

## Cultural Change: The Basis for Increasing Agricultural Productivity <sup>1</sup>

During the World Food Congress it was stated many times that with our present state of knowledge it would be possible to produce enough food in most countries where a large proportion of the population is now hungry, if this knowledge were only applied. One of the reasons that this knowledge is not yet used can be found in the lack of funds for the investments which would be required for its utilization. Another, and according to many speakers at this Congress not less important reason for the unlimited use which is made of our present knowledge of scientific agriculture, lies in the culture of the farmers and of the society in which they live. Many farmers all over the world think in such a way that they cannot understand the basic principles of scientific agriculture and they have little interest in gaining information on these principles. Furthermore, land tenure, credit systems or other aspects of the structure of their society often make it impossible for these farmers to use effectively the knowledge they have.

Therefore, if the less developed countries want to get rid of hunger and to promote economic development in general, it will be necessary for them to change the culture of many farmers and the structure of their societies. It is the important task of the community development officers to stimulate this process of change. In order to fulfill this task most effectively they would be wise in making use of the findings of social research. Social research can contribute to the work of the community development officers by analyzing.

1. the changes in the culture and the structures of the society which are necessary for economic development and
2. the processes of change.

In this article I will discuss mainly the first point, since several recent summaries of the literature on the processes of change have been widely distributed <sup>2</sup>.

Naturally the changes in the culture and structure of the society which

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<sup>2</sup> NORTH CENTRAL RURAL SOCIOLOGY SUBCOMMITTEE FOR THE STUDY OF THE DIFFUSION OF FARM PRACTICES. « How Farm People Accept New Ideas », Ames, Iowa, Agricultural Extension Service, Special Report 15, 1955; A. W. VAN DEN BAN. « Research in

take place during the process of development will not be the same in all countries. However, there is much more similarity in these changes than one often thinks<sup>3</sup>. Further research on the extent to which these processes of change are similar or different in the various parts of the world is undoubtedly necessary. Let me, as an illustration, describe the changes which took place among the Dutch farmers in the last 100 years, a period in which their productivity has rapidly increased.

One hundred years ago hunger was a rather common phenomenon in the Netherlands. Since that time the population has increased four-fold and the proportion of the laborforce engaged in agriculture has decreased from 36 % to 11 %. Now about 40 % of the total agricultural production in the Netherlands is exported, despite a density of population of 350 persons/km<sup>2</sup><sup>4</sup>.

The traditional farmers in the Netherlands used to manage their farms in practically the same way as their fathers did and were suspicious of all new ideas, especially ideas from theoretical people such as scientists and extension officers. Modern farmers on the other hand know that they have to continuously adapt their farm management practices to the new potentialities presented by scientific development. They know that their farms become out of date if they manage them in a way which was favoured 10 years previously. They, therefore, always attempt to obtain reliable information on new developments by reading

the Field of Advisory Work », *Netherlands Journal of Agricultural Science*, 9 (1961), pp. 122-133; H. F. LIONBERGER. *Adoption of New Ideas and Practices*, Ames: Iowa State University Press, 1960; W. G. BENNIS, K. D. BENNE and R. CHIN. *The Planning of Change: Readings in the Applied Behavioural Sciences*, Holt, Rinehart and Winston, New York, 1961; J. C. VAN ES and E. M. ROGERS. « Diffusion Research in Developing Societies », *Journal of the Center of Community Development*, Comilla, East Pakistan, Forthcoming.

<sup>3</sup> Support for this statement can be found in the following research summaries: E. M. ROGERS. *The Diffusion of Innovations*, New York, Free Press, 1962; J. P. A. VAN DE BAN. « Ervaringen en inzichten uit de Komgrondengebieden, De traditionele boer, « *Landbouwwoorlichting*, 1961, vol. 18, pp. 706-710; R. REDFIELD. *Peasant Society and Culture*, University of Chicago Press, 1956; in the excellent but theoretical treatment of the cultural changes necessary for economic development: G. GERMANI. « Secularización y desarrollo económico », in *Resistências à Mundanca*, Rio de Janeiro: Centro Latino-Americano de Pesquisas em Ciências Sociais, pp. 261-279; and in several research studies, e.g.: S. P. BOSE. « Peasant Values and Innovation in India », *American Journal of Sociology*, 1962, Vol. 67, pp. 552-560; H. MENDRAS. *Les paysans et la modernisation de l'agriculture*, Paris: Centre National de la Recherche Scientifique, 1958; A. W. VAN DEN BAN. *The Communication of New Farm Practices in the Netherlands* (in Dutch with an English Summary), Assen: Van Gorcum, 1963; E. A. WILKENING. « Acceptance of Improved Farm Practices in Three Coastal Plain Counties », *North Carolina Agr. Exp. Station, Techn. Bull.*, 94, 1952.

