of information systems to improve the FADN networks with various types of data in order to support policy making and evaluation at EU as well as member state level.

1.2 Workplan

The concerted action is organized around four workshops:

Workshop 1 (March '95): Introduction and Information Analysis

In the first workshop the concerted action has been introduced and the objectives have been discussed. The need for Strategic Information Management (SIM) in agriculture has been identified and some experiences with this in various member states were presented. A special focus was on the Dutch experiences with the Information Modelling Program.

Workshop 2 (September '95): Accounting and managing innovation

In this workshop the process models of the various FADNs have been discussed and compared. With stakeholder analysis the persons and organization that are relevant for FADNs have been identified and classified. Discussing recent innovations in the various networks revealed the importance of stakeholders for the PACIOLI project. On the way to innovation the gathering of data on issues like environment and forestry was discussed. In the software field the use of data with a client-server approach using a Windows interface was presented.

Workshop 3: (March '96): Need for change

In the third workshop ideas for innovation were generated and presented. This process was stimulated by discussions about the effect of new Agricultural Policy, as reflected in e.g. the Fischler paper, on the in-

formation requirements of policy makers and thus on the data that should be supplied by FADNs. The rough ideas have been combined and structured, which resulted in 16 project ideas.

Workshop 4 (October '96): Proposals for innovation

The 16 project ideas generated in the third workshop have been discussed with the stakeholder 'at home' and these ideas and assessments by the stakeholders are now the input of the fourth and last workshop. The objective of the PACIOLI project is to come up with proposals for innovation of Farm Accountancy Data Networks (FADNs) and Farm Accounting. This report describes what happened in the fourth PACIOLI workshop, held in September 1996 in Soragna (Italy), in which the ideas generated in the third one have been worked out into project proposals. Since this fourth PACIOLI workshop has been the last one this workshop report contains in fact the end result of the Concerted Action; a bundle of project proposals.

1.3 Methodology workshop 4

Writing a project proposal, that makes a good link between the objectives of the sponsor and the activities to be carried out, is an art. This seems to be especially true in the international context. In the PACIOLI workshop we face a number of hurdles to be tackled:

- the FADN and farm accounting issues are complex, highly technical and difficult to link with objectives of stakeholders;
- experts on a certain topic (in this case farm accounting and FADNs) tend to focus on the problems of their current systems, in stead of the future problems of their clients;
- PACIOLI participants have different backgrounds and many FADN administrators are not experienced in designing sponsor-oriented project proposals that are SMART (Specific, Measurable, Acceptable, Realistic and Time-controllable);
- bringing together the know-how from different countries, who have their own language, political cultural and methods to run projects;
- creating support for the proposals, as the execution of the projects would result in major changes for the FADNs in all the EU countries.

The design of the workshop intended to solve as much as possible all these issues. Already in the previous workshops the importance of stakeholders was stressed. For this reason the project indications developed in PACIOLI 3 were discussed with national stakeholders. This feed back was the main input for the first activity in the workshop (see chapter 2 for the results).

As assumed in advance by the project management, this feed back showed that there were two types of project ideas:

- a. projects that would lead to new products of FADNs that are of interest to clients, and

- b. projects that deal with the internal working of an FADN. The first type of projects were nicknamed later on in the workshop as 'budget-winners', 'cash-generating projects' and 'front-office projects', which seem to describe the category quite clearly. The second type was often referred to as 'infrastructure', 'investment-projects', and 'back-office projects'.

The problem to be addressed in the workshop was not only to make a good separation between the two types, and to have the FADN managers accepted that it would not be very fruitful to work (only) on back office projects in the hope they would win budgets. The problem is also that budget-winning projects cannot be carried out with the current infrastructure, which means that linkages have to be created between front-office and back-office projects.

These problems were tackled in the first day in a number of steps. The first step was to investigate the impact of the project ideas on the process model of the FADN. For each project idea the processes involved were identified and the desired change of this process was classified as a product improvement, an infrastructural improvement that saves money, is an investment or results in structural higher costs (see chapter 3 for the results). The planned and realized effect of this working group session was that participants became aware of the difference between product oriented and infrastructure oriented projects and the size of the effect of the project ideas.

The second step was to clearly label project ideas as front-office or back-office. And in the case of a front office project, target groups had to be identified. A target group is an institution that realistically could be interested in financing the project. This once more meant an outward orientation (see chapter 4 for the results).

The third step had to deal with the linkages between the budget winning projects and the back office. We therefore invented a matrix of product-projects versus infrastructural projects. This matrix was used twice. First participants were asked in a working group session to discuss for each front office project, which improvements of the back office through one or more infrastructure projects was needed. The linkage could be classified as an adaption, a renovation or (even more severe) a reconstruction (chapter 5 contains the results).

Second the matrix was filled in the other way around. The participants were asked to try to sell the back office projects to budget winners: in which cases could stakeholders be convinced that an improvement of the infrastructure was necessary to deliver a new product. The linkage could be classified as absolutely necessary, important or helpful (see chapter 6 for the results).

In this way supply and demand were brought together. One of the results was that some projects in the category back office could not convincingly be linked to budget winners. A second result was that the balance of front office and back office projects was rather unfavourable: in the third PACIOLI workshop, the participants had clearly found it easier to generate suggestions to improve their own work, than to add value for clients. A third result of this first day of the workshop was (as hoped in the planning) that the participants had a shared idea of the project ideas, their importance and character and their linkages. This was mainly realized by the working sessions in which the discus-

sion groups had a changing composition: participants had to rotate. Of course the shared experiences in earlier workshops and in the FADN, and the friendly local Italian atmosphere helped also.

As anticipated, the first day of discussions in the workshop had to lead to a clear decision which project ideas should be worked out in more detail. Based on the discussions in the working groups and the arising consensus under coffee and at dinner, the management board of the concerted action was asked to make this decision formally. Input was a *proposal made by the project management*, that was agreed upon with some minor adaptations (see chapter 8). In an authoritative way the management board decided to split some front office projects, and to cluster some infrastructure projects. As a result the 16 project ideas were brought back to 13 project proposals. The board also indicated some potential financing institutions.

Having reached this stage efficiently, the rest of the workshop (2 days) could be spent on actually writing the project proposals. Here the main problems to solve are the quality of the project proposals and keeping/creating the support of all the participants involved. It was therefore foreseen to write the project proposals *together*. That means that participants should be involved in the writing of as many project proposals as possible (for the support) and that each project proposal should be looked over by several participants (the quality issue).

We therefore decided that each project proposal should be looked over in four stages, and that each stage should be carried out by different persons. In the first stage a few persons should design the project proposal, using the ideas from PACIOLI 3, the first workshop day, and a fixed format for a project proposal. This fixed format supports the quality and SMARTness of the proposal by dividing the proposal in the following sections: *summary, product, objectives, activity plan, project organization (incl. stakeholders involved), benefits (for each stakeholder), critical success factor, estimation of costs (and funding structure), communication and dissemination, remaining remarks and participants involved*.

In the second stage 2 or 3 other persons should finish the first draft of the project proposal (focusing on more technical details) and comment on the design of the first stage. In the third stage a third group of 2 or 3 persons should review, comment and improve the whole proposal. Then in the fourth stage, the whole proposal should be reviewed by the original persons who had been involved in stage one, leading to a finished project proposal.

The whole exercise was supported by adequate information technology. For this reason participants had been asked to bring a lap-top computer with them. The text of the project ideas from PACIOLI 3 were provided in electronic form, with the fixed format of a project proposal added to it. To create an audit trail (who did what on the project proposal), the persons in the first group/stage were asked to write in a normal font, the second group in italics and the third one in bold. This worked well. Originally it was foreseen to pass on the files from one group to another, but as some were afraid of viruses, and

different word processors were used (WP and Word, both in different versions) it was decided to pass on the computers (including French ones, which do not have a qwerty key board).

The allocation of persons to the project proposals and stages was based on the interest of the participants themselves. At the start the participants were asked to put their name for each column (stage/session) in a box in the following matrix on a flipover:

Project	Startgroup	Group 2	Group 3
1			
2			
13			

In advance the members of the management board had put their own name, and that of some of the other key participants, in a box for the start group. This assignment was made to secure that the first design of the projects was done by experts who were very much involved with the topic. The whole process of signing up was public, so participants could even remove their name and put it somewhere else. The only restriction was that they were asked not to put their name in a box where already 3 or 4 others had signed up.

One more quality measure was taken. In the workshop a number of stakeholders was present, from national ministries, EUROSTAT, RICA, the IASC and the OECD. They were asked to work as a quality team, playing 'the advocate of the devil'. They walked around to answer questions and to comment on available drafts. They provided valuable clues on how to bring project proposals more in line with objectives of stakeholders. They also reflected on the total FADN/PACIOLI work (see chapter 10). An additional advantage of this construction was that the members of the quality team did not experience any role conflicts by having to write on project proposals that they perhaps have to comment or finance in the future.

The total methodology led to an efficient use of the available time and project proposals that have a high quality and the support of a large group of persons (see chapter 9 for the results). Of course the project proposals had to be edited after the workshop, to be included in the final reflection paper.

2. STAKEHOLDER INVOLVEMENT: RANKING THE PROJECT INDICATIONS

This chapter describes the results of the consultation process that the PACIOLI participants organized in their own country to measure the support with stakeholders for the project ideas that were generated at the third workshop.

The project indications from PACIOLI 3 are labelled as follows (for more details see the PACIOLI 3 workshop report):

1. estimation of data needs;
2. management cost effectiveness;
3. new farm typology;
4. rapid results;
5. new EU farm return;
6. indicators on environment, landscape and food quality;
7. indicators on regional development;
8. development of a PECO-RICA;
9. development of quality network software;
10. develop a quality programme in FADN;
11. develop a reference information model and standards for RICA and farm accounting;
12. introduce modular flexible information technology in RICA;
13. FADN on Internet;
14. modernization of farm management accounting;
15. taking stock of accounting issues;
16. farm accounting as a policy instrument.

Finland
Agricultural advisory organization

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.						X
2.				X		
3.					X	
4.				X		
5.					X	
6.				X		
7.				X		
8.						X
9.						X
10.					X	
11.					X	
12.						X
13.					X	
14.				X		
15.					X	
16.						X

**Finland
Farmers Union**

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.		X			X	
2.		X			X	
3.	X				X	
4.	X			X		
5.		X			X	
6.	X			X		
7.		X			X	
8.		X			X	
9.		X			X	
10.			X			X
11.	X			X		
12.		X			X	
13.		X			X	
14.	X			X		
15.	X			X		
16.	X			X		

Finland

Ministry of Agriculture

(the number indicates the number of persons who assigned a project to a category)

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.	2	2		2		2
2.	1	3		1	2	1
3.	2	1	1	1	2	1
4.	2	1	1	1	2	1
5.		2	1		1	2
6.	3		1	2	1	1
7.	2	1			3	1
8.	2	2		1	2	1
9.		2	1		1	2
10.	1	1	1		2	1
11.		1	2			3
12.	2	1			3	
13.	1	3		1	2	1
14.	2	1		2	1	
15.		4			3	1
16.	1	3		2	1	1

**Spain
Regions**

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.	3				3	
2.		3			2	1
3.	2	1		3		1
4.	3			2	4	
5.	1	2		1	3	
6.	2	1		3	1	
7.	1	2		4		
8.		3			2	1
9.	2		1	1	1	1
10.	1	2			3	
11.		3			3	
12.	2	1		2	2	
13.	1	2			3	
14.	2	1		2	1	
15.	2			2	1	
16.	2	1		3	1	

Especially projects number 3, 6 7 and 16 are very interesting for the regions in Spain.

Spain
National Institute of Agricultural Research (INIA)

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.		X				X
2.	X			X		
3.	X			X		
4.	X			X		
5.		X				X
6.	X			X		
7.	X				X	
8.	X				X	
9.		X				X
10.	X				X	
11.		X				X
12.		X				X
13.		X			X	
14.		X			X	
15.		X			X	
16.		X			X	

Special interest for project numbers 2, 3, 4 and 6.

Spain
Ministry of Agriculture

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.		X		X		
2.	X					X
3.			X		X	
4.	X			X		
5.		X			X	
6.			X	E.M.		X
7.			X			X
8.		X				X
9.	X			X		
10.		X		X		
11.	X			X		
12.	X				X	
13.			X			X
14.		X			X	
15.			X	X		
16.	X			XX		

For Spain project number 16 on Farm accounting as a policy instrument is the most important project proposal. In fact, in Spain they are interested in everything which helps the 'normalization'

United Kingdom
Ministry of Agriculture

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.		X			X	
2.			X	X		
3.		X			X	
4.	X			X		
5.	X				X	
6.		X			X	
7.			X			X
8.	X				X	
9.		X				X
10.		X				X
11.		X			X	
12.		X			X	
13.			X			X
14.			X			X
15.			X			X
16.			X			X

A questionnaire was sent to 19 organizations of which only 4 gave a reaction. In this questionnaire they were asked about their opinion on the following project numbers: 1, 4, 6, 7, 8 and 13 (this selection was made by Wye College).

The Welsh office of the Ministry of Agriculture showed interest in the projects 4, 6 and 7. The preference of the CLA (Commission of Land Owners) goes strongly to project number 1, and also to projects 4, 6 and 7.

The Farm Union of Wales showed interest in project number 4 and 7 and the Rural Development Organization is strongly interested in project number 7.

The overall conclusion for the United Kingdom is that projects 1, 4, 6 and 7 are most important, and that there is no interest in projects 8 and 13.

The Netherlands
 Agricultural Economic Research Institute (LEI-DLO)
 (the director and the deputy director filled in the table)

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.				1	1	
2.					1	1
3.				1		1
4.				1	1	
5.					1	1
6.				2		
7.				2		
8.				2		
9.					1	1
10.						2
11.					2	
12.					1	1
13.					1	1
14.				1		1
15.					1	1
16.				2		

From the point of view of the European Union, project numbers 1, 2, 4, 6, 8, 11, 13, 14, 15 and 16 are interesting.

The Netherlands
Ministry of Agriculture, Nature Management and Fisheries

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.				X		
2.					X	
3.					X	
4.					X	
5.				X		
6.				X		
7.					X	
8.						X
9.						X
10.				X		
11.					X	
12.						X
13.						X
14.						X
15.					X	
16.				X		

Project numbers 6 and 16 are most important for The Netherlands. In second place they are interested in project numbers 1, 4, 7, 8 and 11.

Italy

Ministry of Agriculture; Direction of Common and International Policies

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.					X	
2.					X	
3.				X		
4.				X		
5.					X	
6.				X		
7.				X		
8.				X		
9.						X
10.					X	
11.						
12.					X	
13.						
14.						X
15.						
16.				X		

Italy
Region

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.		X			X	
2.		X			X	
3.			X			X
4.		X		X		
5.	X			X		
6.			X			X
7.	X			X		
8.	X					X
9.	X			X		
10.			X			X
11.	X			X		
12.		X			X	
13.		X			X	
14.		X		X		
15.		X			X	
16.	X			X		

Italy
Region Toscana

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.	X				X	
2.		X				X
3.		X			X	
4.		X			X	
5.			X			X
6.	X				X	
7.		X		X		
8.			X			X
9.		X			X	
10.		X			X	
11.		X			X	
12.	X			X		
13.			X			X
14.		X			X	
15.			X			X
16.		X		X		

Italy
Farm Assistant office

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.		X			X	
2.	X			X		
3.			X			X
4.	X			X		
5.	X				X	
6.		X			X	
7.			X			X
8.		X				X
9.			X		X	
10.			X			X
11.		X			X	
12.	X			X		
13.			X			X
14.		X			X	
15.			X			X
16.	X			X		

Italy
 Researcher from the University of Perugia

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.	X				X	
2.			X		X	
3.		X			X	
4.	X			X		
5.		X		X		
6.	X			X		
7.	X			X		
8.		X				X
9.	X				X	
10.		X			X	
11.			X			X
12.			X		X	
13.	X			X		
14.		X			X	
15.		X				X
16.		X		X		

Italy
General director of INEA

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.	X			X		
2.			X			X
3.		X			X	
4.	X			X		
5.	X				X	
6.		X			X	
7.	X				X	
8.	X					X
9.				X		
10.		X			X	
11.		X			X	
12.			X			X
13.	X			X		
14.		X		X		
15.			X			X
16.	X			X		

The general conclusion for Italy is that project numbers 4, 7 and 16 are most important.

Sweden
Ministry of Agriculture

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.	X				X	
2.	X			X		
3.	X			X		
4.	X			X		
5.	X			X		
6.	X				X	
7.	X				X	
8.		X				X
9.		X			X	
10.		X			X	
11.			X		X	
12.		X				X
13.			X			X
14.			X			X
15.		X			X	
16.	X				X	

Sweden
 Statistics Sweden

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.					X	
2.				X		
3.					X	
4.				X		
5.				X		
6.					X	
7.					X	
8.				X		
9.					X	
10.				X		
11.				X		
12.					X	
13.						X
14.						X
15.						X
16.						X

Statistics Sweden is interested in participating actively in the projects indicated with an A. If necessary, funds are available.

Sweden

The Swedish University of Agricultural Science, Department of Economics

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.	X			X		
2.	X				X	
3.	X			X		
4.	X				X	
5.	X			X		
6.	X			X		
7.	X			X		
8.	X			X		
9.	X				X	
10.	X				X	
11.	X			X		
12.	X			X		
13.	X			X		
14.	X			X		
15.	X				X	
16.	X			X		

The university is interested in participating actively in the projects indicated with an A. If necessary, funds are available.

Sweden

The Farmers' Movement (the deliverer of information and object in policy regulations)

Project indications	EU - point of view			National point of view		
	A	B	C	A	B	C
1.	X			X		
2.		X			X	
3.	X			X		
4.		X			X	
5.	X			X		
6.	X			X		
7.	X			X		
8.	X			X		
9.		X			X	
10.	X			X		
11.		X			X	
12.	X			X		
13.		X			X	
14.		X		X		
15.		X			X	
16.		X		X		

The European Commission

The European Commission is very interested in project number 8 about the PECO-RICA. This is the hot topic which is used in several negotiations. Nevertheless nobody knows what information is needed from the PECO countries.

