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Changing Ideas on Agricultural Extension - A Global Perspective

A.W. Van Den Ban *

Recently an extension officer said "I work now for 23 years in extension, but I have experienced during the last 3 years more change in my work than during the previous 20 years". Many of his colleagues have the same experience and also the literature shows many new ideas about extension approaches which make an optimal contribution to the welfare of the farm families and the realization of the goals of the agricultural development policy. This raises questions as : What are the major changes in agricultural extension? Why is there such a rapid rate of change in the present era? Which changes can we expect in the near future? These are wide questions which I can discuss in this article only in broad strokes. The intention is not to give final answers on these questions, but to stimulate discussion on these important topics.

A new scientific idea usually meets first with resistance among scientists who have used a different approach to solve problems. After some time when people get converted, they become very enthusiastic about this new idea. However, in using this idea they experience that this new approach has also disadvantages and they reach a stage in which they try to balance its advantages and disadvantages and to discover in which situations the advantages outweigh the disadvantages. We see the same development with new ideas in extension.

Increased Demand for Food

In many less industrialised countries the demand for food increases rapidly, not only because of population growth, but mainly because of raising per capita incomes. This makes it possible to spend a larger part of the income on more expensive food items like vegetables, fruits and animal products. One of the effects of the Green Revolution in many countries has been that the supply of cereals has increased more than the demand. This is not likely to continue. The increased demand for food can only be met if the technical and managerial skills of the farmers in less industrialised countries can be improved. This is a major challenge for agricultural research and extension (Tribe, 1994).

Increased Competition

Many countries have protected their farmers through restrictions on imports. This is decreasing because of the GATT agreement, the high costs of this protection and the decreasing political power of the farmers as a result of the decreasing proportion of the labour force working in agriculture. In a free market the ability of farmers to compete depends to a large extent on their competence. The increased competence of farmers has raised their productivity. This caused a decrease in the prices of agricultural products. A Dutch farmer e.g. now gets the same amount of

* Gen. Foulkesweg 82A, 6703 BX Wageningen, The Netherlands.
(Reaction to these ideas is solicited - Chief Editor)

money for an egg as 40 years ago, but he has to pay 25 times as much for his labourer, while other costs have increased as well. Even in this situation some farmers are still able to make a profit from egg production, because they produce them in a much more efficient way than their parents did. This makes it more difficult for farmers in other countries to compete with Dutch poultry farmers. We see the same process for many other products. Through this process it are mainly the consumers, who profit from an effective extension service.

Sustainable Agriculture

We said already that much of the present day agriculture is not sustainable. Two of the main solutions offered for this problem are the use of location specific knowledge and collective decision making.

An important task of extension agents in industrial countries has always been to learn from the best farmers in their area and to pass this knowledge on to other farmers. In less industrialised countries it is often thought that new knowledge on agriculture can only come from research. However, with the small number of researchers and their limited transport facilities it is never possible to produce the location specific knowledge needed for e.g. Integrated Pest Management or soil erosion control. Much of this knowledge has to come from observations and experiments farmers and their ancestors have made (Roling and Jiggins, 1994, Hamilton, 1995). The blanket recommendations given in the past seldom result in a sustainable kind of agriculture.

Sustainable agriculture may not be in the short term interest of many farm families. Therefore collective decision making is needed to prevent pollution, erosion, depletion of aquifers, etc. This can either be done at the group level, e.g. by the farmers cultivating land in a watershed or by national laws, which e.g. do not allow to use dangerous pesticides. In the past the main task of the extension agent was to support individual decision making. To support group decision making with often conflicts of interests between different stakeholders requires a different kind of skills among the extension agents. We can conclude that sustainable agriculture not only requires technical innovations, but that social innovations are at least as important,. Unfortunately very little research is done on the development of these social innovations.

Different Kinds of Innovations

In many countries the main role of the extension agents has been the introduction of new production technologies. However, in many situations different kinds of innovations are more important for the farmers.

Van De Fliert (1993) shows that the management of these innovations is often more important than their choice. It is not only important to use fertilizers, but to use them in a balanced way, in a quantity adjusted to soil and weather conditions, at the right moment, spread evenly, etc. To be able to do this requires an integration of knowledge developed by researchers with farmers' experience.

