

# **Communication Systems Between Agricultural Research and the Farmers**

## **The Netherlands way**

A.W. van den Ban

### **ABSTRACT**

Several organisations generate agricultural knowledge notably agricultural universities, research institutes, experiment stations, agri-business firms, and farmer's cooperatives. In Netherlands, the knowledge so generated is communicated to farmers via six systems: (1) Agricultural Extension Service, (2) Agri-business Firms, (3) Private Extension Agents, (4) Vocational Agricultural Schools, (5) Farm Magazines, and (6) Farmers Organisations. There is not one System which makes communication effective but several of them supplement each other. Ministry of Agriculture, farmers organisations, and agri-business firms cooperate both formally and informally for the development of Dutch agriculture. The two-way communication between research and the farmers is seen as policy instruments to promote agricultural development. This policy has resulted in a rapid increase in the productivity of agriculture which in turn has now caused a serious economic and political problem with agricultural surpluses.

In the Netherlands, agricultural research is organized in four sets of organization: (1) Agricultural and other universities. They do usually the basic research which is of importance to other research workers, but not often directly to farmers. (2) Government research institutes for different disciplines, e.g., plant protection, agricultural economics or agricultural engineering. They are responsible for the applied research in their

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This is the revised version of a paper presented in the International Seminar on Agricultural Communication and Media Management at National Institute of Rural Development, Hyderabad (India), March 1987.

Dr. A.W. van den Ban: Consultant on Agricultural Extension in Holland. Previously, he was the Chairman of the Division of Extension Education at Agricultural University of Wageningen, The Netherlands.

discipline. (3) Experiment stations for different branches of agriculture, e.g., dairy farming or flower cultivation. They are financed jointly by the government and the farmers. These experiment stations have often substations in different regions or they cooperate with regional agricultural research centres. Their task is to integrate knowledge from different disciplines and from farmers' experiences to develop more efficient farming systems. (4) Research institutes from different private firms and farmers cooperatives, e.g., for plant breeding and animal nutrition. Their importance is increasing, partly because of the developments in biotechnology.

These four type of organisations generate agricultural knowledge which is directly or indirectly relevant to farmers. In addition, quite a bit of agricultural technology is also generated by farmers who develop and test new farm practices and adjust research recommendations to their situation within their resources.

Dutch farmers basically produce expensive items like flowers vegetables, and animal products. The farms are highly specialised. Farmers are living in a hard world, where they have to increase their productivity continuously in order to survive as farmer in this highly competitive market. This requires a large scale investment in knowledge possession and capital management. Strong communication link between the farmers and the research centres can cater to this requirement. In this article, attempts are made to analyse as to how this communication link is organised. In Netherlands, there are six Communication Systems that are at present working: (1) Agricultural Extension Service of the Government, (2) Private Firms and Farmers' Cooperatives, (3) Private Extension Agents working for a fee, (4) Vocational Agricultural Information Systems, and (6) Farmers' Organisations. *(5) Farm magazines & other media.*

#### Agricultural Extension Service\*

The extension service is organized in units of about 35 staff members. In these units, there are subject matter specialists for different disciplines and for different branches of agriculture. They support and train the local extension agents, give individual advice on complicated problems, discuss problems and research findings with farmers in group meetings, write articles in farm magazines and help in the planning of extension programme.

\* At present, the extension service is in a process of reorganization, but we will discuss the situation before the reorganization, because it is not yet quite clear how the new organization will be. Some of the reasons for this reorganization are budget problems of the government and agricultural surpluses in the European Community, which make the government less willing to finance a service which is increasing these surpluses.

These district specialists are supported by national specialists. The national specialists train the district specialists in regular meetings and the local extension agents in courses. They speak with farmers mainly at regional meetings and write a fairly large proportion of the articles in farm magazines. There are specialists for different disciplines, who have their office in the research institute. Specialists for different branches of agriculture are located in the experiment station. This location is important both for the formal and informal communication with research workers. The specialist will attend the staff meetings of his research institute or experiment station and will contribute to the discussions mainly on the basis of his knowledge about the farmers' problems, their situation and their experiences with the adoption of research findings. Because of this expertise he is often chosen as a member of the committee planning for the research programme of the institute or experiment station.