Their second interest is project number 6 (indicators on environment, landscape and food quality), third on Indicators on regional development (number 7) and last on project number 1 and 5: estimation on data needs combined with the new EU farm return.

DG VI/A3 is very interested in the software part of the innovations: project numbers 9 and 12. Also in the estimation on data needs combined with the new EU farm return (number 1 and 5) and in rapid results (project number 2).

From RICA itself the preference lies in project number 14, 15 and 16, all on farm management.

A general remark from 'Brussels' is that projects must be output oriented (and not brainstorming oriented). This means that they only are interested in projects which improve RICA products. Nevertheless, RICA wants to be a good information system! Therefore projects have to be carried out to improve the infrastructure. So the interest in Brussels does not correspond with the knowledge on what has to be done to improve RICA.

France

In France 70 'stakeholders' were contacted, but only 10% answered the questionnaire. It is striking that none of the Farmers Union answered, as well as none of the Advisory Centres sent their answer. This confirms the lack of interest in France for the use of RICA data.

The distinction between EU point of view and national point of view can not be made in France, because they use the EU RICA data set also as the national data set. Thus RICA is both national and EU level.

The preference of the ministry of Agriculture is not for great innovation, but only for improvements of the actual results. This means that they have an interest in quality (project numbers 9, 10 and 11), flexibility (numbers 4 and 12), PECO-RICA (8) and FADN on the Internet (project number 13). They refuse to be involved in project number 3, 6 and 7.

The Workers Union in the Agro-industry is interested to put up the quality (project numbers 9, 10 and 11) and to work on the indicators on environment, landscape and food quality (6).

The Research Centre INRA is interested in projects number 6 and 7 and in the non-farm income (also belonging to 6 and 7).

Belgium

The situation in Belgium is a bit difficult for improving the FADN; the ministry does not even want to finance the 'normal' work of the FADN. So there will be no funding for extra work. The ministry is not interested in meth-

odologies, only in results. They think in very short terms, while the Agricultural Economics Research Institute (LEI-DLO) must think in longer terms.

Therefore, in PACIOLI, LEI will give priority to Farm typology and other computer developments in order to help them to collect more data.

The overall scores of the project indications

Project number/name	Score	Quantitative score
1. Data needs	A	9
2. Cost effective	A-	8
3. Typology	A-	8
4. Rapid results	A	9
5. Farm return	A-	8
6. Environment	A+	10
7. Regional	A	9
8. PECO	A-	8
9. Network software	B+	7
10. Quality	B	6
11. Infomodel	B+	7
12. Modular	B-	5
13. Internet	C	4
14. Management acc.	B	6
15. Accounting	B-	5
16. Policy instr.	A+	10

Some lower scoring projects can be coupled to higher scoring projects. FADN on the Internet (number 13) for example, can be very helpful for rapid results (number 4); both projects speed up the time in which the FADN data can be used.

Another example is the quality of the FADN. Project numbers 9 and 10 (quality network software, quality programme, low scores) can be coupled to project numbers 2 and 3 (manage cost effectiveness, new farm typology, high scores). Speaking of flexibility, projects 11 and 12 (reference information model, flexible information technology, low scores) can be coupled with project number 5 (New EU farm return, high score).

3. WORKING GROUP SESSION 1

Impact of project indications on processes in the process models

In the first working group session the participants were asked to identify the impact of a proposed project on the processes in the process models (see workshop report PACIOLI 3). Two or three projects were judged per group. They were asked to identify, separately for each project, all processes that are influenced.

Please make a review for each process that is influenced. For each proposal identify influenced processes and classify their change to:

1. an external oriented performance improvement (which the FADN clients will notice);
2. an improvement of the FADN infrastructure that will save money;
3. an improvement of the FADN infrastructure that will cost money, which can be seen as an investment;
4. an improvement of the FADN infrastructure that will cost money, which results in structural higher costs.

The results are presented below.

Project 1: Estimation of data needs

1. Product improvement

- | | |
|-------------------------|---|
| RICA process model: | <ul style="list-style-type: none">• strategic planning• making analysis• making forecasts |
| National process model: | <ul style="list-style-type: none">• strategic management• using data |

2. Infrastructure, save money

- | | |
|---------------------|---|
| RICA process model: | <ul style="list-style-type: none">• data management• distribute data |
|---------------------|---|

3. Infrastructure, investment

4. *Infrastructure, permanent costs*

- RICA process model:
- data management
 - distribute data
 - making analysis
 - making forecasts

- National process model:
- all processes

Project 2: Manage cost effectiveness

1. *Product improvement*

2. *Infrastructure, save money*

- receiving data
- distributing
- operational management

3. *Infrastructure, investment*

- analysis
- strategic planning/cooperation
- implementation

'Same data collected only once'

4. *Infrastructure, permanent costs*

Cost/benefit balance positive!

- to farmers
- to data collecting organizations

Invest in priorities

Project 3: New farm typology

1. *Product improvement*

- data management (maintain typology)
- weighting data
- making analysis
- making forecasts

2. *Infrastructure, save money*

- save time doing analysis, calculating norms (indirect effects)

Project 5: New EU farm return

More flexible farm return. Processes on EU-FADN level considered.

1. Product improvement

- distribute data (external users)
- making analysis
- making forecasts

2. Infrastructure, save money

- strategic planning:
 - flexible farm return allows more social studies
 - facilitates proposals on new requirements (easier implementation)
 - given data need & output must change
- data management:
- making analysis and forecasts

3. Infrastructure, investment

- data management

4. Infrastructure, permanent costs

Project 6: Indicators on environment, landscape and food quality

Processes on EU- RICA level considered.

1. Product improvement

- strategic planning:
 - study policy development
- data management:
 - maintain instructions
 - maintain definitions
- management information system:
 - maintain databases
- receiving data:
 - all processes effected, clients will not notice!
- distribute data:
 - make statistical publications
 - support external users
- making analysis:
 - perform analysis
- making forecasts:
 - making forecasts, prepare results?

2. Infrastructure, save money

Will not save money.

3. *Infrastructure, investment*

- data management: - maintain definitions
- management information system: - maintain data-base software
- receiving data: - maintain control software
- making analysis/making forecasts: - check and correct data
- developing new models

4. *Infrastructure, permanent costs*

- making analysis
- making forecasts

Project 7: Indicators on regional development

1. *Product improvement*

- weighting data: - representativity at regional level
- distribute data by regions
- receiving data: - more checking and correction of data
- making forecasts at regional level
- strategic planning: - regional input for policy development

2. *Infrastructure, save money*

- strategic planning: - new data requirements
- dropping non-essential data
- operational management: - human resources would have more output per person (incl. the regional dimension)
- making analysis: - saving money if duplication with other databases is avoided to make analysis
- regions would pay for subcontract and studies
- receiving data: - the regions would more likely pay for data collection

3. *Infrastructure, investment*

- making analysis: - improving the database query is an investment

4. *Infrastructure, permanent costs*

- weighting data: - representativity more expensive to maintain (per geographical unit)

Project 8: Development of a PECO-RICA

1. *Product improvement*

- study EU enlargement
- study policy developments
- perform special studies (more rapid)
- perform analysis on common data
- subcontract studies
- making forecasts

Target groups:

- EU (finance ministers of Agriculture, DG VI)
- PECO countries (association treaty advisory service)
- Member States

2. *Infrastructure, save money*

3. *Infrastructure, investment*

- human resource management/training in PECO countries

4. *Infrastructure, permanent costs*

- maintain instructions, data definitions/weighting?
- operational management: translate English
- human resource management
- receiving data: correcting data
- weighting data: more work
- maintain quality software (accept low quality?)

Project 9: Development of quality network software

1. *Product improvement*

- RICA process model:
- distribute data
 - making analysis
 - making forecasts
- National process model:
- using data

2. *Infrastructure, save money*

- RICA process model:
- operational management
 - receiving data
 - making analysis
 - making forecasts
- National process model:
- using data

3. *Infrastructure, investment*

- National process model:
- operational management
 - accounting
 - using data

4. *Infrastructure, permanent costs*

- RICA process model:
- data management?
 - management of information systems
- National process model:
- application management

Project 10: Develop a quality programme in FADN

1. *Product improvement*

- maintenance costs
- stakeholder surveys (1 x 3-5 years)
- stakeholder 'forum' (communication policy)

2. *Infrastructure, save money*

- sample improvement

3. *Infrastructure, investment*

See: data collection, data distribution (project number 2)

4. *Infrastructure, permanent costs*

Add: analysis what the USER really uses and what means for data collection/
distribution (independent analysis)

Add: sample improvement

Project 11: Develop a reference information model and standards for data exchange for RICA and farm accounting

1. Product improvement

- data management
- distributing data
- making analysis
- making forecasts

2. Infrastructure, save money

- management of information system
- receiving data
- distribute data

3. Infrastructure, investment

- management information system

4. Infrastructure, permanent costs

- data management
- management information system (more data, therefore higher costs!)

Project 13: FADN on the Internet

1. Product improvement

- data distribution: - high availability
- more external users
- easier and more flexible: - analysis & forecasts

2. Infrastructure, save money

- distribute data

3. Infrastructure, investment

- distribute data

4. Infrastructure, permanent costs

- distribute data (other costs may decrease or disappear)

Project 14: Modernization of farm management accounting

Based on French process model.

1. Product improvement

- accounting: - gathering data
- input and encode data

2. Infrastructure, save money

- accounting: - gathering data
- input and encode data
- * using data: - make accounting data available
- deal with errors and complaints

3. Infrastructure, investment

- application management: - adjust software and instructions
- test software and instructions

4. Infrastructure, permanent costs

Project 16: Farm accounting as a policy instrument

(For this project the use of the process model is not a very good support)

1. Product improvement

- study policy development
- perform special studies

2. Infrastructure, save money

- receiving data: - more data easily available
- update SGMs: - data available
- weighting data: - less unbiased

3. Infrastructure, investment

4. Infrastructure, permanent

4. WORKING GROUP SESSION 2

Improve FADN products or FADN infrastructure

In the second working group session, the participants were asked to discuss the projects in relation with the FADN products and the FADN infrastructure. This could be done by looking back to the first working group session.

The projects which influence mostly processes identified as 'external oriented performance improvements' (number 1) will improve or develop FADN products. This are the projects that will have the interest of external stakeholders ('front office projects').

The projects which influence mostly processes identified as 'improvements of the FADN infrastructure' (number 2, 3 and 4) are the projects which will improve or develop the FADN infrastructure ('back office project').

The participants discussed which projects are meant to improve or develop FADN products, and which projects are meant to improve FADN infrastructure.

If a project was assigned to the category FADN product, the target group of the project was identified. In other words, who will benefit from this project. The results are presented below.

Projects improving FADN products

1. Estimation of data needs
(clearly defined data & info to meet user needs)

3. New farm typology
(improve comparability)

4. Rapid results
(new product)

Target group

- policy makers
 - farmers organizations
 - administration
 - researchers
 - all users!
-
- policy makers
 - all users of averages!
-
- policy makers
 - EU
 - national
 - farmers
 - farmers organizations
 - all other users of forecasts

6. Indicators on environment, landscape & food quality
- Environment & landscape:
- Food quality
7. Indicators on regional development
8. Development of a PECO RICA
10. Develop a quality programme in FADN
11. Develop a reference information model and standards for data exchange for RICA and farm accounting
- policy makers
 - EU
 - national
 - farmers
 - researchers
 - OECD
 - advisors
 - community and national environment & agricultural authorities & agencies + pressure groups
 - consumers
 - agricultural
 - agribusiness
 - health
 - policy makers
 - EU
 - national
 - regional
 - consumers
 - OECD
 - agri-food business
 - researchers
 - farmers organizations (unions)
 - institutions & agencies
 - national
 - regional
 - local
 - policy makers
 - EU
 - national
 - PECO countries themselves
 - researchers
 - agri-business
 - international agencies (NGOs, World Bank etc.)
 - all users!

- | | |
|---|--|
| 13. FADN on the Internet | <ul style="list-style-type: none"> • service specific • researchers • extension services • all users! |
| 14. Modernization of farm management accounting | <ul style="list-style-type: none"> • farmers • software developers • accountants • researchers |
| 15. Taking stock of accounting issues | <ul style="list-style-type: none"> • accounting organizations |
| 16. Farm accounting as a policy instrument | <ul style="list-style-type: none"> • policy makers <ul style="list-style-type: none"> - EU - national • regional administration • farmer pressure groups |

Projects improving the FADN infrastructure

1. Estimation of data needs
2. Manage cost effectiveness (unless it effects quality or quantity of the product)
3. New farm typology
4. Rapid results
5. New EU farm return
8. Development of a PECO RICA
9. Development of quality network software
10. Develop a quality programme in FADN
11. Develop a reference information model and standards for data exchange for RICA and farm accounting
12. Introduce modular flexible information technology in RICA
13. FADN on the Internet
14. Modernization of farm management accounting

15. Taking stock of accounting issues external changes that may effect the infrastructure
16. Farm accounting as a policy instrument

Conclusion

As can be seen in this lists, several projects are mentioned in both categories. This implies that the participants had different opinions. After a plenary discussion the following categorization was reached:

projects for FADN products

4. Rapid results
6. Indicators on environment, landscape & food quality
7. Indicators on regional development
8. Development of a PECO RICA
13. FADN on the Internet

Projects for FADN infrastructure

1. Estimation of data needs
2. Manage cost effectiveness
3. New farm typology
5. New EU farm return
9. Development of quality network software
10. Develop a quality programme in FADN
11. Develop a reference information model and standards for data exchange for RICA and farm accounting
12. Introduce modular flexible information technology in RICA
14. Modernization of farm management accounting
15. Taking stock of accounting issues
16. Farm accounting as a policy instrument

5. WORKING GROUP SESSION 3A

FADN products versus FADN infrastructure

In the first part of the third working group session, the participants were asked to discuss for each project in the category FADN product which improvement or development is needed in the FADN infrastructure. In other words, the projects in the category FADN products can 'ask for' projects in the category FADN infrastructure.

The following matrix was filled in:

An **A** was given if the 'infrastructure project' means an **adaption** of one or more processes in order to improve the FADN product.

A **B** was given if the 'infrastructure project' means a **renovation** of one or more processes in order to improve the FADN product.

A **C** was given if the 'infrastructure project' means a **reconstruction** of process one or more processes in order to improve the FADN product.

		Infrastructure improvement											
		1	2	3	5	9	10	11	12	14	15	16	
p r o d u c t	Pro- ject												
	4												
	6												
	7												
	8												
	13												

After the groups had presented the results of their discussion, the scores were quantified: the score A was given 1 point, the score B 2 points and the score C 3 points. In this way the different scores could be added up to a final score (maximum score: 18, minimum score: 0). From that final matrix the conclusion could be drawn: which project in the category FADN product asks for which project in the category FADN infrastructure?

		Infrastructure improvement										
p r o d u c t	Pro- ject	1	2	3	5	9	10	11	12	14	15	16
	4	8	7	4	10	17	9	14	11	7	4	6
	6	18	8	11	16	7	8	11	9	9	8	7
	7	18	8	10	15	7	8	9	6	8	7	6
	8	13	8	10	9	7	8	9	5	5	5	5
	13	6	6	3	4	5	7	7	7	3	3	3

Rapid results (number 4) asks for a development of quality network software (project 9) and for a reference information model (number 11).

Projects 6 and 7 (indicators on environment, landscape & food quality and on regional development) very strongly ask for an estimation of data needs (project number 1). They both ask also for a new EU farm return (number 5).

Development of a PECO-RICA need also an estimation of data needs (number 1). Finally FADN on the Internet (number 13) can work on its own, it does not need one special project in particular.

6. WORKING GROUP SESSION 3B

FADN infrastructure versus FADN products

In working group session 3A the participants discussed the linkage between the projects in the category FADN products and the projects in the category FADN infrastructure. In this working group session the participants were asked to discuss this linkage the other way round.

The question is how to realize the projects in the category FADN infrastructure. The suggestion is to link all these projects to the projects in the category FADN products. Because projects in the category FADN products will have the interest of stakeholders, you can perhaps indirectly convince the stakeholders to be interested in improvements of the FADN infrastructure.

Therefore the participants were asked to discuss the linkage between a project in the category FADN infrastructure with the projects in the category FADN products. In other words, the projects in the category FADN infrastructure must offer themselves to the projects in the category FADN products.

The following matrix was filled in: to what extent can an 'infrastructure project' be linked to a project in the category FADN products?

An **X** was given if the 'infrastructure project' is **absolutely necessary** for an improvement of the FADN product.

An **Y** was given if the 'infrastructure project' is **important** for an improvement of the FADN product.

A **Z** was given if the 'infrastructure project' is **helpful** for an improvement of the FADN product.

After the groups had presented the results of their discussion, the scores were quantified: the score X was given 3 points, the score Y 2 points and the score Z point. In this way the different scores could be added up to a final score (maximum score: 18, minimum score: 0). From that final matrix the conclusion could be drawn: which project in the category FADN infrastructure is really necessary for which project in the category FADN product?

		Product improvement				
i n f r a s t r u c t u r e	Pro- ject	4	6	7	8	13
	1	6	18	18	9	4
	2	5	6	6	6	5
	3	7	14	12	9	3
	5	11	18	18	9	3
	9	18	8	8	10	8
	10	12	13	13	11	10
	11	14	12	12	9	5
	12	13	8	8	8	11
	14	6	10	7	5	2
	15	4	7	5	4	4
16	5	11	11	8	2	

Project number 9 (development of quality network software) find itself really necessary for rapid results (number 4), as well as the other 'quality' projects (10, 11 and 12).

The estimation of data needs and the New EU farm return (number 1 and 5) find themselves really necessary for projects 6 and 7 (indicators on environment, landscape and food quality, and on regional development). This corresponds completely with the results of working group session 3A, where projects 6 and 7 asked for project numbers 1 and 5.