<sup>4</sup> For a good description of Dutch Agriculture see: E. W. HOFSTEE. *Rural Life and Rural Welfare in the Netherlands*, The Hague: Government Printing Office, 1957.

farm papers, visiting demonstrations and meetings and questioning extension officers. This *new attitude towards change* is one of the basic factors which made agricultural development in the Netherlands possible. It is not only a new attitude towards change in farm management, but towards change in general. Change in the home, the community and to some extent even in the church, is also accepted more readily than previously. Also more aspects of the society have become independent from religious beliefs. E.g., when I asked a farmer 15 years ago whether he was a member of the Association for Artificial Insemination he answered: «No, God made the cow and the bull. Are we allowed to change that?» Now most Dutch farmers consider cattle breeding techniques to be outside the realm of religion.

This attitude towards change is related to many other aspects of the way the farmer thinks and to the structure of the whole society in which the farmer lives. The traditional farmer sees his farm mainly as a way of life, whereas the modern farmer sees it as a business enterprise. Because the traditional farmer sees his farm as a way of life he strives hard for an income which is considered reasonable in his community, but on reaching this he is satisfied, and lacks ambition for the highest possible income. In order not to endanger the traditional way of life, farmers are unwilling to take much risk and do not dare to borrow money. In earlier times, poor people like the farmers knew from experience that taking a chance could make it very difficult for them to live without landing in the hands of usurers. Present day farmers have more resources and an efficient co-operative banking system exists now in the Netherlands which helps them to carry their risks. This enables a farmer to expand his enterprise with borrowed money. The traditional farmer reduced his risks by having a subsistence farm on which he produced almost everything he needed. The modern farmer specializes in only a few products which he produces with a host of aids which he buys from other firms, such as feeds, seeds, fertilizers and pesticides. For his own livelihood he produces a minimum and has to buy most of his food. A bulb grower, for instance, will only use a very small proportion of his bulbs in his private garden and will buy most of his food in the same way as factory workers do. Contrary to what is often thought, this commercialization of farming has been much more important for the growth of agricultural efficiency than mechanization which is also not unknown in the Netherlands.

This commercialization of agriculture is related to the way in which the farmers *calculate their costs and profits*. It is not easy for the sub-

sistence farmer to save money, because it is extremely difficult for him to increase sales. He must attempt to keep his expenses as low as possible. Expenditures are only accounted for by those factors which involve cash expenses, since he does not appreciate alternative uses for the other factors of production such as family labor and feeds. Investments in his farm are so limited that depreciation or interest on capital are also not considered. For the modern farmer, the non-cash expenses are often very important cost elements and he therefore considers the possibility of alternative utilization of these factors such as the possibility of a family member earning off-farm income.

*Land* is the most important means of production for a traditional farmer, whereas feeds, fertilizers and buildings can replace land to a large extent for a modern farmer. For the traditional farmer, land is not only a means of production but also a guarantee that he will be able to survive. With little land and without much opportunity to find other employment he will often become very poor. Most land is inherited and the social status a person acquires is determined to a large extent by the acreage he has inherited. For this reason he attaches not only economic value to land, but also emotional value which makes it difficult for him to accept re-allotment projects.

If a subsistence farmer wishes to increase his income, one of the only available means is to work even harder to increase the size of his holding which, however, also requires more hard work to enable him to save money to purchase more land. This leads the traditional Dutch farmer to place a *high value on manual labor* and a low value on leisure. In fact, they do not distinguish between work and leisure in the way the modern city people do. These farmers work from early morning to late at night, but should a neighbor pass by, they take time for a chat. Contrary to manual labor, the value these traditionals place on managerial labor is very low and in line with many aspects of their way of thinking this is quite reasonable from their point of view. In earlier times the upper classes who did the managerial work in the society had training in law or in the humanities which was of little value for solving the main problems farmers face from day to day. Nowadays modern farmers place a higher value on leisure and on managerial work and the members of the upper class are often trained in technology which enables them to aid in solving some of the farmer's problems. The present upper classes are also much more inclined to do some manual labor themselves, which was previously considered below their dignity. In addition, as will be discussed later, the social structure has

become more flexible and the middle class has greatly increased in size. Therefore, the differences in culture as well as in social status between the scientists and the farmers are much less now than they were a century ago. This has made communication between them much easier.