Quite important is also the informal communication between researchers and the specialists. The specialists observe the major experiments and know their findings before they are published. These observations and discussions with researchers are important to judge the relevance of research findings for different situations. If the national specialist gets a question from a district specialist or from a farmer of which he does not know the answer or if he observes a new problem during his field visits, he will usually discuss this informally with the particular research workers. Also in this way, he has often an important influence on the research programme.

In the Ministry of Agriculture, the extension agents belong to the Directorates of Crop Production and of Animal Production. The experiment stations belong to these same directorates. Several of these stations have the national extension specialist for their branch as their Deputy Director in order to stimulate a good communication and cooperation between research and extension. The research institutes belong to the Directorate of Research. Often some of their staff members are seconded to the experiment stations in order to stimulate a good communication and cooperation between the research institutes and the experiment stations. In addition, working groups of researchers from different institutes and experiment stations are often formed to develop solutions to important problems.

Farmers influence the agricultural research programme in different ways: (1) They discuss their problems and experiences with their local extension agents and sometimes with extension specialists who in turn pass this information on to the relevant research workers. (2) There are representatives of farmers' organizations in the governing boards of the research institute and the experiment stations, who discuss the research

programme in the board meetings. In the experiment stations, they often have a large influence, because their organization pays about half of the budget. (3) For several crops, there are crop associations in which farmers and agribusiness firms are represented. They advise the Ministry of Agriculture with regard to research priorities for this crop and frequently finance some of this research. (4) Also there are direct contacts between researchers and farmers during field visits and during meetings of farmers' organizations, where researchers discuss their research findings with farmers. These direct contacts are frequent for many of the researchers from the Experiment Stations. Informal contacts between researchers and farmers are also important, *e.g.*, with relatives or friends of the researchers, who are farmers.

In the management of extension service, it is recognized to a fairly large extent that this is a professional organization. For sound decision making, one needs information from the local extension agents about the situation and the problems of the farmers and from the subject matter specialists about the potential contributions from research to the solution of these problems. In an organization, decisions should be taken at as low a level as possible in order to give the managers the opportunity to concentrate on the most crucial decisions for the organization as a whole. Therefore, the local extension agents and the specialists have a fairly large amount of freedom to do what they consider most important in the interest of the farmers and of agricultural development. The coordination within the extension service is to a large extent achieved in staff meetings where a generally accepted feeling develops about the direction in which agriculture will and should move and how each extension agent can best contribute to this process. Such a system of management is important for an effective two-way communication between researchers and farmers and a system of research and extension which focusses on the problems of the farmers. An authoritarian style of leadership would result in a rather poor communication from the farmers to the decision makers and the researchers. (van den Ben, 1981).

### Agribusiness Firms

Agribusiness firms play a role of increasing importance in the communication between agricultural research and the farmers. This is true both for private companies and for the farmers' cooperatives which are quite strong in the Netherlands. Firms selling inputs to farmers, such as feeds, seeds and agrochemicals, often sell also information how to use these inputs most effectively. Some firms sell other information to their customers. In many firms, this information is provided by their salesmen, but some

firms have a separate extension staff. They do not bill their customers for information and advice, but the costs are included in the price of the products. There are also firms buying products from the farmers which help their suppliers to produce products of good quality efficiently.