None of the projects in the category FADN infrastructure find itself really necessary for projects 8 and 13 (Development of a PECO-RICA and FADN on the Internet).

Conclusion of working group session 3A and 3B

The idea of working group session 3 was to bring together demand and supply, in order to give the projects in the category FADN infrastructure a chance. These projects are thought not to be interesting for stakeholders, because stakeholders only want results: products! And how these products are 'made' does not interest them.

However, if a project in the category FADN infrastructure could be linked with a project in the category FADN product, a stakeholder could be indirectly

interested. The results of the working group session shows that the PACIOLI group does not think that all projects in the category FADN infrastructure can be linked. This means that some projects will not survive.

To avoid this sudden death, the management board held a meeting to discuss with what projects the PACIOLI group must go on. The report of that meeting is reproduced in chapter 8.

7. 500 AND 2 YEARS OF PACIOLI: BACK TO BASICS?

Krijn J. Poppe 1)

Books should be closed each year, especially in partnership because frequent accounting makes for long friendship.

Luca Pacioli, 1494

7.1 Introduction

In 1494 Luca Pacioli published his 'Summa de Arithmetica Geometra Proportioni e Proportionalita' with a treatise called 'De Computis et Scripturis', in which he introduced double-entry accounting. This system became a corner stone of modern business, from where it was copied to agriculture. A highly formal record system evolved, that often asks for the help of a trained accountant. This paper discusses to which extent Pacioli's thoughts are still relevant for modern farm record systems.

The usefulness of the current system for decision making could be improved by integration of the accounting system with production records. Environmental accounting asks for changes too. This broadening of the accounts takes us back to Pacioli: farm accounting in the future should incorporate some of the informal features of Pacioli's system that have been lost in the last centuries. Computer technology makes this possible.

The paper starts with a discussion on Pacioli's work. Next we shortly describe how this type of accounting was introduced in agriculture. After a short description of current issues in farm accounting, the paper turns to the concerted action PACIOLI and how research projects should try to incorporate the ideas of Pacioli in farm accounting systems.

7.2 1494: Luca Pacioli's *De Computis et Scripturis*

In November 1494 the Italian monk Luca Pacioli published a book in Venice, called 'Summa de Arithmetica Geometra Proportioni e Proportionalita'. As the title suggests, the publication was mainly dedicated to mathematics. In Part One, Section 9, Treatise 11 under the chapter title of 'Particularis Computis et

1) The author works as a business economist with the Farm Accountancy Data Network of the Agricultural Economics Research Institute (LEI-DLO) in The Hague. This paper was presented at the closing of the fair funded concerted action PACIOLI in Parma, October 1996.

Scriptures', Pacioli explained in Italian for the first time ever the 'Italian method' of bookkeeping, which we call double entry accounting (Geijsbeek, 1914).

Luca Pacioli was born in 1445 in San Sepulchri, a small city west south-west of Urbino in Arezzo, Tuscany. He studied with the painter and mathematician Piero della Francesca. According to Geijsbeek (1914) Pacioli was a great lecturer, mathematician, writer, scholar, traveller and a famous man. He translated Euclid in Latin and stayed at the court of Lodovico in Milan together with Leonardo da Vinci. In his older days he became a member of the Order of Friars Minor of St. Francis, for protection needed in his many travelling tours. Pope Leo X made him professor in mathematics at the Sapienza University in 1514, at that time the most respected university in the christian world. Probably he died on June 18, 1517, although some claim he was still alive in 1523, when the second edition of the Summa was published (Speklé, 1994).

Luca Pacioli was, also according to his own text, not the inventor of double entry bookkeeping, as this was probably known already for 200 years. But he was the first (as far as we know) to describe it, and to popularize it by publishing in Italian (printing was introduced by Gutenberg in Mainz, 32 years earlier).

In single entry accounting, merchants only administrated changes in stocks. Double entry accounting also records the causes of such a change: a split between capital and income records by recording every transaction twice.

Pacioli introduces three books for this type of accounting: the day book (memoriale), a journal (giornale) and a ledger (quaderno). Besides information on accounting as such, Pacioli provides a lot of advize in his 'Summa' on the 'systems design' of accounting: how to legalize books, the reasons for orderly accounts etc.

Very interesting is Pacioli's discussion of the day book: it is necessary for those merchants who have a lot of transactions that cannot orderly be entered in the journal directly. The day book should contain all relevant information of the transaction:

'The memorandum book, or, according to others, scrap book or blotter, is a book in which the merchant shall put down all his transactions, small or big, as they take place, day by day, hour by hour. In this book he will put down in detail everything that he sells or buys, and every transaction without leaving a jot; who, what, when, were, mentioning everything to make it fully as clear (...). [Chapter 6, quoted from Geijsbeek, 1914, p. 39].

It could be filled in by young trainees and women (!) when the merchant and his assistants were travelling. This 'back office' probably had poor writing skills. Pacioli argues therefore that it does not make sense to give directions for the use of the day book: it is more important that everything and all relevant details is noted down than the form in which this happens. A notebook to memorize, with 'substance over form'. In chapter 8 he describes how entries should be made:

'Let us say, for instance, that you bought several pieces of cloth - for instance, 20 white bresciani at 12 ducats apiece. It will be enough simply to make the entry in this way: on this day we have or I have bought from mr. Filippo d'Rufoni of Brescia, 20 pieces of white bresciani. These goods are at mr. Stefano Tagliapietra's place; one piece is so long, according to the agreement, and paid a trelici, or a la piana, wide or narrow, fine or medium, whether the Bergamo kind, or Vincenza, or Verona, or Padua or Florence or Mantua. Also you have to state here whether the transaction was made through a broker and whether it was made in cash entirely ...[follows another 5 lines with examples of things to note down].. Finally I must say that in this memorandum book nothing should be omitted. If it were possible it should be noted what many others had said during the transaction because (...) the merchant can never be too plain.' (quoted from Geijsbeek, 1914, p. 41).

Reading this practical description one wonders if we should not put a bit more flesh and blood into our data models, data flow diagrams and manuals. In Pacioli's accounting system, the journal is a secret (that is not available for all persons in the business) book that orders the entries in the day book in a more systematic way (journal entries). A lot of details of the transaction can be omitted, as the entries refer to the original notes in the day book. The journal is the bases for the updating of the ledger. Although profit calculation per activity was (at that time) more important than the profit per period, a periodic report is possible and advocated (Speklé, 1994).

7.3 From Pacioli to farming today

The know-how of Pacioli (or more general: Venice and the North of Italy) very soon found its way to the Low countries: the Antwerp merchant Jan Ympyn Christoffels worked in Venice and used Pacioli's *De Summa* to write his 'Nieuwe Instructie' (New Instruction) that was published in 1543. Shortly afterwards it was translated into French and English, and it is thought to have raised the standards of accounting in these North European countries considerably. This also holds for another famous mathematician that promoted and further improved accounting by his writings: the Dutchman (or better: Flemish) Simon Stevin.

From that time on accounting became more and more formalized. The first joint stock company (the VOC, the Dutch East India Company, listed in the 17th century at the Amsterdam Stock Market) influenced accounting (Ten Have, 1973). During the 19th century the industrial revolution (with fixed capital and depreciation) influenced accounting theory.

Under the influence of this process of formalization a general theoretical consensus was born that the double-entry method was superior because it could solve so many accounting problems simultaneously. But despite this theoretical consensus, accounting practices were remarkably varied and for centu-

ries accounting practice did not reflect accounting theory (Carruthers and Espeland, 1991). A reflection that seems also to be true for agriculture.

Modern accounting in agriculture has heavily been influenced by the experiences outside agriculture. Estate accounting dates from before Pacioli. And at the time the work of Pacioli was popularized and improved in the Low countries by Ympyn and Stevin some farmers already kept books. The oldest known case in the Netherlands is that of Rienck Hemmerna. This Frisian farmer kept a 'rekenboek off memoriael' (calculations book or day book) on his mixed farm between May 1569 and december 1573. In chronical order he noted receipts and expenses, harvested yields, negotiated labour contracts and work carried out on the different fields (Kuperus, 1964). In a case from the same region but thirty years later, a farmer even noted his observations on the weather, important events, recipes and family announcements.

The earliest publications on farm accounting for farms that are more or less comparable with today's family farms date in North-west Europe from the 19th century. An example is the Netherlands (Kuperus, 1964, 1970). The earliest publication (I.G.J. van den Bosch: 'Handleiding tot doelmatig boekhouden op een landelijk bedrijf - translated: Manual for efficient accounting on a rural enterprise') dates from 1843, and is the result of a prize contest in 1839 by the Commission for Agriculture in the province of Zeeland. Van den Bosch used double entry accounting to illustrate the bookkeeping of a farm in Zeeland. He is not unique. A list of book titles on farm accounting in the Netherlands, Germany, France and the U.K. published by Van Schaik (1918) quotes several works that refer to double entry in their title. This does not mean that single entry accounting was not practised. In his reference work Van Schaik (1918) used the first 200 pages to teach single entry accounting and than explained double entry in the next 70 pages. But it shows that double-entry accounting was viewed as a valid and theoretically preferred option. Practices outside agriculture will have influenced this view.

In most countries the adoption of accounting by farmers has been enforced by law. Especially fiscal regulations that force farmers to keep books to determine income tax have been important. In the Netherlands this obligation dates from 1914, but in other European countries (like Switzerland and Portugal) this is a recent blessing. Another obligation comes in the E.C. from the agricultural structure policy. According to an E.C. Regulation from 1973, farmers who take up financial support for farm improvement, have to keep books for a number of years.

This process of forced adoption, and hiving of this activity to professional accounting and tax consultancy offices led to a further formalization of the accounting system. The above mentioned mr. Van den Bosch and his German counterpart Thaer advized farmers in the 19th century to keep a kind of weekly diary to register cashflows as well as other important events, like changes in stocks, use of labour and other important business aspects. In the beginning of this century such advice became rare, as the fiscal obligations stressed systematic (!) day books (like a cash book, a bank book, a sales book etc.) that can provide only data to be used in journal entries. The calender-function of the *memoriale* that provides a lot of management information

disappeared 1). In the process of computerization, the systematic day books were easy to automate, so this suited efficiency well.

7.4 Current issues

This importance in the shaping of farm accounting of external reporting and hiving off the accounting activities to professional experts, has given birth to a number of critical remarks by several authors on the usefulness of accounting for farmer's management decisions (Hardaker and Anderson, 1981; Poppe, 1989). Central in many of these critical remarks is that systems are based on formal procedures used by accountants, and that not much research has been carried out on actual needs of farmers and their understanding of accounting. More a normative than a positive approach.

On the other hand - and notwithstanding arguments for simplification of paper work in agriculture - accounts are here to stay. Politicians advise or oblige farmers in Western as well as Central and East European countries to use them. Forms of environmental accounting are quickly becoming a normal part of good agricultural practice.

Perhaps it should provide comfort that also outside agriculture a search exists for better management information systems. To quote only one author (Elliot, 1992):

'Trying to run my organization with the output of our accounting department is like trying to fly an airplane that has only one dial - a dial that shows the sum of airspeed and altitude. If it's low, I'm in trouble, but I don't even know why'

A lot of attention in accounting research is nowadays given to e.g. cash accounting, activity based costing, database oriented accounting (recording events in stead of results), triple entry accounting (momentum of profits) and EDI.

7.5 PACIOLI revisited

Exactly 500 years after the publication of 'De Summa' by Luca Pacioli, the 'PACIOLI-word' became once more fashionable in European farm accounting. This time it's an acronym: Panel in ACcounting for Innovation, Offering a Lead-up to the use of Information modelling. PACIOLI is a EU-sponsored concerted

1) At least from the perspective of accounting. However, I still recall how in the sixties my father, an arable farmer, had more interest in keeping a diary with notes on the weather, activities and adjustments of machines in a large agenda/ calendar plan than in keeping his cash book.

action of researchers and other stakeholders interested in farm accounting and in farm accounting data networks.

PACIOLI started at a conference in Bonn, where a paper by Poppe (1992) attracted the attention of Mr. Val Reilly of DG VI of the European Commission. He advised to make a proposal for the AIR-programme. After one failed attempt with a large research project on information modelling (called SUMMER), George Beers and Krijn Poppe succeeded in creating the PACIOLI network. The network was originally created by seven member states with the support of the RICA-unit in DG VI. After the first workshop other member states, as well as the IASC joined the discussions.

In this network several ideas have been raised to improve farm accounting (Poppe, Beers and Pruis, 1996). These include the modernization of farm management accounting, taking stock of accounting issues and studying farm accounting as a policy instrument. Modernization is in this respect a collection of suggestions that include: making use of recent developments in information technology (e.g. EDI, GIS, expert systems), integration with production record systems, supporting tracing and tracking/the accountability of farming, indicators for environmental friendly farm management and contributing to the reduction of paper work.

On this point, where we are closing the concerted action PACIOLI, we should look back to the work of Luca Pacioli and the lessons from history. To me it is clear that we lost something important in the way of formalization and computerization: the original lay out and function of the *memoriale*: the examples of Pacioli (as well as those of Hemmema and other farmers) learn that a free format for the day book could be very attractive from the users point of view.

To me here lies a large challenge for information analysts and computer specialists. Modernization of farm accounting should not lead to more systematic and professional systems in which we try to make an accountant out of farmer. We should go the way back to Luca Pacioli and treat the farmer as novice in accounting. Information specialists should design the farm information system and especially the computer screens in such a way that they are as easy as the free format day book (*memoriale*) described in the '*De Summa*'.

Recent research in the LEI-DLO project Accounting 2000 suggests that this could (at least partly) be possible: data could mainly be entered in a farm accounting system by EDI (a.o. tele-banking and electronic invoices) and if necessary farmers could add (by picking from a list) data on products and the activities in which the products were used/produced. Additional fields on the screen could be provided to enter texts on all other relevant information of such transactions and the use of products in the production process. Standard journal entries could be used to update the general ledger on the basis of the products (aggregation to types of costs, output, investments etc.) and activities (aggregation to profit centres). There is not much need to sort the different transactions (cash, bank, internal use) into different day books. For a farmer it is much more logical to present them all in one day book on a calendar basis. In conclusion: the day book should change into a log-book.

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8. REPORT OF THE MANAGEMENT BOARD MEETING

Conclusions on grouping the projects for the last working group sessions in PACIOLI 4.

- A. The projects on: 'Rapid results' (number 4);
'Indicators on environment, landscape and food quality' (number 6);
'Indicators on regional development' (number 7);
'Development of a PECO-RICA' (number 8);
'FADN on the Internet' (number 13)
are the cash generating projects (the budget winners)
- B. The number of cash generating projects is rather low. This is seen as a risk. Because project number 6 has three different target users, this project is split into: 6a: Indicators on environment
6b: Indicators on landscape
6c: Indicators on food quality (incl. organic farming & good farming practice)
Please note that the word 'indicators' is not necessarily the best.
- C. Some infrastructure/back office projects have problems in finding support from cash generating projects. Therefore the following decisions were made:
- project 2 on 'manage cost effectiveness': reformulate this project as a 'concerted action' between the Member States to share ideas in cutting costs and doing the current work more efficient. Assume no EU-funds are available, but sharing of experiences could be useful in a meeting once per year which Member States will organize on their own costs;
 - include project 12 on 'Introduce modular flexible information technology in RICA' in project 11 on 'Develop a reference information model and standards for data exchange for RICA and farm accounting'. Project 11 is the first step, project 12 (writing the software) is the second step;
 - include project 9 on 'Development of quality network software in project 10 on 'Introduce modular flexible information technology in RICA'. Project 10 is the first step, project 9 the second;
 - redefine project number 16 as 'Using micro-economic data to analyse policy issues' (working title) and make a proposal in which researchers from Member States use RICA data to perform research (e.g. on subsidies) and sell it to policy makers. This will be another cash generating

project. Ideas on project 16, printed in the third PACIOLI reflection paper (compliance, structural policy, simplification of paperwork) could be used in project 15 on 'Taking stock of accounting issues';

- Project 15 will include suggestions from project 14 on 'Modernization of farm management accounting'. This idea will be worked out as a FAIR project or concerted action not linked to RICA but totally in the field of accounting organizations.

D. Some infrastructure projects could be taken together, to reduce the number of internal infrastructure projects. This makes it possible to give more attention to cashflow generating projects:

- cluster projects 1 (estimation of data needs), 5 (new EU farm return) and 11 (develop a reference information model..) under the name of project 11. This will be an internal information project which has projects 6a, 6b, 6c and 7 as drivers/funders;
- project 3 on 'New farm typology' is an internal project, also with projects 6a, 6b, 6c and 7 as drivers/funders;
- project 10 (including project 9) is an internal project which has all cashflow generating projects as drivers/funders.

These conclusions mean that in the last working group sessions the following projects will be worked out:

Project 2: Manage cost effectiveness	(concerted action without funding)
Project 3: New farm typology	(internal project with projects 6a, 6b, 6c and 7 as drivers/funders)
Project 4: Rapid results	(cash generating)
Project 6a: Indicators on environment	(cash generating)
Project 6b: Indicators on landscape	(cash generating)
Project 6c: Indicators on food quality	(cash generating)
Project 7: Indicators on regional development	(cash generating)
Project 8: Development of a PECO-RICA	(cash generating)

- Project 10: Develop a quality programme in FADN** (internal project with all cash generating projects as drivers/funders)
- Project 11: Develop a reference information model and standards for data exchange for RICA and farm accounting** (internal project with projects 6a, 6b, 6c and 7 as drivers/funders)
- Project 13: FADN on the Internet** (cash generating)
- Project 15: Taking stock of accounting issues** (project or concerted action for the FAIR programme)
- Project 16: Using micro-economic data to analyse policy issues** (cash generating)

9. PROJECT PROPOSALS

Based on the decision of the management board (see chapter 8) the workshop participants worked on the writing of the project proposals. As described in chapter 1 this was done in different work groups, with the help of some stakeholders present. The following sections contain the project proposals as they have been prepared in the workshop.

After the workshop the proposals have been edited and finalized by the project management at LEI-DLO and published in the final reflection paper. Those versions should be used for further decision making.