It has been no exception that extension agents have given recommendations which increase yields, but decrease farm income, because they are not well trained in farm management. Farmers have to learn how to calculate whether an increased use of inputs is profitable. The answer may not be the same for all farm families, because they differ in amount of capital and labour, in risk bearing ability, in yield level, etc. (Ravnborg, 1993). Also at the time of buying the inputs one can seldom be sure about the price for which the product can be sold. Hence, in farm management advice the extension agent can seldom give a recommendation, but his task is to guide the decision making process by the farmers themselves. These farmers have to cope with uncertainly. Also the extension agent can not be sure what is the best choice. This situation requires skills in interpersonal relations in which many extension agents are not trained.

The choice of farming system to make optimal use of new market opportunities has often more impact on farm income than a change in production technology. For many years farmers in the Netherlands who had switched from crop production to flower production, have earned some 50000 dollars a year more than those who continued with crops. Many farmers realise that the choice for a new farming system is risky and are happy to receive good advice on this decision, but it is not possible for the extension agent to give this advice, because of uncertainty regarding prices, ability of the farmer to obtain good results in the new farming system and development of new production technologies. For helping farmers with the choice of their farming system counseling techniques are even more needed than for helping them with decisions on production techniques.

Another problem can be that the extension agent himself is not well informed about the new farming system. This is related to the idea that new knowledge has to come from research. It is seldom possible to develop a new farming system at a research institute. This is done by innovative farmers, who are early to discover new opportunities in the market. Often they also make effective use of research findings on components of the new farming system. A farmer who switches from crop production to dairy production may e.g. use research on fodder production, animal nutrition, on biogas, etc.

Agricultural extension agents usually look for the solution of the problems of their farmers inside agriculture, but for many farmers there may be a better opportunity outside agriculture, either part time or full-time, either for themselves or for their children. Lack of competence and bureaucratic problems can make it difficult for the extension agent to help his farmers with this decision. This is not an easy decision for a farm family, partly because of the emotions involved in leaving agriculture and often also their relatives.

Farming in a Changing Environment

A major difficulty for farmers in the present era is that their environment is changing. There is a rapid change in :

- markets of products, inputs and labour,
- available technologies,
- government policies,
- productivity of competitors.

For a farmers it is very difficult to predict which changes he will face in the next decade, but if he makes the wrong prediction he may be forced out of business.

Female Farmers

We now realise that in many countries a large proportion of the farm work is done by women. If a male extension agent tells the male farmers how this work can be done more effectively, much of this information may never reach the women and what reaches them is often distorted. Even more important is that women themselves make a lot of the decisions on farms. There are many female headed farms managed by widows, divorced or unmarried women or increasingly by women whose husbands work full-time or part-time in a better paying job outside agriculture. Also when husband and wife work together on a farm many decisions are in fact taken by women. They may be responsible for the production of homestead products: vegetables, fruits, small animals. The demand for these products increases more rapidly than the demand for the "male crops". Women also take many decisions on the tasks they perform on the farm, e.g. cattle feeding. There are other decisions taking by husband and wife together. e.g. in many countries women play a major role in decisions on the allocation of the available funds.

A result is that we now realise that it is necessary that the extension agents work directly with farm women and not only through their husbands. It is less clear what the best way is to do so. One possibility is to employ female extension agents. In the Philippines e.g. a large proportion of the agricultural extension agents are females, but in other countries cultural traditions make it difficult for female extension agents to work effectively or to find females with the education needed to be a good agricultural extension agent. Another possibility is that the male extension agents work with Mahila Mandals or other groups of women. More research is needed to find the best way to support farm women with extension. This will not be the same way in all cultures.

Agricultural Knowledge and Information Systems

Agricultural extension is often seen as the agency transferring technologies from research to farmers. However, for their decision making farmers use many different sources of information. The extension service should decide how they can use their limited resources best to complement and support other information sources (Van Den Ban, 1993).

Information about new opportunities in the market is at least as important as information about new production technologies. This includes information about the prices of different products, different qualities of these products delivered at different times and information about the prices, qualities and availability of inputs at different locations.

Often commercial sources are better informed about these topics than the extension service, but they may provide information that serves their interests more than the interests of the farmers.