There are several reasons why these firms invest in agricultural extension. Firms selling inputs know that if farmers do not get good returns from their inputs, because they do not use them correctly, they will often blame the quality of the product. Firms buying farm products know that the quality of the products they sell to consumers depends on the production practices of their farmers, as well as on their own production processes. It is, *e.g.*, not possible to make good dairy products from milk with many bacteria. Agribusiness firms also know that competition will force many farmers to stop farming within the next 10 years. If this happens to their customers and suppliers, this will decrease their sales and they might lose the credit they have given to these farmers. Good extension work can decrease the probability that this will happen. In addition, a considerable proportion of the knowledge on modern farm technology nowadays comes from research done by agribusiness firms and is not publicly available.

For farmers, there are other reasons to use extension information from agribusiness firms. Sometimes, these private firms are more efficient than the government extension service. The government extension service becomes less and less willing to use taxpayers' money to provide routine advice, *e.g.*, to calculate every year the optimal ration for the dairy cattle, whereas firms are often willing to provide this service. The farmers realize, however, that the interest of the firm does not always coincide with their own interest. Therefore, they have to choose carefully when they can trust these firms and when not. The government extension service sees it sometimes as their task to give the farmers an opportunity to check whether the information they receive from commercial firms is reliable. In my opinion, a situation in which farmers can get advice on certain problems only from agribusiness firms and not from government extension agents is undesirable. As a rule, the cooperation and coordination between the government extension service and the commercial firms is limited. The extension services of the agribusiness firms are usually well oriented towards the farmers needs, because these firms are afraid of their customers who might go to one of their competitors.

Dutch agriculture is highly commercialised. This gives many more opportunities for a firm to sell large quantities of their products to one farmer than in a subsistence economy. But in some developing countries, the role of commercial firms in the communication between agriculture and the farmers is increasing. It can be expected that the rate of this

research increase will grow in the rest of this century under the influence of the development of biotechnology.

### Private extension

Some farmers pay a fee to the private extension agency to get regular advice on agronomy and animal husbandry. A small mistake in their production process can have a large effect on their profit. Some farmers are convinced that it pays if an outsider has a look at their farm every two weeks or so to prevent these mistakes. The government extension service is not able to provide this service. So, there is a market for private extension agencies. The staff members of these agencies are often former staff members of the government extension service. Not all of these agencies have an effective communication with agricultural research.

Some private extension agencies give more specialised advice, *e.g.*, how to use computers as a tool to help farmer to make better decisions. Some accounting offices do not only help farmers with their income tax returns, but also use their accounts for management advice.

With the decreasing willingness of the government to invest in agricultural extension the role of private extension agencies is increasing.

### Agricultural Schools

About 80% farmers in the Netherlands have visited some kind of a vocational agricultural school. This education is one of the reasons why most farmers are interested to keep informed about new developments in agricultural research. The basic knowledge about agricultural science they get in these schools makes it easier for the farmer to follow these developments, *e.g.*, by reading farm magazines. The agricultural schools give not only courses of two to four years for boys and girls planning to enter farming, but also many short courses for farmers and farmers' children already working in agriculture. Usually, these courses are organized in cooperation with the government extension service and the farmers' organizations. Vocational agricultural education is the responsibility of the Ministry of Agriculture and not of the Ministry of Education. This makes the cooperation with the extension service easier.

To be able to perform their role well, teachers in agricultural schools have to be well informed about developments in agricultural research. In fact, they are somewhat less informed than the agricultural extension agents because farmers put more pressure on extension agents to keep up to date than students do on teachers. Also, there are no subject matter specialists to keep teachers informed about new developments.

There are quite a number of in-service courses for teachers taught by university staff members and researchers from institutes and experiment stations, but not all teachers participate in these courses. In the Netherlands, vocational agricultural education is considered to be an important policy instrument of the government to promote agricultural development. In many developing countries, the importance of this instrument is not yet well recognized.

### Farm Magazines and Other Media

Dutch farmers receive a large proportion of their information about new developments in agricultural research first through their farm magazines. On an average, they receive more than three such magazines regularly. Some of these magazines are published by commercial publishers; these are often the magazines which are best read by the farmers. Other magazines are published by farmers' organizations which provide their members useful information on farm management, stimulate the interest of their members in the activities of the organization, and communicate the views of the organization to politicians, government officers and other decision makers. Also many agribusiness firms publish magazines to support their extension and sales activities. As a result, there are about 300 different farm magazines. Some try to serve all kinds of farmers, others are specialised on a certain branch of agriculture, *e.g.*, flower production or cattle breeding.