9.1 M.A.C.E. (Managing Cost Effectiveness of the FADNs in the Rica Network) 1)

1. Summary

Compared to the total costs of the agricultural budget, the costs of the RICA and its FADNs are very low. But it is striking that costs are not clearly reported. A few years ago there has been an estimation by the RICA team, but results were hard to interpret. Most of the costs are paid by member states, and in some cases the costs (especially of computers and staff) are part of the total government budget. This means that the introduction of a so called Balanced Scorecard-BSC (Gouillart and Kelly, 1995) with indicators for FADNs on costs and returns, user satisfaction, process control and innovation could be useful.

Due to the budget problems of many governments, cost effectiveness is an issue. Cost effectiveness can be improved in two ways. First by reducing costs, second by increasing the value of the product. At this stage it is easier to identify added value than areas for cost saving. Some aspects of this issue that could be studied in such a project are proposals to out source some of the activities, to use a tender system in buying the data, more commercial exploitation of the data and lowering costs by using information technology.

1) A mace is a mediaeval hand weapon consisting of a large iron ball with spikes on that is suspended on the end of a short chain. It is a very effective instrument for getting agreement with the PACIOLI viewpoint.

2. *Product*

An annual internal report, to be presented to the RICA committee and to CSA, with results and benefits of FADNs, a benchmarking between 15 FADNs and proposals for projects that improve cost effectiveness (methodology: BSC).

The report also includes an estimation of actual RICA costs, a cost management plan and marketing plans.

3. *Objectives*

We have distinguished objectives focused on inputs and objectives focused on outputs. We have also identified several levels:

- inputs:
- improvement of actual RICA system;
 - recommendations on the ways of saving money;
 - study how new ideas (e.g. ideas from the other projects) could integrate (or have integrated) the cost effectiveness.
- outputs:
- try to get more marketable RICA products (both actual results and new results or new studies);
 - higher value product (eg more timely data) for policy makers etc.

4. *Activity plan*

Stage 1: workgroup session to build BSC.

Stage 2: gather data to calculate baseline in BSC.

Stage 3: workgroup session to use data for benchmarking, develop suggestions for improvement cost effectiveness. In the workgroup experts from other member states make suggestions for the national member state (review report) or for common actions.

Stage 4: write report and make it available. At the moment of publishing the MACE-award will be granted (the decision on the granting will be taken by the CSA).

Stages 3 and 4 are repeated annually.

5. *Project organization (including stakeholder involvement)*

Informal Workgroup that meets in Leuven, one day after a RICA meeting. If needed an external consultant is engaged. Persons that review another country could perhaps be invited to a national meeting.

6. *Benefits (for each stakeholder)*

It seems obvious that benefits will be realized! These will include policy makers placing more value on the RICA.

7. *Critical success factor*

inputs: - involvement of member states;

- budget for development of new working systems.

outputs: - budget for new products;

- identified new products (quicker, more accurate, new data);

- new working systems.

8. **Estimation costs and funding structure**

5 days preparations by the national FADN manager per year per country,
2 days for a meeting in LEUVEN (one for RICA, one for national ministry) = 7 x
15 = 105 days , some costs for the award, the external consultant.

Funding structure: Since the RICA network will gain from this project the
funding should come from there.

9. *Communication and dissemination*

Internal: RICA will be aware of any cost savings/income generation from their
own financial accounts.

External: marketing of data needed - possibly on a commission basis by an
agent.

10. *Remaining remarks*

Unless RICA is seen to make cost savings, add value and produce new
products, it will cease to exist.

Project could be integrated in quality management.

11. *PACIOLI participants involved*

1. -

2. Bernard Del'Homme (France), Diederik Spiering (The Netherlands);

3. Nigel Williams (United Kingdom).

9.2 **Typo 2000+**

1. *Summary*

2. *Product*

A new farm typology that is more stable, less complex and less expensive,
and provides:

- better methodology for classification, weighting FADN results etcetera;
- simplified SGM-classification system;

- adapt present typology to the new Countries (Sweden, Finland etcetera);
- proposal for (non-)inclusion of new aspects (environment, regional diversity) in typology;
- lower costs for classification.

3. Objectives

- A. Stability: typology with more stability over time compared to the present system with big fluctuations in standard gross margins SGM (price influence); no radical reform of present system;
stability a: prevent the turn-over of farms from one type to another caused by applying new SGM;
stability b: field of survey of FADN more constant.
- B. Simplification: fewer categories (crops, livestock) with separate SGM (keep precision in mind).
- C. New aspects: including information on environment, socio-economic status, ... if useful and necessary.
- D. Results that are more transparent for the stakeholders.

4. Activity plan

Stage 1: estimation of needs and set up of the new typology;

- definition of the role of typologies in different activities (FADN: selection, weighting, analysis, publication; EUROSTAT; member states; other ...);
- study the typology situation and needs in each country or in its representative sample.

Stage 2: implementation on sub-samples to see if the new typology is relevant;

- create new set of SGMs (fewer categories, longer periods for averages, ...) tests with EUROSTAT (subsamples) and FADN data;
- develop and test alternative definitions of fields of surveys;
- new aspects:
 - define goals: why include new aspects (environment, socio-economic status...) in typology?;
 - if inclusion needed: how?

Stage 3: final implementation at a large scale (census 2000!?).

Project start 1997; finished within two years.

5. Project organization (including stakeholder involvement)

Common start on definitions and problems; (prepare national reports on the typology situation according to a standard scheme)

Sub-project 1: stability of SGM-system

time needed: 2 persons one year

Sub-project 2: new aspects in typology

time needed: prestudy of one person year

Sub-projects 1 and 2 can be carried out independently to a certain extent.

Study in line with the Jan Dijk et al. paper 1995; technical basis to be used.

DG V/A-x

EUROSTAT

Organize workshops with EUROSTAT, RICA, Member States and so on.

6. *Benefits (for each stakeholder)*

- improved quality of FADN results (DG VI and member states);
- easier management of typology (EUROSTAT, member states);
- transparency of FADN results.

7. *Critical success factor*

- agreement between EUROSTAT and RICA Divisions;
- find a consensus between all countries on changes;
- new typology must be simpler;
- it should be easily comparable with the older one;
- we must be sure the new typology will be suitable to new countries.

8. *Estimation costs and funding structure*

DG VI and EUROSTAT, study contract;

- costs for defining the new typology (researchers studies and estimation of data needs);
- implementation costs in all national FADNs;
- communication costs to explain the new typology.

9. *Communication and dissemination*

It is necessary to write a booklet to explain in details the new farm typology (how to use it and how to implement it) and to explain why it has changed.

There are here two target groups: the end users and people of national FADNs.

10. *Remaining remarks*

11. *PACIOLI participants involved*

1. Simo Tiainen (Finland), Dirk van Lierde (Belgium), Beat Meier (Switzerland);
2. Nicole Taragola (Belgium), Giovanni Sanna (Italy), Carla Abitabile (Italy);
3. Jérôme Steffe (France), Diederik Spiering (The Netherlands).

9.3 Rapid Results

1. Summary

The purpose of this project can be summarised as:

- to provide users of FADN data with more timely data;
- to provide early indicators of income changes on major farm types;
- to provide data on key indicators (yields, product prices) that can be used for forecasting purposes.

2. Products

Rapid production of FADN results, based on a full farm return, directly after accounting year end from a subsample of farms, representing key farm types.

Provide information on prices, yields, investment expenditure, farmer intentions etc before full data set becomes available.

3. Objectives

To improve value of FADN to policy makers, their advisers, researchers and consultants. Do this by providing:

- full fiche completed for subset of 5% of specified key farm types within 2 months of their accounting year end (these are farm results that are available to the national network at the time, they are not pre-specified by RICA);
- a long-term objective of full RICA results in public domain by December (within 6 months of last accounting year end) would be desirable.

4. Activity plan

Step 1: meeting with RICA to agree need for reform.

Within 6 months: RICA to provide quality control software.

At the same time: RICA to develop system for disseminating results quickly and define data needs.

Step 2: RICA/National FADN to:

- generate a sub sample, define type of co-operators by farm type/size /region;
- fast track data cleaning and processing;
- distribution of results to clients/stakeholders;
- data made available to wider client base via Internet?

5. *Project organization (including stakeholder involvement)*

- DG VI
- to define objectives/target sample, set timetable RICA;
 - National Ministry/practitioners;
 - coordinating of data collection and processing.

6. *Benefits (for each stakeholder)*

Policy makers:

- more recent data on farm performance to inform policy making;
- early indications of farm performance;
- data for forecasting models;
- cost savings as some one-off studies are no longer needed.

Researchers etcetera:

- more recent data;
- data for forecasting models.

Farmers:

- improved feed back.

7. *Critical success factors*

- Willingness of national FADNs to develop new working practices and improved management of RICA;
- new integrated computer-based quality control mechanisms;
- data on the Internet for fast dissemination of results.

8. *Estimation costs and funding structure*

As this project will be especially useful for policy makers, the European Union should fund most of it. National governments could contribute too, because they will gain from the project.

Farmers organizations might be interested too, but their interest could be in conflict with this of the governments (negotiations on price levels, subsidies etc.).

N.B. The analysis could demand the equivalent of the work of two researchers for one year, about 150,000 ecu, including overhead costs. Not included is the additional work in the national FADNs.

9. *Communication and dissemination*

Rapid results should be made available at the earliest opportunity to be of benefit.

Researchers should be informed of the existence of the rapid results, this could stimulate them to cooperate in collecting the needed data for the rapid results (market prices, analyses and forecasting of market situations, previsions on yields etc). This could reduce the operating costs in later years and would

have a positive effect on the quality of the rapid results. Good qualitative rapid results would lead to satisfied users, this could bring up new funds for improving and even extending the methods for rapid results.

10. *Remaining remarks*

This is a very important innovation of the FADN. The success of the project will be dependant on infrastructure improvements covered by other PACIOLI project proposals so that the data can be processed rapidly.

11. *PACIOLI participants involved*

1. Arne Bolin (Sweden), Alison Tanton (United Kingdom);
2. Nigel Williams (United Kingdom), Miguel Merino (Spain), Gert Hellevig (Finland);
3. Dirk van Lierde (Belgium), Giovanni Sanna (Italy), Carla Abitabile (Italy), Inma Astroquiza (Spain).

9.4 **Recording environmental impact**

1. *Summary*

The problem is the lack of information of environmental impact, especially of feedback on environmental policy measures and regulations. It is investigated in small-scale scientific basis and discussed within OECD/EUROSTAT for national level. To identify Key variables using case study, consultation with statistics and reference models and scientific literature. The aim is to provide policy formation information, to monitor policy and provide extension information. The project is linked with Project 'Farm Typology' 'Farm Return' and 'Food Issues' and 'Landscape' Projects.

2. *Product*

An Additional FADN (RICA) Record which can be used for monitoring and forecasting of environmental impacts of policies and regulations both at the national, regional and farm level.

Content: Farm Referenced Environmental Data.

3. *Objectives*

To link farm specific environmental impact to that of the economic, geographic and physical aspects of holdings. This means to create a crude tool for the evaluation of policy impacts while taking account of both economic and environmental data at farm level.

To collect environmental data for the FADN sample. Use environmental 'weighting' (**adapted** Farm Typology) to aggregate environmental impact up to national/regional level. Supply national/regional environmental data to national government (OECD and EUROSTAT).

Contact points OECD: • Kevin.Parris@OECD.ORG.
• Mrs. Pao, EUROSTAT F3

Provide data for the analysis of environmental impact of policy/economic changes at the regional and national level.

Give feed-back to farmers and extension service to assess performance regarding the environment.

Key aspects: • measuring mineral balances, energy balances and efficiency;
• measuring factors affecting ground water level and quality;
• pesticide residues, atmospheric pollution, biodiversity.

4. Activity Plan

4.1 Summarizing existing knowledge

The coordinator consults with OECD/EUROSTAT and the EU-research programmer on Regulation 2078.

A starting up workshop with the whole project group is conducted to organize the whole project and discuss the literature in the area and how to summarize the existing knowledge. Country representatives consult scientists and review literature. The literature may be divided among the country representatives.

Resource estimation: Coordinator 1 month;
Country representatives: 1.5 month each.

4.2 Defining key concepts and measurement variables

Define the need to collect Micro level data. Each country representative defines the areas or questions where the policy makers and the farmers will need information in the future. The approach is to interview policy makers and farmers.

Define key concepts with which we can describe the environmental effects (endogenous variables) and the factors affecting the environment (exogenous variables). Define variables and methods to measure the key concepts (measurement variables). Ensure that external data are not collected twice, e.g. rainfall. Define Weighting frame. Each country representative conduct case studies of farms, where the farms are as different as possible in the relevant aspects. The aim is to identify influencing variables and get information about the interval of the variable values.

The results of the country activities are discussed on a common workshop. The coordinator summarizes it.

Resource estimation: • country representatives 2 months each;
• field assistants 1 month per country;
• coordinator 2 months.

4.3 Synthesizing

Construct a Reference Information Model. As a conclusion of the workshop according to 4.2, the broad lines of a reference information model are drawn. The details of the model are developed by the coordinator or one of the country representatives and tested.

Resource estimation: 3 months.

4.4 Conclusions

Define the need to redesign Record Farm Return in an interaction with project 11.

Define the need to redesign the farm typology in an interaction with project 3. (We may need a subsample representing various types of farming and ecosystems).

Resource estimation: • the coordinator or one of the country representatives two months;
• work by project 11 and 3 according to the estimations by these project groups.

4.5 Implementation

Prototypes of new software systems are developed, such as systems for quality checking, in an interaction with project 10.

Resource estimation: work by project 10.

Defining collection methods and training staff are left to each country to implement.

4.6 Concluding

The results of especially 4.3 -4.5 but also the whole project are discussed in an concluding meeting. The final report is summarized by the coordinator.

Resource estimation: coordinator 2 months.

5. Project Organization

Link with OECD to define international standards for Environmental Variables. Insure that these results are 'collectable' and 'feasible', and has basis in Science for farm level.

Project Group: • environmentalists, Soil Scientists, Information Technologists FADN Staff, Management Scientists and Extension agents.

Reference Group: • stakeholder Reps'- Farmers Groups, Natural Resource Ministry, Community and National level policy makers.

6. Benefits

Possibility of crossing & checking with other economic, technical & scientific data. Good quality micro level environmental data for policy making. Feedback to farmers and extension service.

7. Critical Success factors

- Cooperation of farmers & accounting offices to get good quality data.
- Technical and financial support of the European FADN, the Commission and the national governments.
- Coordination with OECD & EUROSTAT about indicators.
- Coordination of a multidisciplinary research team.

8. Estimated Costs and Funding Structure

Estimated Costs

Task		Cost	
Start-up Workshop	((16*3*3*200))	£ 28,800	+ £ 17,280
Summarize Existing Knowledge	3 + (3 * 15)	£ 18,000	
Identify/Define Key Variables	3 + (6 * 15)	£ 18,000	
Synthesizing	6	£ 36,000	
Summary Conclusions	3	£ 18,000	
Mid-Sessional Workshop	((16*3*3*200))	£ 28,800	+ £ 17,280
Implementation aids	15	£ 90,000	
Concluding Round-up	6	£ 36,000	
Travel Workshop		£ 18,000	
Travel Other		£ 9,000	
Total	36 + (9 * 15)	£ 277,320	£ 54,000
		£ 331,320	

Based upon 3 man coordinating team, 3 man country team.

Funding structure based on:

- environmental programs of DG VI, DG XI as well as the Agricultural Statistic Unit;
- national environmental programmes as well as national FADNs/Agricultural Statistics.

9. *Communication and Dissemination*

Publish results in scientific and extension journals.

Extension services feedback.

Extended data base available for different type of users.

Different sources data swap (economic, ...).

10. *Remaining Remarks*

11. *PACIOLI participants involved*

1. Bo Öhlmér (Sweden), Alastair Baily (United Kingdom), Nicole Taragola (Belgium).
2. Beat Meier (Switzerland), Inma Atorquiza (Spain).
3. Gunnar Larsson (Sweden), Carlos San Juan (Spain).

9.5 Evaluation of rural landscape as an external service of agriculture

1. *Summary*

It is proposed to develop a methodology to evaluate positive and negative externalities of agriculture regarding its effects on landscape. The point is to establish if *a particular type of farm* contributes to landscape improvement or not. Due to the fact that productive industrial agriculture in Europe is facing mounting difficulties, the job of the farmers as landscape 'gardeners' (or destroyers) has to be duly evaluated. Agricultural policy is turning into rural policy, which includes also tourism and landscape. A system to evaluate these very subjective aspects *based on opinion panels* of citizens picked at random -not related to agriculture - will be tested. The panellers will be confronted with graphic materials and asked a) to express their subjective impressions and b) to try to put monetary values on individual landscape elements and combinations of elements. *The main aim is to resume this evaluation in simple variables* (visual-aesthetic indices) that could be included in the farm returns. The use of the information to build the core of an specialized data bank is not excluded.

Recapitulating:

- agriculture has positive and negative effects on landscape;
- perception of landscape is very subjective and surely nationally and even regionally differentiated, but there are methods to estimate their value (as contingent valuation-CV);

- public support of agriculture can partly be justified by positive externalities concerning landscape; present policy lacks good information basis as decision support;
- the project identifies elements of landscape, that fulfill the following conditions:
 - a. perceptible by the public;
 - b. value can be assigned;
 - c. measurable on farm level.
- study has two different elements: empirical valuation of demand and empirical measurement of supply of landscape;
- project shows regional and intra-sectoral differences in landscape 'production' in connection with differences in willingness to pay from the demand side and production costs on the supply side: those are the basis for decision support.

2. *Products*

An operational methodology to evaluate positive or negative landscape contributions of agricultural activity in different European regions. Create a theoretical and empirical basis for future development of agricultural policies. From a purely political point of view, such a method could create the basis for defending European agricultural policies in trade discussions within the WTO.