Commercial companies are interested that their products are used properly, because if a farmer who used the product in the wrong way does not get good results, he will often blame the product. Some companies go further than advising how their products should be used and give also advice on the whole production system of their customers. This may enable them to deliver the products for which there is demand in the market or the increase their in income may enable farmers to buy more inputs. In such a situation increased productivity can be in the interests of the farmer as well as the commercial company.

Information about government policies, rules and regulations may be at least as important for the farmer as information about research findings. It is not only important for farmers to know the present policies, but also future policies, which may e.g. influence the profitability in 2005 of trees planted this year. Sometimes this information reaches the farmer through the extension service, although this is quite a different role for this service than its traditional role of providing information about production technology. Farmers may distrust that information provided by a government officer is in his interest. Often farmers have learned that they cannot trust the government.

Many farmers receive the first information about innovations from their farm magazine or another mass medium. The possibility to inform farmers through information and communication technologies using telephones and computers increases rapidly. This changes the role of the extension service. Providing information becomes less important, help in finding the right kind of information, in evaluating this information and in integrating this with information received from other channels and from the farmer's own experience becomes more important.

Also the role that Non Governmental Organizations and Farmer's Associations play in developing agriculture has increased rapidly in the past decade. There is considerable disagreement about the usefulness of NGO's in this process. More research on their actual performance is needed (Farrington and Bebbington, 1994).

Quite often the most important source of information used by farmers to make decisions is their own experience and that of their colleagues. This is not only information about their goals and resources, but also information about their experience with new production technologies and with adjusting these technologies to their specific situation, about new farming systems and about social innovations, such as farmer's organizations. This gives the extension service two new roles :

1. Facilitating the process by which farmers learn from their own experience. There is now an extensive literature on participatory technology development (e.g. Okali et. al.., 1994).
2. Stimulating the process of exchange of experiences among farmers, e.g. through study clubs in which farmers

study and discuss together how they can solve a certain problem. This can be the best way to cultivate a certain crop in the specific situation of their locally or how they can realise a new farming system, e.g. based on vegetable production.

The Indonesian extension services has combined these new roles in a system of Farmer Field Schools. This started with Integrated Pest Management in rice production, where farmers learn from their own observations how they can influence the ecological balance between insects which are dangerous for the crop and their predators (Van De Fliert, 1993). The success of these schools is a reason to use them also for other aspects of crop production.

With all the different information sources which are available nowadays, farmers will only use an extension service which provides information or other kinds of help for which they feel a need. Transferring technologies which the government would like to be adopted by farmers will seldom work. The extension service has to become responsive to the needs of the farmers in order to be able to play a useful role. Otherwise this service may not survive the budget cuts the government has to make.

Participatory Approaches

In developing countries the main role of extension is usually considered to be the transfer of technologies from the research institutes to the farmers. There is now considerable criticism of this approach by people who say that a participatory approach is required. In an important article Hayward (1989) states that a topdown approach transferring technologies, such as a the T and V system, can work well in a situation where it is well known how farm income can be increased and the farmers and their situation are well known to the extension officers. If this is not the case, a participatory approach is needed in which the extension agents provide knowledge and information for which farmers feel a need in addition to the knowledge and information that they get from other sources including their own experience. This implies that a participatory approach is mainly needed for situations with:

1. Rainfed agriculture, where the agro-ecological and socio-economic situation is usually much more variable and less predictable and known to the experts that for irrigated agriculture.
2. Changing in farming systems,
3. Collective decision making for water management, soil erosion control, etc.,
4. Social innovations such as the establishment of farmer's associations and cooperatives.

A participatory relationship between the extension agent and the farmers requires also a participatory style of leadership in the extension organization. It is often difficult to realise such a style of leadership in a government bureaucracy. That is a reason why in these situations NGO's often play an important role in extension. We see this e.g. with watershed management.

Privatization of Extension Services

It is now realised that in many countries the government has tried to play a larger role in the development process than it is able to do in an effective way. There are e.g. many loss making state firms which are a serious strain on the government budget. In this political climate many people, especially economists, propose also to privatise the government extension services. They expect that if the customers have to pay for these services these are forced to provide information for which farmers feel a need in a cost effective way (Umali and Schwartz, 1994). Often they give only limited attention to the disadvantages of the privatization of these services, whereas good decisions can only be made by balancing the advantages and disadvantages (Van Den Ban, 1996 a).

