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# THE FUTURE OF AGRICULTURE

*Technology, Policies  
and Adjustment*

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PAPERS AND REPORTS

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OF AGRICULTURAL ECONOMISTS

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## SPECIAL GROUP H

### *Alternative Methods of Programme Decision-Making\**

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THIS topic might have puzzled some of my colleagues when studying the programme of this year's conference—it certainly puzzled me. It was only after I had received some clarification from the Vice-President of our Association in charge of the programme that I accepted to contribute a short working paper to the meeting of this special group. According to my understanding of the topic, we shall attempt to clarify the role of *farmers* in the decision-making process.

Since I am no longer involved in direct research work, the question will be asked why I accepted to write the introduction for this session. There is more than one reason and I want to share, at the outset, a few of my ideas with you.

1. Our Association is not (and hopefully never will be) restricted to researchers and teachers in the field of agricultural economics. I am a strong believer that cross-fertilization between the researchers and those engaged in practical field work will be highly beneficial. Our conference can be a good forum for such exchange of views, where both groups will have contributions to make.

2. The majority of farmers in the world live in developing countries. The majority of research, however, seems to be undertaken in developed countries and about conditions in developed countries. The membership of our Association, as well as the topics we have generally discussed at our conferences, have certainly reflected this situation. A change seems to be needed.

3. Agriculture will have to play a major role in the development of many countries, assisting in:

- accumulating the necessary national capital for development;
- providing markets for the nation's industrial production;
- increasing the export earnings;
- feeding the population;
- providing employment.

\* This special group was not convened.

† Any views expressed in this paper are my own and do not necessarily reflect policies of the Food and Agriculture Organization of the United Nations. I am indebted to many colleagues for their valuable contributions and ideas, which form the basis of this paper.

We still do not have sufficient facts about the actual situation in many countries to foresee the direction and speed of development with any degree of accuracy. Facts on the present situation, in as many countries as possible, are vital if the discussion on our overall topic, 'The Future of Agriculture', is to be meaningful.

4. I believed that in my present position I had an opportunity to solicit some meaningful contributions and experience from our field staff and their counterparts, who provided some primary information which was sadly lacking. At the same time we could enter a warning against certain unfounded general conclusions about the role of farmers in the decision-making process.

As a working document for the discussion in this special group, I propose the attached information. I am fully aware of its imperfections. However, and possibly even more important, I am willing to repeat the survey with a questionnaire improved during our discussions, in order to provide better data for scientists. Major reasons for the questionnaire's shortcomings are to be found in the lack of time I had for its preparation, in the lack of data available in many countries and, above all, in the widely varying conditions in most of the developing countries. It might turn out to be advantageous for any follow-up action to attempt to group countries according to some criteria and to develop a separate, special questionnaire for each group of countries. However, we should be aware that within most countries the conditions of their own internal agriculture differ more widely than between each group. Averages—and this is true for my questionnaire as well—are therefore often poor indicators.

The questionnaire was sent to a sample of agricultural economists and project managers of FAO-executed projects in developing countries. It was originally planned that it should be completed separately by FAO personnel and their national counterparts. It must be accepted, however, that some of our projects, or even some countries, emphasize subsistence agriculture, others have developed a market agriculture with small, medium, or even large-scale commercial farms. It proved impossible to separate the replies from these different countries. Similarly, with the very small sample, and the fact that foreign and national professionals completed the questionnaire together, no distinction is made as to the source of the replies.

The questionnaire was sent to field staff and counterparts of the Agricultural Services Division within FAO. This Division is charged with back-stopping agricultural economists working in farm management and production economics, and also charged with the execution of multi-disciplinary projects, involving several disciplines like plant and animal production, or the development of natural and human resources. Returns were received as follows:

- 9 questionnaires from 6 countries in Africa
- 3 questionnaires from 1 country in Asia
- 9 questionnaires from 7 countries in the Near East

## 5 questionnaires from 3 countries in Latin America

A total of 26 questionnaires were returned from 17 countries in three continents. These continents cover nearly all countries at present (for lack of a better word) classified as 'developing'. Almost all returns indicate the difficulties in making any educated estimate about future developments, which often are more determined by non-economic considerations than we normally assume.