It will be also possible to integrate revenues and costs for landscape activities in the RICA-FADN data banks with revenues and costs from other farm activities and establish trade-offs between landscape 'production' and more conventional agricultural activities.

3. *Objectives*

- 3.1 Identify a set of landscape elements and combination of elements which are positively or negatively evaluated by the public opinion of different regions.
- 3.2 Boil down those elements into a set of operative variables, which could be integrated into RICA data banks or in other specialized information systems to be created.
- 3.3 Establish monetary values for the identified elements.

4. *Activity plan*

- 4.1 Adjust needs and feasibility through literature research, expert opinion, consults with the Commission, national and regional partners (total for 4.1 = 1,5 months).
 - 4.1.1 Project meeting and data bank research in RICA.
 - 4.1.2 Coordinate activities among participants.
 - 4.1.3 Work with the RICA-data bank.
 - 4.1.4 Literature research.
 - 4.1.5 Coordination with regional and national authorities.

Objective: coordination, get acquainted with RICA data bank, pick up some extra ideas from the Commission, explore feasibility of different approaches.

4.2 Define landscapes, and prepare graphic material for subjective. evaluation-picture, slides, videos (total for 4.2 = 3 months)

4.2.1 Define landscapes (1 month).

4.2.2 Shot pictures (2 months; 20 days each season).

Objective: have an homogeneous material available , which captures in pictures the influence of agriculture on different landscapes of the particular region to be studied. The pictures and film material have to be as objective as possible. Touristical material will not do. Most of it will be shot anew, with special consideration of objectives sought. In order to avoid a season effect, the same shots should be made in all different seasons, which delays the progress of the project. The netto working time, however, will be the three months for this job.

4.3 Select and train panels, prepare surveys, run a 'pre-test' with a reduced panel, administrate panel surveys (total for 4.3 = 3 months).

Objective: establish 'landscape juries' and obtain the raw data. Landscape tastes being very subjective and culturally determinated, the members of the panel have to be told what is sought, without being influenced by the researchers. The members of the panels should have a varied socioeconomic background. The pre-test should identify technical problems, risks of the approach but also further possibilities of the method.

4.4 Analysis of results, definition of measurable variables, eventual integration of relevant variables from other sources. Assign values (positive and negative) to landscape elements and sets of elements. The contingency valuation methodology will be used (total for 4.4 = 4 months).

Objective: a whole array of new variables has to be determined and made operational. The project will be moving on unexplored terrain. Careful consideration of the situation of the RICA data bank, of policy needs and of the needs of other stakeholders will be necessary.

4.5 Oral debriefing, report, diffusion, final meeting (total for 4.5 = 3 months).

The project should be completed with a time investment of 14,5 months. In order to be able to get landscape pictures in different seasons, an interrup-

tion of the work of some months seems unavoidable, unless it is decided to use pictures of only one or two seasons, giving away the possibility of including the variable 'season' into the study.

Table 9.1 Resumed time schedule

	Activity	Duration
4.1	Preparatory activities	1,5 months
4.2	Graphic material	3 months
4.3	Organize/administrate surveys	3 months
4.4	Analysis results	4 months
4.5	Reporting and diffusion	3 months
	Total	14,5 months

5. Project organization (including stakeholder involvement)

The project will be organized on a country basis, but implemented regionally. This is specially important in countries with high landscape variability like Spain, for instance.

Main stakeholders involved are, besides the Commission, are related Ministries at national and regional level (Agriculture, Environment, Tourism). Consumers and farmers unions are also to be consulted. Researchers on environmental economics (externalities) are also to be considered.

6. Benefits (for each stakeholder)

The benefits for the stakeholders are already discussed (see above). They can be resumed as being in possession of relevant information which will constitute the basis of policy-making decisions in the very near future, both at European level and in front of the main competitors.

7. Critical success factors

The discussed elements have a certain value in public opinion, and should be identifiable on farm level. It is an open question, if the inclusion of identifiable elements in FADNs feasible and optimal. This question has to be explored by the project itself.

The proposed methodology - contingent valuation method (CV) for landscape - is at a very early stage in Europe. Research, however, should not be discouraged for this reason.

Alternative applications of the model - not only RICA-FADN - should be considered. A possibility could be to integrate the obtained visual - aesthetic indices into multicriterial simulation models in order to estimate financial con-

venience of 'producing landscape' against more conventional productions. This is a research line already being pursued in Italy 1). Shadow prices of landscape can also be estimated. But we consider that these questions should be introduced in a follow-up project.

8. Estimation costs and funding structure

Funding institutions: governments, Commission, regional bodies, tourism, farmers bodies, considering the methodological aspects, research funds in general should be available.

9. Communication and dissemination

Final workshops with participants and stakeholders in participating regions; technical, scientific and journalistic reports.

10. Remaining remarks

The urgency of including the evaluation of the rural landscape within a policy framework can be felt. A development of alternative activities in rural areas, for farmers and other citizens are already well under way. The present project should help to 'nail down' an array of abstract concepts and make them economically operational.

11. PACIOLI participants involved

1. Miguel Merino (Spain), Jouko Sirén (Finland).
2. Beat Meier (Switzerland).
3. Per Persson (Sweden).

9.6 Economics of high quality food production systems

1. Summary

This project develops an information system and reports for policy makers on production costs, incomes and environmental performance for three types of farming involved in high quality food production: organic farming, high quality food products (regional etcetera) and good farming practice, all in comparison with standard farming practices.

1) Marangon, F. and T. Tempesta: Farm income versus agricultural positive and negative landscape externalities: a multicriteria approach. University of Udine. University of Padua.

2. *Product*

The product is a report for policy makers and consumers organizations with information on production costs, environmental performance and income for three types of farms: organic, high quality products and good farming practice, all compared with normal/standard farms.

Information for policy makers and farmers about production costs, environmental situation and level of integration with the market. Data for the consumers: more information on quality of food in order to let consumers know that it is important to pay subsidies for some products in some areas and be sure about health aspects of food (i.e. Beef of quality, BSE).

It will be possible to give information about three different types of farms, that reflect demand of three different kind of consumers.

3. *Objectives*

In many regions of the European Union farms are characterized by producing alimentary goods with a very high quality (vegetables, organic farming, vine, cheese, olive oil, etcetera), besides many farms that produce commodity at lower level of quality. It is possible to identify two big areas of analysis:

- control the production costs of production of high quality food and income of course. To control the costs could be important, because in the future we probably will have an unique market price;
- control the quality and agronomic practice for commodity.

For policy makers it is important to know if the food with high quality is competitive in the market in order to maintain some areas in good conditions or, if needed, some subsidies. For this products we do not need to check the quality but we need to know the production costs in farming activities and the proceeding activity at the farm level. The RICA could be organized in sub samples by sort of production and could be increased with extra data in order to understand the level of integration of the farm and which kind of contract they have with the agribusiness.

For the commodity it is important to know what the level of intensity of the farming activity is, in order to prevent environmental problems (this part of the analyses has to be organized together with environment indicators). RICA could collect data about the use of inputs and the production costs. In this case RICA does not need more information.

4. *Activity plan*

- Stage 1: review of literature, report on current know how, workshop with presentation of know how and inventory of issues for field research.
- Stage 2: define three types of farming (organic, high quality, good farming practice) and additional data to be gathered, also per type of farming. Select regions and products (based on importance of products / types of farming and on willingness of local FADNs to cooperate).

Stage 3: gather data for 3 years.

Stage 4: analyse data first year, write report and present in workshop.

Stage 5: analyse data over a three year period and write the final report.

5. *Project organization (including stakeholder involvement)*

Partners:

- researchers with experience in analysing data from such types of farms;
- FADN organizations that have good data on such farms or that are willing to gather this data; these organizations should be willing to change their data collecting without asking for a lot of funding;
- policy maker at national and regional level;
- organizations of farmers;
- marketing institutions.

Project organization:

- steering committee with partner funders and some policy makers, also from farmers organizations

6. *Benefits (for each stakeholder)*

Regional level: setup in better way policy for preserve local area under economic point of view and setup strategy for marketing in farm.

National level: setup in better way the national policy for quality in agribusiness and under environmental point of view.

Organization of farmer: know the production cost in order to help in a better way the farmer to manage their activity inside the market.

7. *Critical success factor*

To have the interest of policy makers in EU (DG -6, 11), in Member Countries and producer organizations.

Do not try to do this with 15 Member States, take case studies from important regions.

Regional FADNs should see this as important, a way for survival , not a source for money.

8. *Estimation costs and funding structure*

EU (consultancy to policy department or FAIR) pays the cost of research, coordination and costs of changing data collection systems in regions.

National member states or regions pay the data collection by providing funds for extra FADN farms or by reducing the RICA sample by 10% and using this capacity for farms in this research.

9. *Communication and dissemination*

Study report, scientific article, workshops, feed back to farmers that take part, articles in farm press.

10. *Remaining remarks*

11. *PACIOLI participants involved*

1. Fillipo Arfini (Italy).
2. Krijn Poppe (The Netherlands).
3. Simo Tiainen (Finland).

9.7 Management of rural development

1. *Summary*

The common policy of the last decades has sharpened the lack of balanced development, increasing the territorial disparities inter & intra regions of the EU. The diversification and the geographical spread of economic activities are seen by EU and National Authorities as a priority issue to develop rural areas and increase the political and economic 'Cohesion'. For an Integrated Rural Policy a more sustainable balance between the agricultural activity, other forms of rural development and the conservation of natural resources is necessary.

Through this decade the sectoral and regional policies are becoming more closely related. But the assessment and evaluation of rural development strategies need some indicators to measure their efficiency. The emerging information needs can have some implications for RICA such as the convenience of expanding the current sectorially oriented Data Networks (like FADN), in order to create an integrated Rural Data Network into a GIS (Geographical Information System) framework.

2. *Products*

Create a rural data network to provide rural policy makers instruments for policy making and the assessment of policy impacts. This data network must gather relevant indicators adapted to regional and EU needs and shall be closely linked to the FADN system. This means that FADN should be expanded with new characteristics concerning rural aspects.

The indicators must gather several aspects related to:

- the population dynamics;
- the economic activities in the region;
- the income;

- the sustainability of different activities taking into account the environment, situation of natural resources, landscape, etcetera (measurability of some of these indicators must be clarified with scientists).

The FADN, as a sectoral data network, can be a useful information framework (because of its infrastructure and the detailed micro level data it gathers from farms - scale economies) to provide an extended sectoral information layer (enlargement of the data domain), completed with other information sources to accomplish the rural areas requirements.

Use regional weighting (adapted farm typology) to aggregate up to national/EU level. Supply regional & national data to national governments, OECD and EUROSTAT.

It is important to link this project to other projects which concern environmental, landscape and other questions which are related to rural development.

3. Objectives

A. Define the data needs for rural policy.

B. 'Rural data mining'.

There are several statistic sources which describe rural conditions. The expanded FADN should be regarded as one important tool that in combination with other statistical sources could good information about several aspects of rural development.

It must be taken into account the whole set of different regional and sectoral data sources (Geographical data on the territory, REGIO; Population Surveys, Sectorial Structure Surveys, etcetera), their sample representativity, levels of aggregation, the homogeneity in their variable definition as well as their spatial and temporal homogeneity at the national and European level.

C. To show the interaction between agriculture activity and other activities going on the countryside.

- Define the subset of rural area variables/indicators to be incorporated in RICA. Related with the multifunctional role of the agricultural household (handcraft, food processing, agri-tourisme, landscape characteristics, state of natural resources and environment) and local organizations (i.e.: city and provincial councils managing landscape, natural resources & environment). This would allow to measure the contribution of the agriculture, other rural economic sectors and the rural policy (in broad sense) to family and regional economies.
- Construct a reference information model.

D. Improve the regional representativity of the RICA sample. (Possible to reduce the sample?)

- Design record farm return (fiche).

- Use regional weighting (adapted farm typology) for aggregation.

- E. Analyse the Geographical Information System (GIS) for different information layers corresponding to RICA + other regional & sectoral data networks (Information Technology).
 - Quality checking software systems.

4. *Activity plan*

- a. To investigate all kinds of statistical sources that exist today and which describe rural conditions (see objectives, point A).
- b. Consult OECD/EUROSTAT to define rural indicators using international standards.
- c. To look upon possibilities to combine FADN data with one or more existing sources (see objectives, point B).
- d. Look upon the possibilities to use data from other new parts of FADN (environment, landscape) for rural statistic purposes.
- e. Evaluation of necessary expansion of the variable list in FADN to cover new needs for rural statistics.
- f. Look upon the sample design. Is it correct for fulfilling the rural statistics demands.
- g. Production of a plan for carrying out a new expanded FADN (interaction with other FADN projects is here of vital importance).
- h. Implementation of the planned new designed FADN
- i. Data and software quality checking.

5. *Project organization (including stakeholder involvement)*

The practical work should be carried out of one or two secretaries. These person should continuously report to a working group in which representatives from the following stakeholders are represented:

- DG 6 A3;
- the national FADN committees;
- local policy makers;
- farmer organizations;
- statistical offices.

6. *Benefits (for each stakeholder)*

European Commission: be able to respond to Commission inquiries within an integrated rural policy framework. To be effective some rural indicators could be related in a rapid results scheme (see project on rapid results).

National FADN committees: to have a better perspective of what is really happening in rural areas, where agricultural activity in a narrow sense will represent in the future even a lower share of economic activity.

Local policy makers:	Important also for economic policy decisions at a national level. to get a full picture for their national and regional FADN's.
Farmer organizations:	farmers and their organizations are each day more involved in backward and forward linkages of agriculture (industrial activity, commercialization, inputs). They are already moving also into activities not directly related to agriculture, like rural tourism. To have an unified picture of economic activity in rural areas where they have an stake is important.
Statistical offices:	profit from more integrated data.

7. *Critical success factor*

- Political feasibility of combine different data banks (big brother syndrome);
- technical possibilities of integrating data from different sources;
- cooperation among farmers, rural industries, accounting offices and other involved to obtain good quality data;
- coordination of multidisciplinary research team;
- coordination with OECD & EUROSTAT about indicators as well as with other PACIOLI projects.

8. *Estimation costs and funding structure*

Very rough estimation: 250 000 - 300 000 ecu spread over three years for each participant.

Shared between Commission (75%), national governments (20%) and regional governments (5%). National and regional contribution in manpower and equipment.

9. *Communication and dissemination*

Include the information in INTERNET pages.

Final Workshop with participants, local and national authorities and other stakeholders.

Conventional publications (research and extension journals).

10. *Remaining remarks*

The quick structural change affecting European agriculture, the need of farmers to develop extra agricultural activity, the attractiveness of the country side as location for services and light industry are factors changing the face of the rural areas. New situations make new tools necessary, specially when scarce

budgetary resources have to be efficiently allocated. All this reflections contribute to give this project a very high priority.

11. *PACIOLI participants involved*

1. Inma Astorquiza (Spain).
2. Fillipo Arfini (Italy), Per Persson (Sweden).
3. Miguel Merino (Spain).

9.8 **Towards RICA for PECO countries**

1. *Summary*

The project aims at creating a network of experts and institutions in order to promote microeconomic farm analysis and RICA development in PECO countries.

2. *Products*

- established network;
- annual report with micro economic information of PECO countries, including rapid results;
- guidelines/expertise for PECO countries to develop FADNs (in a white paper time table with progress reports from PECO countries);
- assessment of possibilities to establish a PECO RICA integrated with EU RICA.

3. *Objectives*

See PACIOLI Reflection paper 3 with objective from Fischler paper.

Micro-economic information on agriculture in Central and East European countries (CEEC) is scarce, both locally and in the EU. In several Central and East European countries steps have been taken to promote private farming and to introduce farm accounting, for instance as an extension tool. This introduction is not easy due to a lack of knowledge on commercial accounting, the distrust of government statistics and the attitude to be reluctant to an exchange of commercial data (see for instance on the first experiences in Hungary: Poppe & Tängl, 1992).

The Agricultural Strategy Paper (Fischler, 1995) explicitly recommends the support to farm accountancy and farm management (extension services) as an action for technical financial assistance to CEEC countries. Currently there is no coordination between CEEC countries and the RICA on the exchange of experiences in setting up monitoring systems. For several reasons such a coordination could be useful:

- experiences and software from EU countries could be made available more easy and cheaper than under current arrangements;
- countries could learn from each other what works and what not. In EUROSTAT this process has already started by giving CEEC countries an observer status in work group meetings. For diplomatic/political reasons this seems not yet possible in management committees like RICA, although the same coordination problem exists. A special coordination effort is therefore useful;
- harmonization of data between countries would be on the agenda. At the moment some CEEC countries probably use the data definitions of RICA, where others do not. If data definitions are used, there is no support provided on interpretation and there is no check on how RICA definitions should be adapted to typical CEEC circumstances (e.g. privatised cooperatives where indicators like family farm income are probably nonsense);
- it would fill a gap, as there is no effort to exchange micro-economic data and to compare e.g. costs of production between CEEC countries themselves and between CEEC countries and the EU. It is curious that some work within the Commission is carried out on macro-data, but not on micro-data where in this case micro-data (e.g. on privatised farms above a certain threshold) could be much more interesting;
- building a RICA network for these countries that provides comparable data now would support the policy analysis and the negotiations on an eventual integration of CEEC countries in the EU. In the case of Greece, Spain, Portugal, Finland, Austria and Sweden this opportunity was lost: the local monitoring systems were build or harmonized to RICA standards after the association, meaning that data became available years after the accession of these countries. Recent research in Switzerland (Meier, 1996) learns that making networks comparable regarding data definitions and weighting systems, yields interesting and useful results. It would be a pity if CEEC countries build monitoring networks with incomplete (or only American) expertise with the effect that the data can not be used in policy analysis support the integration questions, and that than in a later stage CEEC networks have to be harmonized towards RICA.

In his paper to the third PACIOLI workshop, Florez Robles (1996) made some clear suggestions for such a project. It should start with network development, building partly on projects already carried out in the Phare-ACE program. By organising two 'master classes' a year (workshops that take one week, one in a CEEC country and one in a EU country) experiences and data could be presented, discussed and published.