Most of these magazines have a rather small editorial staff. The articles are mainly written by extension agents, but also by some researchers, especially the researchers from the experiment stations, who have a rather close contact with farmers. In these farm magazines, many articles are written by their editorial staff based on interviews with researchers, extension agents, and farmers. It is an exception that a district government extension unit has its own farm magazine. Extension agents might submit articles on their own initiative to the farm magazines, but the editor will decide whether or not they will be published. Some editors are quite happy to receive these manuscripts, but in the best read magazines, most of the articles are written at the request of the editor. These editors spend a large proportion of their time among farmers to know in which topics they are interested. Extension agents and many researchers consider it as an honour to be invited to write an article for these magazines. This is another way to make the research and extension system more oriented towards the farmers needs. It also makes the management of the communication between research and farmers more diffuse.

In the Netherlands, radio and television do not play a much bigger role in agricultural extension. The reason is that only 5% of the labour

force works in agriculture and farmers have very diverse interests because of their specialisation. The largest group are the dairy farmers, but they are only about 50,000. That gives a small audience for radio and television.

The government extension service does not have a specialised unit to prepare audio-visual aids and leaflets. Some of this work is done by the Public Relations division of the Ministry of Agriculture and some by the regional extension units. This is a weakness in the present organization structure.

Computerised information systems are starting to get some importance for the farmers. Viditel makes it possible to receive on your television set information from a very large computerised data base through a telephone line. The extension service, the experiment stations, and some institutes help to keep this data base up to date; although not yet many farmers are using it. It is often easier and cheaper to get the information from printed media and reference books. Viditel requires a clearly formulated need for information and the ability to follow the correct path towards this information. Often the Dutch farmers are not yet educated enough to meet these requirements. Weather and market information are most used, because it is quite important to have the latest information on these topics.

A farmer can insert information in a simulation model in a computer in order to get advice on plant protection, agronomic practices, animal production etc. geared to his specific situation. Also extension agents can use these models on behalf of the farmers. The use of these models is increasing, but only a small number of farmers use them at present. A lot of research has to be done before it is possible to build a realistic simulation model. These models are now available for some of the major crops. It is a responsibility of the experiment stations to develop these models and to keep their data base up to date. Also commercial firms are getting involved in this area.

It can be expected that the computerised information systems will change the role of the farm magazines in the future. One role could become to make farmers aware of their information needs in order to enable them to use these systems effectively.

### **Farmers' Organizations**

There are many farmers' organizations in the Netherlands which play an important role in communication between agricultural research and the farmers. We discussed already that farmers' organizations put pressure on research and extension organizations to serve farmers needs. Sometimes, these are mainly the needs of the large farmers, who have a powerful position in these organizations. There are also organizations

which organize some of this communication themselves, especially the "studyclubs". In these clubs, groups of farmers study production problems which are important to them, usually in cooperation with extension agents and researchers from experiment stations. They study why one farmer gets higher yields or lower costs than his colleagues or test and adapt new technologies. Also, they discuss with researchers and extension agents which new technologies are needed and ask them to develop these technologies. In addition, they organise meetings at which extension agents and researchers discuss with farmers the value of new technologies for their farms.

In some regions, the farmers' organizations believe that they need more extension agents than the government is willing to pay. Therefore, they finance a number of additional agents, who work in the government extension service. This gives these organizations more power to influence the extension programme.

#### Acknowledgements

I am grateful to K.J. Blokker, L. Box, P.G.H. Engel, B. Huizinga, N. Tapay, C.J.M. van Woerkum, and D.E. van der Zaag for their comments on an earlier draft of this article.

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