The attached copy of the questionnaire also lists the answers received. The discussion will probably deal with some of the questions and what the answers seem to indicate. The questionnaire has been divided into three major sections: first, how to produce, then what to produce, while the last section tries to solicit some quantitative estimates on the return to inputs as well as farmers' participation in the provision of inputs, and the marketing and processing of agricultural produce. It is obviously the last section where replies are especially scarce and incomplete.

It must also be noted, when studying the questionnaire, that in some countries several services or institutions do not exist, and therefore 26 answers are not always recorded. Some of the questions are also checks, while others are phrased in such a way so that they would provide some general information. For the future, i.e. for 1980, and especially for the period after 1980, the respondents could very often not provide any answers. Information on future developments can be lacking for several reasons: doubts in one's own full understanding of the local situation, mostly due to a limited and short stay in the country, an economic system which is not expected to last, etc. For these reasons, only those answers indicating an increased or decreased degree of farmers' involvement have been recorded. In most cases the 'more' or 'less' of each answer is country-specific.

The following general comments can be made:

While farmers generally control labour and management, they share the decision on land and labour rates with others. No great changes are foreseen for the future. Farmers have little control over outside inputs, especially land which is owned by others, and the provision of extension services. However, it seems as if, in the development process, farmers will have a greater role to play in the availability of the extension services. With regard to various rented or purchased inputs, including credit, farmers often have little choice and are therefore not the decision-makers regarding the purchase of seed and the provision of credit. In future, their influence on the renting of land and the hiring of labour will tend to decrease while their role will be strengthened with regard to seeds and fertilizers as necessary inputs in the production process. It must be noted that, in many countries, not all 'commercial' inputs are available, or often they are used only by a minority of farmers. It is therefore not surprising to note that the majority of respondents report that farmers are experiencing lack of certain inputs and are therefore not having any choice. Furthermore, a considerable number of respondents expect limited

availability even in 1980 and also thereafter.

The replies to the questions directed at government's role and farmers' involvement in discussions on policy matters match the generally held belief. Often data are not available or are not a major factor in the decision-making process. Similarly, farmers are often not involved in discussions with government preceding the making of decisions. It is a hopeful sign that respondents indicate in their answers that, in future, basic data as well as discussions with farmers will likely play a greater part as a necessary precondition to any major decision. In respect of availability of services, conditions vary widely from country to country and even within each country. Under specialized services, advice on crops (for cotton, tea, coffee, etc.) and, for example, artificial insemination was meant. It is interesting to note that, besides government extension services, other advisory services are expected to assist the farmers in an increasing manner and that, at least in quantitative terms, the extension service is expected to improve. However, government will certainly continue to provide most of these services.

One of the very interesting parts of the questionnaire centres around the farmers' role in what to produce. In most countries, short-term credit is granted for some crops only and no great changes are expected in the future. Any follow-up questionnaire might usefully attempt to discover the various sources of credit and to see what role private banks play: whether, at present, and also in the future, government and its own financial institutions will provide most credit for agriculture. While the number of crops qualifying for credit is limited, only in a few cases restrictions on the acreage are reported. It seems as if limitations of the acreage are at present not used (nor are they likely to play a prominent role) as a means of income distribution.

According to the replies received, farmers are influenced by other persons, circumstances, institutions, and are often not independent, nor have they any real choice in many of their decisions. The risks involved, however, in agricultural production are not shared in a similar way. Only seven respondents mention a crop insurance system. It is promising to note that a considerable increase in the availability of this service is expected. Insurance seems not to be limited to any minimum acreage. Without such provision the costs of insurance, if not subsidized by government, might be rather high. As was to be expected, a relatively large number of countries subsidize fertilizer use. It is, furthermore, indicated that there will be a slight reduction in the number of countries assisting agriculture with these subsidies.