It would be attractive to agree on a White-book were e.g. the definitions and procedures for 2005 are defined, but giving PECO countries the possibility to use national methods as long as the White-book recommendations cannot be implemented. Progress in adaption can then yearly be reported. Another suggestion is to ask some FADNs in EU countries (especially those involved in building systems in PECO countries) to take responsibility for support on har-

monization: a 'godfather'-role that was also used in some domains for Germany's neue Bundesländer.

This implies that with relatively low resources (e.g. comparable to the PACIOLI project) clear benefits could be realized.

4. *Activity plan*

Stage 1: identify partners in PECO countries and their current links with western partners.

Stage 2: 2 workshops a year, one in EU one in PECO. Each workshop takes a week, 50% of time is dedicated to reports from PECO on micro economic data, and 50% of time is used to discussion on methodologies. The expertise of PACIOLI is used for this purpose. Workshops are designed to facilitate the creation of links between individual PECO countries and individual EU member states (eg. Italy takes care of Bulgaria) and between experts in EU and PECO countries as a group (eg. NL takes care for weighting and farm selection). Workshops take three years maximum.

Stage 3: report to member states and commission on the usefulness to establish a PECO-RICA integrated with the EU RICA.

5. *Project organization (including stakeholder involvement)*

Like PACIOLI.

PECO countries should be interested in a FADN and should do the management themselves, and also pay for the local costs of data gathering.

6. *Benefits (for each stakeholder)*

- EU and EU Member States get micro economic data on PECO;
- EU and PECO get basis for national FADN to be installed after accession;
- PECO countries get methodologies for own FADN that also generates data for farm development;
- EU and PECO get data to support association negotiations;
- Partners benefit by getting a network to formulate new projects.

7. *Critical success factor*

Extension plays an important role there in establishing systems in PECO-countries now; this project should note that, but not take that too much into account as it is too complex with too much competition for funds.

8. *Estimation costs and funding structure*

- Concerted action like PACIOLI: cost for travelling, workshops, annual report are to be financed by the EU: DG 1A (mr. Braakenburg) or DG6 / 01 (mr. Ahner);
- costs for data collection and establishing FADNs in PECO are paid by PECO countries (unless EU or Phare would like to pay).

9. *Communication and dissemination*

Annual report, workshops, guidelines, brochure.

10. *Remaining remarks*

Invite EUROSTAT, Working group East-West Agriculture (?) of EU and OECD, World Bank and USDA/ERS in workshops.

Look out for competition with existing projects (e.g. in extension), make this clear and look for possibilities for integration.

Take care of Germany as they are not in PACIOLI but heavily investing in PECO countries; same holds for Danes and Baltic states.

Contact in A/3: Thierry Vard.

11. *PACIOLI participants involved*

1. -
2. Gunnar Larsson (Sweden), Simo Tiainen (Finland), Guido Bonati (Italy).
3. Lars-Erik Gustavson (Sweden), Krijn Poppe (The Netherlands).

9.9 The issue of quality in Harmonization of FADN-data

1. *Summary*

2. *Product*

Global quality program for FADN:

the quality programme involves every step of the FADN system, from the sample design to utilization of data, according to the users needs in terms of completeness, liability, validity and rapidity. The main products are:

- quality guidelines for quality declarations;
- standard set of metadata;
- documentation;
- quality softwares (is there software to be developed).

3. Objectives

- Create preconditions for control of cost efficiency when developing a FADN statistical system;
- create an infrastructure that links the quality programme to other PACIOLI projects (e.g. Peco RICA, environmental indicators and so on) (?);
- present quality guidelines including the current best statistical methods, in order to be able to do a quality declaration;
- present guidelines for implementable quality controls;
- present guidelines for how to classify data according to standard set of metadata;
- decentralize controls (e.g. process controls on farm return at regional level);
- first doing controls at farm level and national level before sending the data to DG V;
- produce modular quality software that works at different level of data aggregation (?);
- permit more rapid and easy access (?);
- quality declaration (?);
- are there possibilities in introducing a system of certification of the institutes/accounting offices involved in datacollection (ISO-like).

4. Activity plan

Step 1 - Quality guidelines

As a base for a quality program *Quality guidelines* are needed. A broad quality concept ought to be defined for FADN based on actual user validation. In principle all aspects/components of quality are to be valued by the user.

Contents

Statistical quantities

- universe and field of observation;
- sample design (definition of representativeness);
- variables and their definitions;
- type of statistical measures (estimation);
- level of detail;
- comparability with other statistics (e.g. EUROSTAT).

Accuracy

Overall accuracy of results

Sources of uncertainty

- coverage;
- farms selection;
- measurement;

- non-response;
- compilation;
- aggregation.

Quality declarations (presentation of uncertainty measures).

'Timeless'

- reference period;
- production time;
- punctuality;
- measurement and publication frequency;
- comparability over time.

Availability

- forms of dissemination;
- formats of presentation;
- documentation and meta-data;
- access to data base;
- information services.

*Step 2 quality control
guidelines for quality controls*

Documentation

All the phases of the guidelines must be adequately documented according to standard format on informatic support (connection with the PACIOLI project on reference information models).

*Step 3 Classification of data according to standard set of metadata
(this item is strongly related to project nr. 11 (information models))*

Produce

- univariate control software (at farm level);
- multivariate control software (at aggregate level).

5. Project organization (including stakeholder involvement)

Steering committee (financers)

- management board (methodological issues, project progress, activity planning);
- working group (experts on quality issues, experts on metadata definitions).

6. *Benefits (for each stakeholder)*

Harmonization and improvement of the quality of the collected data means transparency in interpreting data for all stakeholders including the commission).

High quality data are the basic instrument for research and consequently for better policy making.

7. *Critical success factor*

Agreements and acceptance in member countries (FADN's, accounting offices, other ministries involved in datacollecting e.g. agricultural census,...).

8. *Estimation costs and funding structure*

Funding could partly be done by commission and partly by member countries.

9. *Communication and dissemination*

Project report, quality guidelines and other guidelines delivered to member countries quality "helpdesk" installed.

10. *Remaining remarks*

This project must be limited to the delivering of the specifications of quality improvement. Software should be developed in a follow-up project.

Also attention should be payed to the controlling-mechanism of the quality improvement.

11. *PACIOLI participants involved*

1. Gunnar Larsson (Sweden), Carla Abitabile (Italy), Giovanni Sanna (Italy).
2. Lars-Erik Gustavson (Sweden).
3. Arne Bolin (Sweden, Nicole Taragola (Belgium), Conny Graumans (The Netherlands).

9.10 Standardization of datahandling in FADNs and RICA

1. *Summary*

A major conclusion of the concerted-action PACIOLI is that there is a need for improving the information infrastructure of the FADN/RICA administration.

Important conclusions of the PACIOLI-meetings, referring to the current situation of FADNs/RICA, are:

- current software used for FADNs is outdated and needs to be revised;
- the current farm return is outdated and insufficient;
- there is an increase in the use of on-farm computers for management purposes, sometimes including accounting. Management information systems contain useful and very detailed well structured data for future use by FADN/RICA;
- there is a demand of expanding FADNs towards more environmental issues like mineral-balances, the use of pesticides and the use of energy;
- the European Union is expanding, new Member States are welcomed. There is an urgent need for establishing standards for data-collection and- processing within FADNs and RICA. Also for other member countries who are planning for major revisions of their existing systems, standards are needed concerning technical aspects as well as the contents of FADNs;
- there is a need to standardize data-exchange, especially between FADNs of different Member States;
- there is a need to clearly define the different levels of detail of the information. Highly detailed data is used for example for gross margin calculations per product. More aggregated data is needed to exchange between member states and to report towards RICA;
- for setting up datastores there is a need for a clear understanding of data requirements and information flows;
- FADN information needs to be made more accessible to a wider users-group. Some FADN-data will be public some will be confidential. There is a need for an overview of available data;
- to make the FADNs more open systems, users outside DG VI should get access to it. For data-interchange, standard EDI-messages/-files will be needed;
- data collection at farm-level is for many member states quite a problem.
- there is a need for standardization and harmonization of data-collection, data-processing and reporting throughout the member states;
- there is a need for harmonization of bookkeeping throughout the member states.

Conclusion:

There is a need for a well defined information-infrastructure as a bases for an efficient and effective FADN/RICA-administration.

2. Products

The project will result in the following products:

Reference information model:

A reference information model describes processes, information flows and data used in the FADNs/RICA system. The model consists of a detailed process model, describing the processes and a detailed datamodel describing the data.

Final part of the information model is a data dictionary containing all definitions of all elementary data.

Standardized farm return:

Parts of the reference information model are worked out in further detail. One of the most important parts is to define the new farm return, taking into consideration new indicators on environment, energy, etcetera.

Standards for data exchange:

Based on the reference information model standards for data exchange are being defined to exchange data between Member States and between Member States and RICA.

Specifications for a modular flexible information system:

Based on clusters of coherent processes of the reference information model a modular system is defined.

Guide to implement the information model:

A handbook is provided to support the implementation of the information model.

3. Objectives

The information infrastructure of FADNs/RICA has to be revised. Standardization and harmonization between memberstates is very important for an *efficient and effective information handling that will lead to rapid results*. A certain degree of standardization and harmonization is very important to make results of Member States comparable and to guarantee the integrity of information. A reference information model is an aid to guard consistency of the information systems to be developed.

Therefore, the main objective of this project is to:

Define the basis for the information-infrastructure for the future FADN/RICA-administration by focusing on standardization and harmonization. A reference information model is used for the overview, for standardization of data-elements and processes and to guard consistency between the defined standards.

The result is a set of coherent and consistent reports containing standardized elements as building stones for the FADN/RICA information infrastructure.

4. Activity plan

The proposed project will be carried out according to the following workplan.

Stage 1 Estimation of data-needs and the setup of the global information model.

Description:

the first step in defining a information-infrastructure is to get a complete overview of all relevant activities (e.g. distributing, collecting, processing farm returns), the role of the different types of organizations involved (e.g. farmers, accountants, FADN-administrations, RICA-administration) and the use of data and information.

Once the overview is available, the next step is to set priorities in what parts (sub-domains) first have to be worked out in further detail (e.g. all that has to do with the farm return, mineral balance, energy use, financial accounting, etc.).

Working out a global information model, focusing on the process decomposition diagram, ordering all relevant actors and the main processes involved.

The most important aspect in this stage is to determine the domain of the model, to set the borders, and to get the general overview.

The global model needs to be sufficiently detailed, so it is possible to split it up in smaller portions (clusters) that can be worked out separately in more detail.

Approach:

the model has to be worked out by a small taskforce (maximum of 4 people), working closely together. Relevant knowledge will be obtained by interviewing experts and users concerning FADN/RICA and by studying existing material like the process decomposition diagrams already made up by each Member State in PACIOLI. For working out a consistent information model a case-tool will be used.

Result:

global information model (bookled, approximately 50 pages).

Time-schedule:

approximately 6 months.

Stage 2 Selection of information areas

Description:

once there is an overview of all relevant items (processes, information flows, actors), priorities are set the items that have to be worked out first in further detail. Examples of relevant information areas are: the information flow between farmer and accountant (farm return), information flow between FADNs, information flow between accountants and FADN.

Approach:

the same taskforce that carried out the global information analyses prepares an overview of all relevant items. The overview is discussed in work-

ing group meeting with participants of all member states. Priorities are set for each item. For the areas with the highest priority, working groups are established to work out these items in further detail. The objectives for each of the working groups is formulated.

Result:

- priority-setting of most important working items to be standardized;
- formation of working group.

Time-schedule:

2 months.

Stage 3 Working out in detail

Description:

working out the selected information areas in detail. Examples of areas to be attended to are: a standard farm return, a standard mineral balance, standard ratios for environmental productivity, special reports for quality management, standard tables, standard classifications, standard interfaces for exchanging data.

Approach:

each item is attended to by a separate working group or expert. Each working group consists of up to a maximum of 5 experts. One of them is an experienced information analyst. Several working groups are working parallel on different items. The information analysts guard the consistency of the items being worked out and standardized.

Result:

- one consistent Reference Information Model as the glue that keeps it all together, as the roadmap to get the overview and to find specific items, as the dictionary for standardized terms, data-elements and procedures;
- a number of reports. Each working item results in a separate report describing the standard. Each report refers to a specific part of the Reference Information Model.

Time-schedule:

2 years.

Stage 4 Organizing maintenance

Description:

after the Reference Information Model and all related reports are delivered in their first versions, maintenance is required. In this stage of the project maintenance is organized. Possibly a maintenance agency is formed and maintenance procedures are defined. Also the problem of financing the maintenance is solved.

Approach:

a special taskforce (to a maximum of 5 members) works out a maintenance proposal that is discussed with all member states.

Result:

- maintenance structure and maintenance procedures.

Time-schedule:

6 months.

Stage 5 Dissemination of results

Description:

for realizing the goals of harmonization and standardization it is important that the results of the project are available for all organizations concerned. Therefore research will be done to the best ways of dissemination of the results. In this context Internet seems a useful medium.

Approach:

a special workforce (to a maximum of 5 members) works out a proposal that attends to the way to publish the results of the project.

Result:

- structure for publishing and distributing the results of the project.

Time-schedule:

6 months.

5. Project organization

Steering committee:

- each stakeholder (financer) is a member of the steering committee;
- they have to take care of financial issues and the progress of the project;
- they have to agree on the results delivered by the expert groups.

Management group:

- the management group is responsible for carrying out the project;
- the management group organizes the expert groups, depending of the type of work to be carried out. The management group is responsible for the methodology used.

Expert group:

The first task for the expert group(s) is to work out the estimation of data needs and to delimitate the sub-domains. After that the expert groups start modelling the sub-domains.

For the task of modelization, each expert group should include a specialist in modelization.

The expert group is responsible for guarding the consistency of the overall information model.

The expert groups are in charge of the modellization of a specific subdomain. So there will be separate expert groups to attend to items like the introduction of new indicators on environment, etcetera.

6. *Benefits*

General benefits:

- more uniformed data;
- new domains will be covered;
- a reference information model can be used as a tool to manage revisions of the FADNs/RICA information system.

The benefits for RICA are:

- more rapid results by getting more standardized data.

The benefits at FADN level:

- the reference information model can be used at a national level to develop or revise the FADN and make it compatible to FADNs of other member states and to the RICA;
- the reference information model can be of good use for new member-states that have to develop their own FADN.

The benefits for the users are:

- the datamodel of the reference information model is a basis for defining standards for data-exchange and also is a solid basis for developing software and/or databases;
- the information model provides an overview which makes it possible to work out sub-domains in further detail and to guard consistency with other sub-domains.

The benefits for the farmers, accounting offices and farmer unions:

- the reference information model can be used to specify standards for data exchange between farmers and accountants, farmer unions, etcetera.

7. *Critical success factor*

For implementing the project financial funds be secured at an early stage. The complexity of the project is very high and the coordination must function in order to get a success.

This risk can be reduced by breaking up the project in several sub-domains, and work them out sequentially according to highest priority.

So, by starting with the most important sub-domain (e.g. the accounting data) quick results can be obtained.

Working step by step makes it possible to spread funding over a longer period of time.

8. *Estimation costs and funding structure*

The cost of such a project seems to be high. The project is spread over 4 years. But it is necessary if RICA really wants to improve its relevance. However, it seems possible to lead only a part of this project. So before proposing a more detailed budget, it is important to feel the real dimension of such a project.

Funding structure could be found at a European level (Commission, International organizations on standardization (EDI, ISO,...), but also at a national level (governments, suppliers of results,...).

A global estimation seems to indicate that the time needed is four m-en/year.

9. *Communication and dissemination*

An implementation guide.

10. *Remaining remarks*

The project is very extensive and covers a huge area of investigation and maybe can be seen as a political 'hot potato'. An alternative approach that maybe could be easily accepted by the commission is an analysis of the existing Farm return 'fiche' making a datamodel out of this.

Anyway, we should link this project to the project on quality issues, since that project deals with data harmonization and contains parts about integrating data with metadata.

11. *PACIOLI participants involved*

1. Conny Graumans (The Netherlands), Lars-Erik Gustavson (Sweden), Gert Hellevig (Finland).
2. Dirk van Lierde, Alastair Baily, Arne Bolin.
3. Guido Bonati, Bernard Del'Homme.

9.11 Agricultural Micro Economic Information System

1. *Summary*

One of the shortcomings of the current RICA is that this rich source of data is not made available to the public. In the past annual books with data and even micro fiches were distributed. At the moment, due to capacity problems, DG VI has to restrict its service to some tapes to member states, standard tables for those who are able to find the unit and a small contribution to the annual report by the Commission on the State of Agriculture. These activities

are supplemented by contributions by member states: for instance in 1994 France published a report with regional results at EU level.

This situation is regrettable. In his report on FADN indicators and its update for the third PACIOLI workshop Hill (1991, 1996) noticed that this should be improved. There seems to be a large discrepancy in many FADNs between the amount of money spend on data gathering and that on publishing and research with the data.

One argument for more publications is based on the idea that access to (expensive) governmental information should be available for the public. More important for the RICA is self interest. More feedback to farmers and especially regions could improve the quality of the data (Astorquiza, 1996). By providing the academic world with data, the EC would get a lot of interesting research reports back, without having to pay for the research (Bailey, 1996). The first feed back on Farm Trends, a new newsletter by one of the members of the RICA unit, is very promising. Reports and experiences are flowing in through the E-mail, making a large network available for the Commission and other RICA partners.

Currently the INEA and LEI-DLO have experience with the Internet, and especially the World Wide Web (WWW), its multi media section. The INEA has made data available at its server from the FADN, especially for the regions (Bonati, 1996). The LEI-DLO put its annual publication with statistics from the FADN on arable and livestock farming on the WWW (<http://www.agro.nl/LEI/>).

Like several Ministries of Agriculture (London, Bonn, The Hague) the European Commission also installed a WWW-server with a lot of information. This project proposes to develop a special (home) page for the RICA and to provide aggregated RICA data. It also will provide suggestions how to run the WWW-site in the future: as new RICA data do not come available every week, the interest of the surfing users should be attracted by e.g. providing new analyses and special tables on current policy items.