The higher value on managerial activities causes farmers in the Netherlands to be much more interested in *education* than they were previously. Change in this respect is greatly influenced by the system of agricultural education intended for the average farmer. At first the educational system consisted mainly of an evening course taught by the village school teachers two evenings a week over a period of two years. These courses were attended by farmers and farm boys between the age of 16 and 60 who often walked as much as 10 miles to attend the courses. The courses proved to be very effective in bringing the basic principles of scientific agriculture to the average farmer because the school teachers already had the confidence of many farmers and were able to put their knowledge in a language which was understood by the farmers and which aroused many discussions among practical farmers about the value of scientific agriculture. The school teachers had received special training in agriculture to enable them to present the evening courses and were further directed by agricultural extension officers with university training in agriculture to whom they could pass the difficult questions which were put to them. At present most of these courses have been replaced by vocational agricultural schools because agricultural science has developed to such an extent that a longer period of training is considered necessary. There is no doubt, however, that the courses mentioned, have been a major factor in modernizing Dutch agriculture. An important effect has been to facilitate discussion between extension officers and graduates from these courses because discussion is easier with farmers who understand the basic principles of modern agriculture than with farmers who for instance do not know what the difference is between nitrogeneous and phosphate fertilizers.

It is not only the agricultural education which has developed the new attitude towards change in the Dutch rural society, but certainly not less the *home economics* education. On the traditional farms, more often than not, it is the wife who keeps the purse for both the farm and the home. In addition, an important part of the farm work is done by her. Hence she has a large influence in many farm management decisions. The home economics education has aroused her interest in a

higher level of living, has changed her attitude towards change in the farm and has awakened her interest in the outside world<sup>5</sup>.

The modern farm wife does not do much farm work and will only seldom touch the bank account of the farm business. She will, however, give much more attention to the education of her children than her grandmother did and in this way stimulate the initiative of the next generation.

The changes in the farm family have also altered the relationship between the *parents and their children*. Previously children were considered to be an economic asset because they could help with the farm at an early age and because they could take care of. Most of the children will follow an education until they leave the farm and those boys who go into farming have often only limited opportunities to do farm work before an age of 21. Under these circumstances the relationships between parents and children become more emotional in nature<sup>6</sup>. Also in the relationships between husband and wife, the economic aspects decreased in importance and the emotional aspects increased.

The children on a traditional farm are not payed in cash for their labor, but are expected to help support the family. Only some of them can inherit the farm which enables them to support their own family and hence to marry. For the others there is often no job available outside the farm which can give them the security necessary for marriage. Thus, they are usually allowed to live on their brother's farm as long as they please. The fact that many members of the traditional society married rather late in life and others were not able to marry at all was, in fact, a rather effective way of birth control. At present most people can find a job from which they can support a family. Therefore, very few people remain unmarried for economic reasons and marriages are at a younger age than previously. If no other methods of birth control had come into use, this would have resulted in an important rise of the birthrate<sup>7</sup>.

<sup>5</sup> An excellent description of the role of the wife in the traditional rural family is given by: M. MOSCOVICI, « Personnalité de l'enfant et milieu rural », *Études Rurales*, 1 (1961), pp. 57-69.

<sup>6</sup> A thorough discussion of these changes is given in: G. WURZBACHER in the chapter: « Die Uebergang von der Elterbestimmtheit der Kinder zu Kinderbezogenheit der Eltern » of his book: « *Das Dorf im Spannungsfeld industrieller Entwicklung* », Stuttgart: F. Enke, 1954, pp. 84-97.

<sup>7</sup> These changes in birth control practices are discussed in: E. W. HOFSTEE. « Regionale verscheidenheid in de ontwikkeling van de geboorten in Nederland in de tweede helft van de 19<sup>e</sup> eeuw », *Akademiedagen VII*, Amsterdam: Koninklijke Akademie van Wetenschappen, 1954, pp. 59-106; E. W. HOFSTEE. « De Groei van de Nederlandse Bevolking », in *Drift en Koers*, Assen: Van Gorcum, 1962, pp. 13-84.

