

Agro Informatics in Belgium

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Introduction

The evolution of agoinformatics in Belgium will be discussed and the use of computers by farmers will be illustrated based on inquiries held in 1986 and 1991 by the Faculty of Agricultural Sciences of the K.U. Leuven.

Levels of automation

Three levels of automation can be distinguished in agro business. First the monitoring and process controlling systems: climate monitoring, milking, sorting. Automation in practice has been mainly related to process automation. Secondly farm management computers. The monitoring and process controlling computers evolve towards a connection with the farm management computer.

The data obtained can be used for decision support. Thirdly the integration of farm computers with information networks, removing information isolation step by step. This integration with external databases is in a preliminary stage.

State of affairs

An inventory made in 1986 on dairy cattle farms and warehouse horticulture shows that a number of modern specialized farms use computers to control certain processes (climate, nutrient solution composition, ...). Motivations to introduce these systems where firstly to analyse and solve existing problems and secondly to obtain a higher income. A large number of firms offered

software hampering one's choice. Often a farmer had to buy several systems (even computers) to achieve the wanted goals without using the total capacity or all the different possibilities of each system. There was clearly a need for a modular and integrated approach.

During the last four years agro business also followed the general trend of increasing interest in computer use. Since informatics are subject of study in most education programs, computers are often bought for an educational purpose. A better understanding resulted in what computers can do in management and controlling tasks, which can lead to a more reasoned decision for the kind of involvement with informatics one needs.

Question: Do you use computer support for the following tasks or would you use a computer if you had one at your disposal? (several answers are possible)
(the numbers are percentages of the 290 questionnaires)

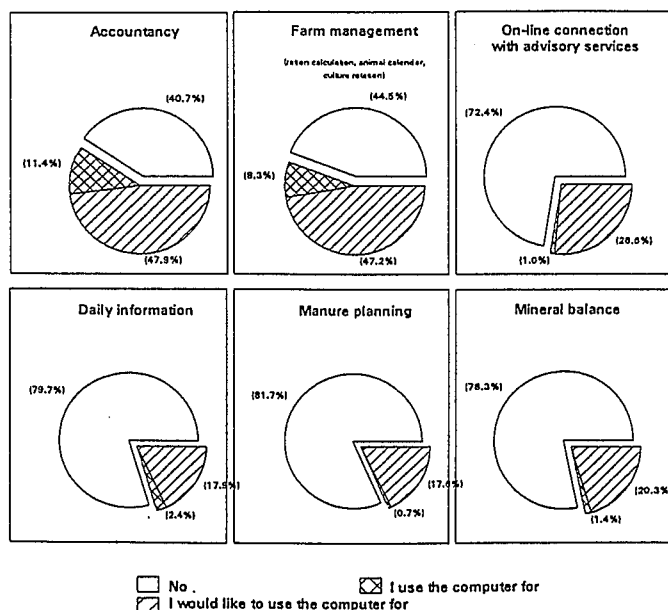


Figure 1
Pie charts for different kinds of computer use in Belgian agro business based on an inquiry held in 1991.

More and more farmers experience that efficiency can be improved when up to date and consistent farm data (registration) and tools to process these data (planning, optimization programs) are at hand. Prices of hardware tumbling down only accelerated the evolution.

An inquiry held during the first months of 1991, gives an impression of the presence of computers and the increasing degree of informatics on Belgian farms. The questionnaire was answered by 290 Belgian farmers specialized in arable land farming.

Software developers

A lot of work is done by private companies. In Flanders the role of ABIS must be emphasized. In 1984 the Belgische Boerenbond founded ABIS, a department for the development, distribution and support of systems for agricultural management. Of course many other organizations and firms contribute to the agro informatics business by developing specific products. A good overview is available in the catalogue published by the Faculty of Agricultural Sciences of Gembloux. In this catalogue products are classified in three sections according to the type of operation performed: computer programs for all kind of management tasks, robotics and communication hard and software. Commercialized systems and systems in development stage are mentioned. Simulation and model building as research tools receive also a lot of attention at the different Agricultural Faculties of Belgian universities.

In the official information services automation of administration has a high priority. An example of centralized information gathering is the Centre for Information Processing (CIV - Centrum voor Informatie Verwerking) that fulfils registration and controlling tasks concerning milk production. Another system, still in the development stage, is Sanitel. It is a decentralized management system for the cattle breeder. EC and national rules concerning animal health are topics.

Evolution in software design

Evolution in software design is characterized by different steps. The first programs were isolated all including programs with input, calculation and report facilities. Then came the more specific applications. The actual trend is

one towards modules organized around a common module. A modular and integrated program includes (1) the common module, same for all users, (2) one or more user dependent modules, (3) connection modules for monitoring and process controlling systems, (4) communication software to external databases, (5) software needed to export data for centralized processing, (6) an accountancy part. This leads to different advantages. The common module completed with farm dependent specialized modules approaches more the 'program made to measure' idea, without raising prices. Even on the contrary prices are lowered due to savings on development. Agro informatics are no longer restricted to a few farms, because informatics can be incorporated at different levels. New modules are added when necessary.

Organization form

There is an effort from many sides (government, research departments, private companies, advisory services), to stimulate the introduction of computers in agro business. However these efforts lack coordination. Hence it appears that many 'standards' arise developed by different companies, hindering communication.

In 1984 the VILT (Vereniging voor Informatica in Land- en Tuinbouw) was founded to coordinate and promote use of informatics. A lot of attention goes to information gathering and educating farmers and agricultural advisors. A magazine is published to inform members about new developments.

Conclusion

It's difficult to give a clear picture of the state of affairs of agro informatics in Belgium, since no precise figures are at hand. Maybe it is too early because the evolution has received a new impulse with the introduction of the personal computer. Cautious predictions talk about a few percents of the farms that use already more intelligent processors.

The annual governmental agro statistics will include answers to questions concerning the use of computers on Belgian farms from this year on. So in the near future one will hopefully have a better picture of the penetration of computers in farming, the motivation to use the available tools and the expected as well as the actual financial benefits.

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