For the moment there seems to be no problems to disseminate aggregated data: this leads not to privacy problems. Making individual data available (even in a form where the individual would not be recognisable as detailed geographic information is deleted) could be very problematic for some countries like. It could be attractive for academic users to make queries on the individual database, where the output - to solve the privacy problem - is in tables with a minimum number of farms or a regression analysis based on a minimum number of farms. In France the RICA SAS database system provides this option to a few researchers and ministries (Agriculture, Finance) economics specialists. It is not clear if this would be acceptable for countries with a strict privacy regulation like Germany.

At the moment several programmes provide financial support to such innovations. The EU programme INFO 2000 tries to improve the 'content industry' of IT, and special attention is given to projects that promote the use of public data. The Telematics for Research programme could also be a ...

2. *Product*

- A. Document info system on Rica: legislation reports, general information on the network, newsletter, annual forecast report.
- B. Public Aggregated results database as CD-Rom and or on Internet.
- C. Guidelines for setting up a global system to access the European RICA database and/or specification of data subsets.
- D. Infrastructure for publishing RICA information and FADN data by Member States.

3. *Objectives*

The project aims at providing information out of the RICA database for external users (policy makers at EU, national or regional level, researchers, extension services, agribusiness etc.) and implementing a set of tools to distribute information and microeconomic data of European farms. Advantages:

- speed of distribution;
- getting more out of the Internet;
- larger audience;
- creating facilities for Geographic Information Systems, for instance, produce maps instead of tables;
- creating an infrastructure for the distribution of datasets 1).

4. *Activity plan*

Stage 1:

1. analysis of data needs by end-users. Potentially three very different end users - academic, policy, farmers/agribusiness;
2. analysis of available sources of information (texts, databases etcetera).
3. analysis of the end situation;
4. analysis of change.

Reflection on the form in which we will present information and results on the Internet. It is important that results could be easily read and that a specific information could be easily found.

Stage 2:

5. implementation of the information system (CD-ROM, Internet) 2);
6. specifying procedures and resources for maintenance and quality control.

Stage 3:

6. specification of guidelines for setting up a global system to access the European RICA database and/or specification of data subsets;

-
- 1) Organizational aspects (maintenance, quality control) should be discussed.
 - 2) Internet site could be in co-operation with Ministry of Ag, National Farmers Union.

7. establishing infrastructure for publishing RICA information and data by member states;
8. integration of RICA datasets with other statistical and geographical sources of information.

5. *Project organization*

Stage 1:

Participants in the project should have expertise in database definition and in distribution of information by electronic media.
Stakeholders should be involved in the definitions of end users- needs.
RICA should participate in specifying available data

Stage 2:

Technical expertise is needed in order to set the system up (INEA, LEI-DLO).

Stage 3:

External expertise on GIS, integrating data, cooperation with EUROSTAT.

Cooperation

INEA

LEI-DLO

RICA

Researchers? Workshop for specifying info-needs?

Step up to public source database

for 12 member states from 1987

95 -105 regions

Standard results by type of farming

- by economic size;
- area of the farm;
- range of income;
- at member state and regional level.

Annual forecast report.

6. *Benefits (for each stakeholder)*

- Manage cost effectiveness for the RICA;
- provide more rapid results;
- An easier access to results for all stakeholders (policy makers, farmer unions, researchers ...).

You can know how many stakeholders (and what kind of stakeholders) are reading your results by putting a counter or something like this on your results. Moreover, it would be a good tool to know the actual needs of users.

You can use Internet to have a discussion with and even between end-users (a kind of RICA forum). The system can also be used to specify specific requests.

With Internet, you also have the most recent information.

Internet could also be used as a broader information tool (to publish new regulations, some agricultural news, results of specific surveys, works from researchers ...).

7. Critical success factor

We have to promote it to the end users, to avoid the risk that it will not be used.

Maintenance is a critical success factor.

Performances of the system (in technical terms) to get the information quickly.

It is very important to get feed back of the end users on the type and quality of the information provided, in order to improve the information supplied.

The information providing by Internet must be continuously be adapted.

8. Estimation costs and funding structure

Possible sources of funding for site construction:

- EU programme INFO 2000;
 - TELEMATICS for research programme;
 - RICA;
 - National Ministry of Agriculture;
 - National Farmers Union;
 - Agribusiness;
 - Subscription from end users in public domain.
- Ongoing finance to be provided by principal users and RICA?
Possible to cooperate with Ministry of Agriculture if they already have a home page and thereforee reduce set-up costs?

9. Communication and dissemination

Data should be well indexed to allow the user to go directly to the required information.

Presentation of data on different levels ie with different end users in mind, the farmer will be interested at a different level to the academic or policy maker.

Essential to make potential users aware of new product. Regular users to be on 'mailing list' i.e. message sent to PC when site is updated.

10. *Remaining remarks*

It is very important that the data is of a high quality (see the data quality improvement proposals).

11. *PACIOLI participants involved*

1. Guido Bonati (Italy, Diederik Spiering (The Netherlands).
2. Conny Graumans (The Netherlands), Jérôme Steffe (France).
3. Alison Tanton.

9.12 Simplification and development of farm accounting

1. *Summary*

2. *Products*

Identification of potential improvements in farm accounting for policy makers (agricultural and environmental), advisory services , software suppliers, accountants and farmers (by creation/facilitating of a network of method).

CHAPTER 3 Objectives

Objectives of the improvement are:

- simplification of paperwork;
- integration of financial data with environment/good farming practice data to support control (extension, compliance, tax) (and)by multi use of data based on single entry in the systems;
- promotion of accounting (in CEC and EU) to support farmers in competitive responses.

4. *Activity plan*

Stage 1: workshop with accountants/farm management advisors, software makers, some farmers and policy makers and the research team to:

- identify issues;
- follow-up: definition of 3 questionnaires:
 1. for accountants/farm management advisors (like the Canadian study on methods, clients, IASC issues);
 2. software makers (on needs, EDI, developments in integration accounting and management software);
 3. farmers (use of accountants, demands for simplification, are accounts understandable, correlation with learning style, farm size etcetera);

First 2 surveys in all 15 member states (with one questionnaire, to give a representative view - taking stock);
Farmers: 'case studies' in 3 countries.

Stage 2: survey of accountants, software makers and farmers on accounting issues.

This project indication proposes to take a first step to improve the situation by carrying out a survey of accounting methods (including current and future issues) and to discuss this with professional organizations, e.g. in a joint conference with policy makers.

Such a survey could be more or less comparable with the work carried out in Canada and could also support the EU input in the work of the IASC.

Research with the survey data could provide clues on why and how farmers use accounting and how farmers value current accounting practices and software. Such positive theories (taking farm systems and learning styles into account) would be a welcome addition to the normative engineering research that dominates IT development.

Stage 3: workshop to develop recommendations for software makers and accountants.

Looking to policy goals like higher competitiveness and simplification, it makes sense to promote farm accounting for farms and to make it as simple as possible, integrated with other parts of the management system. Such an integration leads to less data entry and better use: the farmer has to integrate technical, environmental and financial data in his decisions, so his management information system should support this integrated decision making.

The small and medium sized businesses that currently provide software for farm management information systems do not have many know how in farm accounting and have not much experiences in integrating it in new software development. On the other hand accounting software is in many countries becoming more and more dominated by a few large suppliers. They lack know how of the agricultural sector and often overlook the fact that farm accounting has some special characteristics (e.g. no accounts payable / receivable but nevertheless information on trade partners, complicated partnerships - see Poppe, 1991 for more details).

To overcome this situation, this project develops guidelines for software developers on how to include accounting functions in future management information systems for IT advanced farms. These guidelines are pre-competitive.

Stage 4: workshop to develop recommendations for policy makers on the suitability of accounting data.

Applications of accounting (simplification and promoting adoption) in policy measures require a good understanding of agricultural accounting. This workshop proposes to look into the (im)possibilities of farm accounting as a policy tool for different kind of policies (e.g. income policy, environmental policy, structural policy, compliance) and to make suggestions for simplification.

Stage 5: integration of results
Writing end report.

5. *Project organization*

Partners:	Research:	LEI-DLO, Wye College, ENITA de Bordeaux, Swedish University of Agriculture, Finnish MTTL, FAT (Switzerland) EU Association for Accounting organizations in Brussels (FEA?) two or three software providers (through EUNITA) two or three commercial management accounting organization/advisory centres
Management Board:		partners
Project leader:		from one the research institutes
Stakeholder involvement:		partners and in the workshops
Timing:	stage 1:	6 months
	stage 2:	12 months
	stage 3:	4 months
	stage 4:	4 months
	stage 5:	4 months
	Total :	30 months

(perhaps stage 2 should be longer and stage 3, 4, and 5 smaller, but then stage 2 should be split in 2a, 2b, 2c).

6. *Benefits*

- develop visions of future data management at farm level; check these visions in the context of:
 - farmers needs (internal);
 - external needs (business partners, research, governmental bodies, consumers...);
 - technological development.
- provide a blueprint for future development of software for management and accounting to promote:
 - simplification;
 - integration of uses;
 - information for competition.

7. *Critical success factor*

- Industry has to adopt recommendations.

8. *Estimation costs and funding structure*

Concerted action in FAIR.

Co-funding from banks (Rabobank/Credit Agricole) or accounting organizations.

9. *Communication and dissemination*

A network like PACIOLI seems to be a good way.

10. *Remaining remarks*

Develop project proposal by making contacts with (EU) organizations in accounting and some accounting software makers. The proposers to FAIR would have to be some research institutes (e.g. Wye College, LEI-DLO, ENITA de Bordeaux) WITH the EU Accounting Organization and some software makers.

11. *PACIOLI participants involved*

1. Krijn Poppe (The Netherlands), Bernard Del'Homme (France), Nigel Williams (United Kingdom).
2. Bo Öhlmér (Sweden), Alison Tanton (United Kingdom), Jouko Sirén (Finland).
3. Beat Meier (Switzerland), Gert Hellevig (Finland).

9.13 Using micro economic data to analyse policy issues

1. *Summary*

A large-scale model will be constructed, contingent upon the estimation of regional econometric production studies. The model itself will take the form of a large Computable General Equilibrium Model. Data used within this model are generated from regional production analysis of FADN data. Econometric methods are used for this phase. While much of this work is possible at present, additional information upon the allocation of inputs to outputs is required to provide for a full Multi-Output framework to exist. Supply of simply interpretable results at great speed.

2. *Products*

An annually Renewable model which can be used to analyses, at speed, the effect of policy proposals. The model must provide fast results. To this end an annual, routine regeneration of production coefficients must be carried out to provide coefficients of the CGEA model.

A model that make it possible to:

- simulate the effects of different policies;
- standardize quantitative results of policy simulation (Commission; national ministries; regional authorities, Unions);
- create standards for policy control.

An important function of the model is to be a standard for making different analyses according to the points above for different stakeholders like FADN-unit and national ministries.

3. Objectives

- The problem is first defined from the point of view of the client organization;
- define additional data requirements: link with Projects 'New Farm Return' 'Data requirements' (Require information on the allocation of Input x to output y);
- forecasting;
- control;
- quantification & simulation.

4. Organization

Create a network of Research Institutes, throughout the European Union. Each Institute is to develop National Model (Estimator + Simulator).

This network to define standard approach. Thus each national model is country specific but uses identical methodology.

Link with Work on a Common EU Farm return. To define data needs and definitions. Ensure feasibility of data additions. Must be recorded at farm level. May require extension services to promote the use of Gross Margin analysis of individual farm enterprises.

The practical work should be carried out by one or two secretaries. A good idea could be to choose one with a research back-ground and one with experience from practical work with FADN.

The project has 3 clear stages:

- data redefinition (inputs);
- develop estimation methodologies (production elasticities and coefficients) for annual regeneration;
- develop CGEA Model (the flexible question device, provider of quick answers).

The secretary should frequently report to a working group. (Design Research + Executive secretary + Stakeholders representative).

An account is given of how certain hypotheses associated with the problem were formulated. New elements that would have to be considered: environmental indicators, non farm incomes etcetera.

A research group could also be necessary to set up for designing of the simulation model: the technical aspects of the model building are described in detail (involving stakeholders):

- report to policy makers + FADN committees;
- run the provisional model;
- redesigning the model;
- new Needs (feedback)

Results:

- model;
- simulation;
- exercises are summarized and an indication given of how the models were used on an on-going basis by client organization.

5. Activity plan

Consult with Staff at CAS-Reading UK, re LUAM model (Leontief based simulation Model for UK agriculture). Search for other alternatives, other countries.

This project extends this model into GEA and for all Regions of the EU.

- | | | |
|----|---|-------------|
| 1. | Defining the problems | 3 months |
| 2. | Defining the target population | 2 months |
| 3. | Model-building | 6-12 months |
| 4. | Modelling exercises, simulation and testing | 2 months |
| 5. | Conclusion and popularization | 6 months |

6. Benefits

1. To get a standardized and accepted way of making standard simulation for policy purposes and other uses. Like quantification.
All kinds of stakeholders should benefit from this. No confusion would occur between for example the Commission and national authorities concerning the way of doing the calculation.
2. One objective of the model is to create figures quickly. This means for example that questions like how does a certain cut down in quotas effect the profitability for a certain group of farmers.
3. An important question that is connected to the use of the suggested model is to market it to the stakeholders. During the discussion there has been stressed out that the stakeholders today don't understand microeconomic statistics like FADN. One important issue is to market the use of FADN and make it more understandable for the stakeholders.

7. Critical Success Factors

- Ensure common adoption of additional (allocation) data collection.
- Fall back position: Adopt for important agro-types and regions.

- Generate Production Model Estimation of production coefficients.
- Develop Johanssen Model for the EU using coefficients from above as input.
- * Ensure validity of model using Historic Data and Past Policy 'shocks'. Test the performance of the model to forecast changes in Output Production, Input Use and Farmer+Regional incomes. (Intersectoral Linkages in regional Economies).*

8. *Estimation of Costs*

Project Development:

- develop Pilot approach: assess 'state of the art' 4 months *3
- network meeting *2, 3 days*15
Outcome: Methodology ensure commonality between countries
- pilot methodology and data retrieval procedures in each country
15*2 * 9 months
Outcome: interim report and results
- network Meeting: 15*3 days
- construct 'Up-to-date' models: 15*2 * 6 months
Network Meeting and Final Draft Report 15*3 days, + 3*5 days.

Funders:

1. FAIR an other EU research funds;
2. National Gov't Funds;
3. Commercial, Input supply Co's and Output Distribution Networks;
4. Sale of forecast results.

9. *Communication and dissemination*

10. *Remaining remarks*

11. *PACIOLI participants involved*

1. Carlos San Juan (Spain), Per Persson (Sweden).
2. Alastair Baily (United Kingdom).
3. Alastair Baily (United Kingdom), Jouko Sirén (Finland), Bo Öholmér (Sweden), Fillipo Arfini (Italy).

10. ADVOCATES GROUP: VISION STATEMENT

In the PACIOLI 4 workshop a number of stakeholders (e.g. from ministries of agriculture, the IASC, OECD) were present. They were asked to provide comment on the project proposals under development and the PACIOLI/FADN issue. The stakeholders (labelled in the workshop as 'advocates of the devil') responded among others with a vision statement, that is reproduced below:

PACIOLI-PHILOSOPHY

The leading European agricultural intelligence network, supplier of micro and macro economic data and rapid response data to European Union, European member and International associates.

Environment

- * Budget threats
- * Competing sources of policy support
- * Selectivity of political stances/visions. Diminishing need for agriculture data and politically created representations of reality. Construction of reality versus representation of reality. Time pressures lead to the former, alternate perspectives enable the latter.
- * Alternate perspectives are a necessary part of ensuring realistic representations. (Example, project 16).
- * Myth busting [There are considerable dangers in adhering to a single perspective (for example macro) for policy development.
- * Policy shift from equity of policy delivery (levelling of playing fields) to improving global competitiveness...success judged by different criteria [gives rise to national/regional analysis cf. international/sectoral analysis (a weakness of proposals on the table)
- * Demands for data is shifting from fixed time lagged data to rapid response predictive data with subsequent micro/sectoral monitoring.
- * Increased political accountability for outcomes requires identification of indicators of policy outcomes at the impact assessment stage and consequential monitoring at policy implementation stage.

Differentiation

Strengths

Data base management
Network of experts
Range of expertise

Innovative ideas

Weaknesses

Narrow European focus

Focus on FADN as the sole delivery tool as opposed to a complimentary vehicle to other tools

Database/Technical focus

Differing administrative/management settings for current core business.

Consequences

Need to clearly delineate roles, i.e.

- data base management for routine data collection [requires upgrade in delivery mechanisms to ensure relevance to policy makers/monitors] and communication.

Requirement:

A very skilled public face integrated into EU/RICA delivery mechanisms, with a strong focus on data base management.

- rapid response unit for impact analysis [ad hoc data collection both from existing databases, sources, and establishment of predictive perspectives.

Requirement:

Loosely coupled/invisible organization with multiple entry points. Invisible, to defuse/disarm policy makers concerns regarding monolithic/monopolistic character of consortium. Focus on network expertise (expertise directory, rapid communications, electronic Delphi/polling techniques), research based, innovation/creativity. Feed back into database of ongoing monitoring requirements.

Globalization

Interrelationships with Governments /agencies outside RICA/FADN environment (Project 6 a, b, c).

Conflict between internal stakeholders dealing with external agencies particularly from a global competitiveness perspective.

Organization

Current core business well served by existing management structures. Emerging potential business has no structure for organising /developing, detrimental to medium/long term future of FADN as a policy tool.

Consortium

loosely coupled/invisible/multi entry points-strategic alliance

situational leadership, project based, interdisciplinary according to interest and expertise

User pays?

Advantages

simplicity for initial access

representation...no competing reference source with such a pan-European perspective.

Structured for innovative/creative responses to an increasingly broad and complex policy matrix.