Several governments contract NGOs to provide specified services to certain target groups. They expect that these NGOs are better able to reach their policy goals and / or can do this at lower costs that government agencies. These agencies are seen as rather inefficient and their bureaucratic tradition makes it difficult to use the necessary participatory approach. A difficulty can be that it is easier for the government to monitor whether the NGO has indeed reached certain goals than other goals, which might be more important in the long run. It is e.g. easier to monitor how many cows have been inseminated than whether the skills of the farm families in managing their dairy enterprise have improved.

Extension Management

Also in extension management there is an increasing interest for location specific solutions. In highly diverse and risk prone rainfed areas a more participatory style of leadership may be need than in areas with a secure irrigation system. In order to find the best management system for a specific situation an extension organizations should become learning organization, which try to learn from experience how they can become more effective. Monitoring and evaluation provide important information for this learning process (See Van Den Ban 1996 b)

A major task of an extension manager is to decide which role his organization should perform in a rapidly changing environment, where also many other organizations provide information , advice and education to the farmers. To implement this decision it is usually necessary to train the extension agents to perform their new roles well.

Research Methods

Much recent extension research tries to support a change towards an extension approach in which extension agents and farmers together find solutions for agricultural development problems. A sophisticated statistical analysis of questionnaires designed to collect the data for which the researchers feel a need, is often not the best way to provide this support. It is more effective if different actors in the Agriculture knowledge and Information System cooperate in

collecting and analysing data which can help us to decide how we can make this system more effective. This is a learning process without preconceived ideas which data should be collected through a questionnaire. One might use Participatory Rural Appraisal where one learns which additional information is needed during this appraisal process itself.

In publications of Chambers and Roling one will not find any statistical tests. I think that these tests could sometimes be a useful addition to the research methods they use, but nobody can deny that they have contributed much to innovative thinking about extension. Advantages of their research methods are:

1. They help us to understand why farmers, extension agents and others behave in a certain way. A good example is the analysis by Chambers (1988) of irrigation management in India.
2. They provide an holistic view of the way in which the Agricultural Knowledge and Information System functions.
3. By involving farmers and extension agents in the research process these people consider this their own research. This increases their willingness to utilise the research findings in their decisions.

These are reasons why the interest is qualitative research methods is increasing (Moris and Copestake, 1993) and survey research methods are used less frequently in extension research than in the past. It is likely that this kind of research will have more impact on decisions in extension organization than of the over 1800 studies which have been conducted in India (Samanta, Prasad and Vanisri 1995). Would it have made a lot of difference if only 180 of these studies had been conducted?

CONCLUSION

Our discussion shows that considerable changes are needed in the agricultural extension services to enable them to meet the challenges of the next decade. This requires also a considerable change in the kind of extension agents. Antholt (1994) says, to a large extent based on his experience in India, that new extension "recruits will need to be a cadre of professional who :

1. Can work under complex and fluid circumstances with little supervision,
2. Can diagnose farmers' problems effectively,
3. Are able and willing to listen to and learn from farmers,
4. Can communicate effectively and work with farmers and farm groups,
5. Are able to present options, based on principles of science and good agricultural practices, that widen the real choices available to farm families".

There is little doubt that this is quite a different cadre than we have at present. This requires major changes in the pre-service training of the extension agents and large in-service training programmes. However, this can not be realised overnight. Unfortunately this makes it necessary to change the approach in

extension less rapidly than several authors consider desirable.

An aim of university education in agricultural extension should be, in my opinion, that the students make up their own mind about the value of each of the new ideas discussed here. Before they retire many other new ideas will be developed. Hence, it is important that they are eager to learn about these new developments and become capable to assess their advantages and disadvantages over the approaches to extension used so far. University graduates should not repeat what their teachers have taught them, but should be critical innovators.

Information Sources

Valuable information sources about new ideas on agricultural extension include :

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Some of these publications can be obtained free charge from the publisher.

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Address : Gen. Foulkesweg 82A
6703 BX Wageningen
The Netherlands.