The traditional rural *families* consisted quite often not only of parents and their children, but often extended families with the grandparents or brothers and sisters of one of the parents. One of the results of this lack of privacy was that these people are very « closed », they did not express their emotions openly towards each other<sup>8</sup>. In such a situation sexual matters were not discussed openly between husband and wife or between parents and children, therefore it was quite difficult to use modern methods of birth control. Another reason why the members of a traditional family did not express their feelings openly towards each other was that these families are very open towards other members of the community who were expected to drop in at any time without first calling or ringing a bell. It is not pleasant when a stranger drops in at any moment when you are expressing your love or your anger to your wife. The openness of the family to other villagers is one of the main reasons for the rather stringent social control in a traditional farm village where everybody is seriously criticised if he deviates too much from the traditional norms. In a modern village on the other hand, people select friends from those who have similar attitudes and a similar social status to their own. This promotes a way of farm management among friends which may be rather different from the farm management of other groups in the same village. Because all people mix in the traditional village, there is no room for *farmers unions* and other associations where only a section of the population is organized. The community will resist anybody who ascends above the rest as chairman or board member. Therefore the officials of various formal organizations are often at first, people who migrated into the community from outside. Formal organizations at present play a very important part in modernizing agriculture and rural society in general.

The *status differences* in a traditional village are usually very rigid; some families are expected to play a leadership role in the church, the community council etc., while others are expected to follow the leaders. Social stratification in the society as a whole is also very rigid and an ordinary individual should not try to make decisions which are usually made by the gentleman. In modern society, the acquisition of a leadership function is dependent more on personal qualities. With the moder-

<sup>8</sup> A good discussion of these concepts of open and closed families is provided by: C. D. SAAL. « Causes for the Delay in Western European Family Research and some Notes on the Investigation of the Dutch Rural Family », in: *Studies on the Family*, Vol. I, Séminaire International de Recherche sur la Famille, Tübingen, Germany, 1956, pp. 235-236.

nization of society, social stratification becomes more flexible but the process probably also works the other way around: in a society with a rigid social stratification the traditional ways of farming are maintained much longer than in a society with a more flexible structure. One of the reasons, for instance, why farming in the Southern states of the U.S.A. is more traditional than in other parts of that country is probably the very rigid social structure found there. This does not promote initiative.

It is not only that the status differences are rigid but also that they are large in a traditional society where a middle class hardly exists. The result is that if new ideas are developed in the upper class, as is often the case, it is quite difficult to communicate them to the lower class. There is ample evidence that real communication of new ideas will not often take place without personal contact and confidence between the sender and the receiver of the new idea)<sup>9</sup>. Furthermore the upper class in society has a vested interest in preventing any change that might alter the class structure. The opinion leaders of a modern society, on the other hand, are usually well integrated in their community, are well informed about changes taking place outside their community and have a favorable attitude towards these changes.

Rigid social structure is one of the reasons why traditional farmers usually are *suspicious of all government actions*. They do not trust the high-status government officials and are not confident that the officials will act in their interest, because they have experienced that many of these officials attempted to squeeze money out of the farmers. Another reason for this is the fact that traditional farmers have little understanding of changes elsewhere in the world and hence have little confidence in anybody from outside their own community.

The Italian rural sociologist, Benvenuti, investigated the extent to which a group of Dutch farmers are modernized by measuring their understanding of events outside their own community<sup>10</sup>. He found this instrument to be highly correlated with the income of the farmers: in the present situation in the Netherlands modern farmers with highly commercialized farms have a much higher income than traditional farmers.

<sup>9</sup> ROGERS. *Op. cit.*, Ch. IV.

<sup>10</sup> B. BENVENUTI. *Farming in Cultural Change*, Assen, Netherlands: Van Gorcum, 1962.



The differences between modern and traditional farmers which have been discussed may be summarised as follow:

<i>Aspects</i>	<i>Traditionals</i>	<i>Moderns</i>
Reaction towards change	resisted	to some extent accepted as natural
Value attached:		
to agricultural science	low	rather high
to manual labor	high	low
to leisure	low	rather high
to land	high	rather low
Willingness to take risks in the farm business	low	rather high
Interest in education	low	high
Expenditure calculations include	cash expense only	also depreciations, family labor, etc.
Relations with other members of the community	open families	closed families
Formal organizations	not accepted	accepted
Status differences	rigid	flexible
Confidence in the honesty of government officials	low	rather high
Opinion about events outside the community	none	clear
Communication with extension officers	very difficult	rather easy

The changes in the mentality of the rural population which facilitated the modernization of Dutch agriculture during the past century have been described. This discussion however only presents a rough outline of the situation, but in reality, there is much more variation. It is doubtful whether any farmer in the Netherlands thinks precisely in terms of the description provided for a modern farmer or alternatively for a traditional farmer. One of the reasons for this doubt is that we have just started with research in this field and the understanding we have for the way in which farmers think is, therefore, far from complete.