Potentially more closely aligned with institutional research interests

11. PACIOLI FOLLOW UP

On the basis of several statements provided by the project leader, the PACIOLI group discussed the follow up of the concerted action PACIOLI.

1. *PACIOLI generated project proposals: objective realized. Stop PACIOLI and see what the future brings.*

The entire group disagreed with this statement: follow up was wanted.

2. *Coordination of projects can be done by existing organizational structure (FADN in member states, RICA unit A13, RICA management committee).*

Remarks on this statement: in fact this is true, but

- we need more subgroups in the RICA committee;
- perhaps a double speed network is needed;
- it means that the source of innovation will disappear

3. *Obstruction in innovation will always occur. Don't bother, innovation of FADNs has to go on, even without 'obstructors'.*

Comment:

- draw a distinction between national and European level;
- don't forget the typology of the FADNs in various countries (X and Y, see the second PACIOLI reflection paper). There are different data collection methods. Maybe this again asks for a double speed network?
- PACIOLI deals with national FADNs. The RICA committee is not always a good structure to exchange ideas between FADNs and certainly not for ideas on management accounting.

4. *FADN characteristics: 1. High fixed costs
2. Low marginal costs*

For innovation in the marginal cost area it is not 'elegant' to ask for EU-funding. Most of the PACIOLI proposals are in the marginal cost area.

Comment:

- first part of statement is not true! Especially not for type X FADNs (buying data);
- cost savings on fixed costs could be made by investment in data;

- use of data could be improved: at the moment nobody uses the data;
- there are more budget sources in the EU than DG VI, like FAIR, Telematics for Research, Info2000.

5. *EU asks for studies and is not interested in a FADN. Adequate data gathering infrastructure is primarily a responsibility of the organizations that want to apply for the studies. PACIOLI should be transformed into a formal consortium to apply for those studies.*

- Comments:
- is a Joint Research Centre an option?
 - what is the role of national governments?
 - this option is impossible without the non-PACIOLI countries;
 - what to do if some Member States will not want to gather the data? All countries must be represented in a management board. They can carry out studies;
 - EU could be more than the Commission, sometimes a Member State;
 - we have to push the Commission: we are interrelated;
 - we should more actively search for studies (with current data) with other users (farmers organizations);
 - PACIOLI should be evaluated in the RICA Committee, also to see if other Member States are interested;
 - we should look to the core business of PACIOLI: innovation and launching projects, due to mixed backgrounds. PACIOLI is a laboratory for innovation (including 'prototyping'). Coordination of projects is the role for the RICA Committee or the funders of research.

7. *The PACIOLI project proposals have to be 'copyright' protected.*

Everybody agreed that this is nonsense; they should be published in the public domain for use by everyone who is interested.

8. *The exchange of experiences, visions, knowledge, worries, methodologies etc. in the PACIOLI project has been profitable for the participating Member States. This in itself makes a continuation of a PACIOLI-like platform attractive for all EU-Member State FADNs and allied organizations. THE NEXT MEETING OF PACIOLI WILL BE IN MARCH 1997 IN SWEDEN!*

Comment: okay, let's save on travelling costs by planning the meeting in the same week as a RICA Committee meeting. The location is clear in that case: (near) Brussels.

A last general remark was made by one of the stakeholders present: PACIOLI must take care of a collective marketing concept. Policy makers are

totally unknown with the management of a FADN. Communication with policy makers is really necessary for survival of the FADNs. Therefore a 10% "automatic" innovation in the FADN is needed each year.

12. CONCLUDING REMARKS

In its two years' existence the PACIOLI concerted action has been quite successful in bringing together scientists and administrators from different countries (United Kingdom, Italy, France, Spain, Netherlands, Sweden, Finland, Belgium, Germany, Switzerland) and international organizations (European Commission, OECD, IASC, EUROSTAT).

It is too early and not up to us to judge the cost/benefit ratio of this concerted action. However the management board of PACIOLI concluded that the concerted action created a lot of energy for innovation in FADNs and farm accounting with a relatively low input from the participants. This energy provides hope that the new management of the RICA unit of the European Commission will find collaborating partners for their plans to revitalize the RICA and secure its future. Of course decision making on the development of RICA should be done in the RICA management board.

With the publication of this workshop report and the final reflection paper and bringing the project proposals in the public domain, the official concerted action, based on support from the EU's AIR programme comes to an end. It is a sign of the success of PACIOLI that the contributing participants have decided to keep the network in tact at their own expense. The fifth PACIOLI workshop is organized in June 1997 in Sweden.

APPENDICES

Appendix 1 Participants PACIOLI 4

FINLAND

Simo Tiainen
Jouko Sirén
Gert Hellevig

FRANCE

Bernard Del'Homme
Jerome Steffe
Emmanuel Chantry

BELGIUM

Nicole Taragola
Dirk van Lierde

IASC (New Zealand)

Ian Kirton

SWITZERLAND

Beat Meier

SPAIN

Miguel Merino
Inma Astorquiza
Carlos San Juan

ITALY

Guido Bonati
Carla Abitabile
Filippo Arfini
Giovanni Sanna

UNITED KINGDOM

Nigel Williams
Alastair Bailey
Alison Tanton

RICA/EUROPEAN COMMISSION

Luis Florez

SWEDEN

Bo Ohlmer
Per Persson
Gunnar Larsson
Arne Bolin
Lars-Eric Gustavson

THE NETHERLANDS

Krijn Poppe
Diederik Spiering
Conny Graumans
Foppe de Haan

ORGANIZATION (NL)

George Beers
Carlien Pruis

OECD (Paris)

Gregory Strain

EUROSTAT (Luxemburg)

Johan Selenius

Appendix 2 Curricula vitae participants PACIOLI 4

RICA

Luis Florez-Robles

Business economist working as administrator/analyst for the European Commission-RICA Europe. Graduated at the Polytechnic University of Madrid. Started his career as lecturer of agro-economics at the University of Leon, where he became head of academic affairs of the School of Technical Agricultural Engineering. Moved to the Polytechnic University of Madrid to do research and teaching work on several topics of agribusiness economics and microeconomics. Also worked as general manager of the Spanish National Association of the Brown Swiss Cattle Producers and as a private consultant before joining the European Commission. His main areas of work are economic analysis, costs of production for crops, forecasts of the farm income and European projects for producing, gathering and disseminating agro-economic information.

Belgium

Nicole Taragola

Current function: researcher in the Agricultural Economics Research Institute (LEI-IEA), Brussels. She is responsible for the Belgian FADN of horticulture holdings; sample plan, coordination of the collection and analysis of FADN data. She makes the calculation of the Standard Gross Margins and is also busy with micro-economic research in horticulture.

Dirk van Lierde

Current function: head of the Department Micro Economy of LEI-IEA, Brussels. He is responsible for the Belgian FADN since 1987. He carries out micro economic research in horticulture and agriculture. He is also responsible for developing software packages for the IEA accountancy data network.

Finland

Jouko Sirén,

Member of the Management Board:
long term experience in agricultural economic research especially in farm management and accountancy. 15 years experience in agricultural policy planning and administration in the ministry of agriculture and forestry and national board of agriculture. Vice chairman of the agricultural research consultative national committee. Head of the Agricultural Economics Research Institute since 1992. MTTL as the 'section Finland' is tuning the Finish FADN to the RICA network.

Simo Tiainen,

researcher in the Agricultural Economics Research Institute (MTTL).
Mr. Tiainen is a specialist in agricultural statistics and especially FADN-network. He has worked for some months in DG VI in Brussels with FADN in European Union. At the moment he is working with problems concerning EU farm typol-

ogy on Finnish bookkeeping farms and Standard Gross Margins (SGM) for different products.

Gert Hellevig,

Being an advisor, he currently works at the Agricultural Economics Research Institute (MTTL).

France

Emmanuel Chantry

Agricultural agronomist, works in the statistical office of the Ministry of Agriculture. Now head of the division of conceptual studies, he is to take the direction of the FADN unit in September 1995.

Bernard Del'Homme

Lecturer in Economy and Management at the ENITA de Bordeaux (a national School of Engineers in Agriculture). Specialist in farm management. He works on expert system for management diagnosis and on Information System in Agriculture, particularly around references. He participates at the ENITA to the software activities. (ENITA produces and sells several softwares in accounting and management in Agriculture).

Jerôme Steffe

Assistant-lecturer in Management and Computerizing at the Enita de Bordeaux. Specialist in Information System in Agriculture. He participates at the ENITA to the software activities. At the present time, he works on a new definition of the management Information System of the farm, in order to develop a new management software.

Italy

Guido Bonati

graduated in Agricultural Sciences (Piacenza Catholic University). MBA degree at Boston university. Senior researcher at INEA. Responsible for information technologies at INEA.

Main research activities in:

- information technologies for agriculture;
- adoption of IT by farmers;
- utilization of IT for extension services;
- development of DSS for agriculture.

Carla Abitabile

graduated in Agricultural Sciences (Naples University). Senior researcher at INEA. Responsible for RICA/FADN in Italy. Main research activities in:

- statistical utilization of RICA data;
- CNR-RAISA project on agriculture of Italian disadvantaged areas;
- agricultural data bases;
- biological agriculture.

Filippo Arfini

is researcher at the University of Parma. He has developed an application of Positive Quadratic Programming to RICA data. At present he is working on an implementation of this software in order to take into account all 20,000 Italian RICA farms.

Giovanni Sanna

Senior researcher at INEA. Expert in agricultural accountancy. Contributed to carry out the current accountancy methodology of INEA; author of farm planning procedures and softwares; carried out data collection and analyses methods about costs of production.

Recent research activities: research coordinator for a study on the comparison between growings with different environmental impact and for a project on new accountancy methodology for professional farms.

The Netherlands

George Beers

Management scientist, expertise in ISD-methodology, experience in development of farm information systems, development of agricultural information models, manager/senior scientist in research programme on fundamentals of information modelling, project leader of innovation of computer system for Dutch Farm Accountancy Data Network.

Connie Graumans

works with the ATC. This organization develops and maintains information models for Dutch agriculture. The aim of the Agro Telematics Centre (ATC) is to optimize the use of informatics in agriculture. It is a non-profit organization, financed by the government and the farmers organizations. The ATC has been active in international projects before.

Foppe de Haan

Foppe started his career at the Dutch ministry of Agriculture, Nature Management and Fisheries in 1981 as policy assistant in International Economic Affairs. From 1986 till 1988 he worked at the Agricultural Council in Paris. During that time he followed courses at the 'Ecole Nationale d'Administration'. From 1988 till 1994 he was head of the staff unit of the Directorate General of Agriculture and Food Supply. June 1996 he graduated as Master of Public Administration. Currently, he is head of the subdivision Economics and Structures of the Dutch ministry of Agriculture. He works on the EU- structure policy, the coordination of financial instruments such as stimulation of markets and competition, deregulation and administrative lessen the financial burden.

Krijn Poppe

Business economist with many years experience in research to support the agricultural policy making in the Netherlands. Dutch representative in the RICA committee. Expertise in accountancy and information modelling in agricultural bookkeeping. Project leader of projects to implement mineral bookkeeping in Dutch agriculture. Intensively involved in the management and innovation of the Dutch FADN.

Carlien Pruis

Is the organizer of research events at LEI-DLO. She supports the project leader in organizing the PACIOLI workshops.

Diederik Spiering

Diederik graduated at Wageningen Agricultural University. He works as a researcher at the Dutch Agricultural Economics Research Institute (LEI-DLO).

New Zealand

Ian Kirton

Project Manager, IASC-Agriculture, developing an International Accounting Standard for agriculture. Senior Lecturer, Primary Industry Accounting, Massey University

Current work:

1. Financial Analysis Tui Dairy Farmer of the Year
2. The intersection of financial and physical information in farming systems
3. The interface between accountant and farmer client.

Spain

Inmaculada Astorquiza

Research experience in Spain and United States on natural resources and environmental economics related with agricultural production. Publications on agricultural production, supply and policy, as well as resource and environmental economics. Familiar with data sources in the agricultural context. At the UPNA there are research groups working on decision making, accountancy, information systems, policy etc, as well as on environmental issues.

Miguel Merino-Pacheco

Agricultural economist and researcher with extensive work done on different aspects of Spanish agriculture integration in the EU, regional economics, set aside programs, marketing of agricultural products). Based in Germany, he makes long and frequents research stays in Spain. His work has been carried out, up to the present, through the Universities of Madrid, Hohenheim (Stuttgart, GFR) and Humboldt (Berlin (GFR), with private and public funding.

Carlos San Juan

has a Ph.D. in Economics from the Complutense University of Madrid, and has a postgraduate degree in "Time Series Analysis and Macroeconomic Dynamic Models" from the Central Bank of Spain.

He is presently a Professor at the Carlos III University of Madrid in the Economics Department, teaching Applied Economics (Spanish Economics, Environmental Economics and E.U. Economics).

His research is in the field of Agricultural and Environmental Economics and the Labour Market, and has published several books and articles.

Sweden

Bo Öhlmér

Professor in farm management, Swedish University of Agricultural Sciences. He has carried out research in farmers' need and use of information, the managerial processes and use of information technology.

Arne Bolin

Works at Statistics Sweden. Is specialized in financial accounting and has experience from different sectors of industry. He has been in charge of the Swedish Farm Economic Survey since the administration of the survey was transferred from the National Board of Agriculture to Statistics Sweden in 1976. Bolin is responsible for the adaptation and implementation of economic methodology according to the principles of the Farm Accountancy Data Network (FADN) in the Swedish system.

Lars-Eric Gustafson

Works at Statistics Sweden. He is a computer scientist with university diploma and several years of professional experience of agricultural systems. In 1994 he worked in Eurostat with issues concerning development of a metadata and catalogue system for European statistics (CANDIDE). In the adaptation of the Swedish Farm Economic Survey to the principles of FADN, he is responsible for the system analysis and the programming.

Gunnar Larsson

Head of the Farm Economic Surveys, Statistics Sweden (SCB). His department is producing statistics on farm economics, and the main users of these statistics are the agricultural policy makers. The department is working with the implementation of FADN in the Swedish survey.

Per Persson

Head of the Joint Council for Economic Studies in the Food Sector (LES). LES has the responsibility for the cultural statistics in Sweden, i.e., which agricultural statistics should be produced and by whom. LES is responsible for the Swedish accounting survey linked to FADN.

Switzerland

Beat Meier

has studied agriculture at the Swiss Federal Institute of Technology in Zürich. At present he works as an Agricultural Economist at the Swiss Federal Research Station for Agricultural Economics and Engineering, Taenikon/Switzerland (FAT). In his work he focusses on the application of the EU farm typology and the methodology of the EU FADN on Swiss data.

Relation to FADN:

he has applied the methodology of the EU FADN to the data of Swiss farms. This involves dealing with the EU Farm typology, creating the data set of the Farm Return (in a simplified form), the calculation of the essential 105 standard variables per farm and the weighed standard results. For the future development of the Swiss FADN, he is mainly involved with the issues farm typology, sampling and weighing.

United Kingdom

Nigel Williams

Current function: Senior lecturer in agricultural business management. Wye College, University of London.

Relation to FADN:

Chairman, UK Ministry of Agriculture Farm Business Survey Methodology Working Party.

Member, UK Ministry of Agriculture Farm Business Survey Sub-committee.

Actively involved in the collection and analysis of FBS/FADN data at Manchester University and London University (Wye College) from 1970 to 1978. Manager, Wye College FBS/FADN operation from 1977 to 1984. Author of numerous reports on FBS/FADN data. Author of several computer software packages in use at Wye College and other universities for dealing with current cost accounting procedures.

Expertise in information science:

an extensive experience of linear and other programming techniques and their data requirements for economic and behavioural modelling.

Relation to agricultural policy makers:

carried out a number of policy evaluations for UK Ministry of Agriculture.

Alastair Bailey

Current function: Research Officer in Agricultural Management and Economics. Wye College, University of London.

Relation to FADN:

has extensive knowledge of building secondary data sets, using UK's national FBS and the FADN, for economic modelling purposes. Much of this work has involved the pooling of successive FBS cross sections to form Panel Data sets. This work was carried out for my PhD study and for a project funded by the EC The FADN Gross Margin Project with Andrew Errington and Peter Midmore (Reading and Aberystwyth).

Data collection role. Acted as a research assistant on MAFF Occasional Survey of Hardy Nursery Stock enterprise in England and Wales 1993.

Expertise in information science:

the above data sets have been used in conjunction to econometric techniques to obtain production parameters from duality based models. In the long term it is hoped that these models will be combined with GIS and Meteorological data to improve estimation performance.

Relation to agricultural policy makers:

no direct involvement as yet. However, most work does have policy implication.

Alison Tanton

Alison Tanton, HND Agric, Dip FM

Current Function:

Senior Investigational Officer, Wye College, University of London

Relation to FADN:

member of MAFF UK Farm Business Survey Sub Committee and Special Studies Sub Committee. Supervises the collection of FADN data in South East England.

Expertise:

specialist in Farm Accountancy with experience in commercial and research applications.

OECD

Gregory Strain

Economist responsible for farm income and structural analysis at Agriculture and Agri-Food Canada. At the time of Pacioli 4, was working at the OECD to develop a database of structural indicators. Experience in the use of microeconomic data in policy analysis and advice, and involved in developing administrative data for analytical and policy development purposes in Canada.

EUROSTAT

Johan Selenius

Johan Selenius graduated in agricultural economics in 1986. After that he worked 10 years for the Finnish Ministry of Agriculture and Forestry, in its regional district office as a financial expert, dealing mainly with the governments financial aid to different investments on farms, also purchases of farms. He was responsible for creating a better structure in agriculture by applying early retirement schemes to elderly farmers and aiding young farmers. In this work he was very dependant on the advisory tools of the advisory services, which are very much based on the FADN-results. In February 1996 he started to work for Eurostat F-1, Agricultural Accounts and Structures, where he mainly works with the farm structure surveys. In this work he uses the same typology as the FADN, which is the reason for his participation in the last PACIOLI workshop.

Annex 3 Participants and addresses PACIOLI 1-4

BELGIUM

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