

Agro Informatics in France

G. Waksman

ACTA
149, Rue de Berry
75595 Paris Cedex 12
France
tel. (1)40045000

When we consider the development of Agro Informatics in France, we have to keep in mind first of all that there are still one million farms in France, 700.000 of them involving full time labour; the will of the french government to develop telematics with the Minitel program, and last but not least the complexity of fiscal rules. In the early eighties, experts forecast that in 1990 some 100.000 farms would be equipped with computers. In 1991, our estimates are as follows:

- each year, nearly 10.000 software licences are sold to farmers and advisory organizations working directly for farmers,
- 160.000 farms have a Minitel terminal, 60.000 of them are using it for professional purposes,
- 25.000 to 30.000 farmers have their own micro-computer, and as many farmers use a micro-computer for accounting on a so-called 'self-service micro', located in their local accounting center.

These figures are often underestimated even by french people in charge of advisory organizations, who estimate that computer penetration level is rather low, and emphasize that, for example, book-keeping on micro-computer or consulting weather information on Minitel bring no added-value by themselves.

The Actors

At the beginning of the eighties, research teams and especially the agro economists lead by M. Attonaty created different programs for dairy cattle management

and budget control with its three aspects: forecasting, observation of results, comparison with objectives. At the same time, the first Minitel applications were developed with the support of the Telecom administration: data banks, simulation programs, market information, etc.

Many local and national advisory organizations, linked with farmers' unions, developed programs for micro-computers and Minitel services. A survey performed each year by national organizations shows that there are still about 80 software companies, many of which have little chance to survive, but the diversity of french agriculture has to be taken in account when evaluating this situation. Today, the market is dominated by a few companies created by agricultural schools in Bordeaux (SEIA) and Beauvais (ISAGRI), by a national advisory organization for accounting and management (IGER with its subsidiary GESTAMI). AGRIOLOG has been the only company which worked solely on technical applications (pig farming, dairy cattle management). The star product of all the three other 'big' companies is their overall accounting program.

Local organizations which did not even try to develop outside the borders of their Dpartement, sell software licences and PCs to their usual clients: examples of these organizations may be found in Sarthe, Marne, Normandy, Brittany. The market for agricultural micro-computer licences is shared equally by on one side the three national leaders, and on the other side the other companies which work mainly in local markets. For two

years, commercial management programs have been popular despite their high cost for wine growers, who sell their wines directly and for tree nursery farmers.

Most often, successes of Minitel applications are local, and linked to the investment of local advisory organizations. Our estimation is that there were 4 million connections in 1990 on agricultural telematic services, two thirds of which originated from Brittany. There are four 'star' applications:

- for cattle breeding, results of milk analysis presented on Minitel by milk laboratories and milk control organizations; orders of artificial inseminations by cooperatives mainly in Brittany and Normandy,
- market information offered by official services and one newspaper group; agro-meteorological information from the Agricultural Chambers,
- accounting mainly in South-West of France, and Brittany too, with more than 10.000 subscribers, service offered by a few accounting organizations,
- electronic mail within the framework of farmers' groups, by Agricultural Chambers, farmers' unions, or farmers' groups, quite often using some automatic connection tools added to Minitel which avoid boring operations such as dialing and 'dialogue' operations.

Difficulties and successes

Many difficulties arose from the lack of standard operating system before the appearance of MS-DOS and from the cost

of software developments, but it seems that companies have at their disposal some toolbox which enables them to produce new software programs at a reasonable cost. Ergonomics have much improved during the last years with the use of full screen management tools.

The main obstacle today seems to be the absence or weakness of commercial networks. ISAGRI was the first software developer to imagine and create a network of farmers who use some ISAGRI program and who are authorized to sell ISAGRI software products. This tactic proved to be very successful. Software providers have also to cope with the ambiguity between product and service: is distribution of software products a normal commercial activity or is it a service activity?