Secondly, it is not possible to give a detailed outline of available research results in a brief article, and finally, all people differ just because they are individuals.

### *Implications for Community Development*

This description of the changes which have made the agricultural development of the Netherlands possible gives an indication of the directions in which the community development officers have to attempt to change the culture of their society. I do not claim that change in *one* aspect of the way in which farmers think depends on changing at the same moment all other aspects and the whole structure of society, but there is little doubt that changes in one aspect are facilitated by changes in other aspects. Therefore, if one wants to increase agricultural production it is usually more important to change the way in which farmers think than to improve their farming techniques directly. A modern farmer will be interested in using improved farming techniques but a traditional farmer will often be disappointed with these improved techniques because he does not understand them and, therefore, uses them in the wrong way. In order to change this whole way of thinking, the community development officer will have to cooperate with many other agencies, especially the school system.

The description of these changes has also some implications for the way in which we can stimulate the processes of change. There is a rather general agreement that we should start with the felt needs of people<sup>11</sup>. These needs will often be quite different from the changes which the community development officers consider most important because of the difference in culture between the officers and the traditional farmers. The culture of the community development officers will often be rather similar to those modern farmers.

As an example, we can give a recent case in the Netherlands where the extension service was planning to start an intensive extension program in a traditional district where it had always been rather difficult to establish contact with the farmers. Therefore, they asked us to analyse first for which needs these farmers felt they needed help from the extension service. Farm management research had already found that the level of income of these farmers depended mainly on their labor productivity. However, these farmers proved to be much

<sup>11</sup> Evidence that this is the most effective way is found in: *Extension Evaluation*, Allahabad Agricultural Institute, 1957.

less interested in information from the extension service which could improve their labor productivity than in information on fertilizers and pesticides and other factors which could improve their yield per acre<sup>12</sup>.

This is in agreement with the way in which they calculate their costs and profits, but it is also understandable that the extension officers are interested in applying the findings from farm management research and, therefore, have a hard job to gain the confidence of the farmers. In this case, the execution of the extension program could be based on an analysis of the situation by a research worker. Usually, however, this is not possible. Then the extension or community development officer must be able to listen to his clients to discover which needs they have. Often it is more important that he is able to listen well than to speak well. Fortunately, psychologists have recently developed some methods which can improve our listening ability<sup>13</sup>. There are clear indications that the application of these methods give the possibility to promote change more effectively.

The processes of cultural change not only have implications for what the extension officers have to teach, and how they have to teach it, but also for their training<sup>14</sup>. Traditionally the extension officers have been trained in *what* they had to teach but not in *how* they could teach most effectively. This may have been the right way when these services started in about 1900, because at that time the social sciences were not yet developed so far that they could be of much help for the development of good teaching methods. At present these sciences have developed sufficiently to be able to give valuable help. Therefore, at this moment, in my opinion, community development and extension officers should get a training in subject matter as well as in applied sociology, psychology and cultural anthropology. Naturally community development will always remain an art, which can never be replaced completely by the application of social science. However, these sciences can help the community development officers to understand the reactions of their clients on their activities.

<sup>12</sup> J. C. M. HELDER, unpublished M. Sc. thesis, Dept. of Rural Sociology, Agricultural University, Wageningen, 1963.

<sup>13</sup> An excellent description of these methods is given by: R. L. KAHN and C. F. CANNELL. *The Dynamics of Interviewing*, New York: Wiley, 1957.

<sup>14</sup> There are many discussion on the training of extension officers; very valuable in my opinion are: A. T. MOSHER, « Varieties in Extension Education and Community Development », *Comparative Extension Publication*, No. 2, Cornell University, Ithaca, N.Y., 1958, and T. R. BATTEN. *Training for Community Development. A Critical Study of Method*, London: Oxford University Press, 1962.

It will only be possible to give good training in these social sciences if research is done on the application of these services to community development and extension, for just the same reason that it is only possible to give good training in agronomy if agronomic research is done in the country where this training is given. At present many countries do not yet have any applied social research on the methods of community development and extension or apply only one or two of the three sciences mentioned. This retards the process of cultural change and, therefore, the increase in agricultural productivity. I am convinced that it would pay for each country to invest a small proportion of its extension and community development budgets in social research.

*A. W. van den Ban*

Agricultural University, Wageningen