For Minitel developers, the main problem up to 1987 was the level of investment, but there are now some micro-servers which have very good performance. For example, the Sugarbeet Institute (ITB) runs an expert system for weed control accessible by Minitel on a 386 micro-computer. Many accounting services are also run on this kind of machine which offer dramatic cost reductions.

When developing databases, simulation programs on Minitel, another problem has been the follow-up of both creation of data bases and initial input, since further updating appeared to be too expensive, as did the inescapable promotion efforts. The Minitel services are not profitable, except when some economies are generated: for example, Minitel may avoid expensive mailings, make book-keeping cheaper, make ordering artificial inseminations easier. Generally, successful Minitel applications enable farmers to save money and time, and to benefit from a better service, but connect times are very short (a few minutes) so that Minitel services do not often reach profitability for the provider.

Nevertheless, these Minitel services may improve the communication policy of organizations, without being too expensive as far as updating is concerned, thanks to a good level of integration of internal (i.e. adequate informatics for the organization itself) and external (informatics for farmers, commercial agents, technicians, and so on) aspects.

But, to get an idea about situation of Agro Informatics in France, connections to Minitel agro services, or a visit to the SINFAGRI exhibition in Paris, or to the CNERTA center in Dijon, would bring a more alive picture than this paper.

SINFAGRI exhibition and CNERTA center: the must of Agro Informatics

Each year, in March, within the agricultural Paris show is held a computer exhibition, whose name is SINFAGRI which stands for 'Salon International de l'Informatique Agricole'. Each year, some thirty companies and organizations, from France but also from Italy, U.K., Belgium, Canada,... participate in a challenge for innovation.

Different workshops are held on subjects which seem of interest to the community of Agro Informatics. In 1990, themes of these workshops were accounting on Minitel and uses of spreadsheets as a complement to ready-to-use applications. In 1991, many themes were studied such as Informatics for cooperatives, Informatics and rural environment protection, Minitel for advisers, Teaching and training with Informatics, Informatics and machinery.

As usual, in 1991, all the most important companies presented their products during the SINFAGRI.

In Dijon, the french ministry of agriculture has achieved an outstanding center: the CNERTA center, where software programs for the management of agricultural schools are developed, and where all agro software is gathered and may be demonstrated for training purposes. An other aspect of CNERTA activity is technological watch, and for example, CNERTA and weed research specialists are working on an image bank of weeds, with images stored on a CD-ROM.

Supports of ministry of Agriculture and advisory organizations controlled by farmers' unions.

Since 1982, the farmers' union, the french ministry of agriculture and national advisory organizations are bringing a limited but constant support to the computerization of Agriculture. The

ANDA standing committee, which gathers research, government, unions, and extension services, is in charge of coordination of efforts.

It is essential to note that more money is spent at local level than at national level. For example, one origin of computerization of French Agriculture is the national cattle improvement program, which is supported by regional computer centers. The CRI centers offer services to cattle breeding organizations, and therefore have important teams and powerful machines. The same observation could be made for 'Centre de Gestion' (accounting centers). In many local accounting centers, there are as many computer department people as in national advisory organizations, and they have high skills and experiences.

At this moment, it seems that one important problem that we have to cope with, is the weakness of links between research teams, extension services and software companies. The agricultural software market is obviously quite narrow, and for example, extension services and software companies should not compete to sell similar products. Another problem is to define complementarities between products and companies: the objective should be to offer the whole lot of necessary software products available today, instead of creating new products.

Acceptance of Agro Informatics

Does France benefit from Minitel equipment, which will eventually introduce a 'computer' into every house and farm, and does Minitel make further introduction of micro-computers in farms easier? Is the degree of acceptance of Agro Informatics comparable to what may be observed in other EC members?

The EFIT project, with ACTA and CEDEPI in France, STOAS in Netherland, and Teagasc in Ireland (EFIT stands for EuroFarmers Information Technology and is sponsored by the European Commission) intends to study how Information Technologies (IT) are introduced in farms, and what is changing in farm management because of IT, from a very practical point of view. A multimedia system (videos, transparencies, training book) will be produced to present the results of this study, which will help us to appreciate