Replies to the questions on subsidies for equipment do not indicate which capital goods receive such preferential treatment, not what form these subsidies take. In many countries, subsidies for agricultural equipment are not direct payments in order to reduce the price for the farmers, but governments agree to exempt agricultural machinery from the collection of duties. For the farmers, these different measures have the same effect.

Subsidies for 'other inputs' probably cover credit, fuel and sometimes planting material. It was not expected that, with the exception of fertilizer and equipment, this group would be so large. An attempt at a further breakdown of this group might prove useful in any follow-up research.

Governments not only greatly influence agricultural production by subsidizing certain inputs, but also by establishing price guarantees. The questionnaire in its present format does not allow an analysis to indicate whether price guarantees are only granted for those crops which also qualify for short-term credit. The question as to 'number of crops' must also be re-worded, since only some respondents replied by indicating the exact number of crops which enjoy such privileges. Price guarantees are in most cases on an annual basis, only two cases were reported where these guarantees are given more than one year in advance.

The farmers' role in the decision on what to produce seems to decrease since respondents expect that allocations, quotas and production orders, at present of minor importance, will in the future play a more prominent role.

Section 3 of the questionnaire proved very difficult to answer and for various reasons only 18 out of 26 respondents replied to parts of this section. Several questionnaires indicated the difficulties of trying to foresee future developments. According to the replies, labour is the major input and receives the highest share of the returns. On the other end of the scale, we find management which is either not yet considered as an input or of very low importance. Note should be taken, however, that many questionnaires indicate that the role of management will receive increased recognition. Of total returns, land has seldom a share exceeding 20 per cent. However, no explanations can be given why respondents indicate that land's share of total return will decrease. Again, it might be worth while to discover the reasons for such expectations.

According to the replies received, farmers themselves are not responsible for most of the total inputs, but in future will have to provide a larger share. Similarly, a provision of the necessary capital in the form of credit will have to be increased by the farmers themselves. Marketing seems to be recognized as a specialized service, and while in many countries farmers have still to provide it themselves, these services will increasingly be taken over by others. The replies to the questionnaire do not indicate how farmers will be more involved in the processing of their products. The difference seen by most respondents between marketing on one hand and processing on the other cannot be explained and should be further investigated.

As some general conclusions of this experiment to collect some primary information on farmers' role in the decision-making process, I wish to state:

1. A general consideration of all developing countries in this context is not very useful, since type of farming, existing land tenure, and social and political conditions vary greatly.

2. This questionnaire has dealt with arable farming only; livestock production is an exclusive activity for many rural people and of major importance for the income of a large number of farmers.

3. There are many aspects of the farmers' role in the decision-making process in developing countries of which we know very little. More research is required if, one day, answers are to indicate the future of agriculture in a large number of countries and possibilities for the improvement of their economic and social conditions.

Farmers' participation in decision-making—summary of replies to questionnaire

	Who makes decision			Expected change in farmer's decision-making role					
	1972			1980		After 1980			
	Farmers	Others	Joint	More	Less	More	Less		
1. How to produce									
(a) Farmers' own input									
(i) land	16	—	10	5	4	5	3		
(ii) labour	22	1	3	3	3	3	4		
(iii) finance (labour rate)	-15	4	7	3	5	2	4		
(iv) management	20	2	4	6	6	7	8		
(b) Outside inputs (not purchased)									
(i) land (communal/tribal)	3	5	11	2	6	3	5		
(ii) labour exchange	11	1	12	4	5	5	5		
(iii) advisory (extension) service	2	16	6	6	3	8	3		
(c) Outside inputs (purchased)									
(i) land (rented)	17	2	4	2	6	2	7		
(ii) hired labour	25	0	0	2	5	2	6		
(iii) seed, fertilizer, etc.	11	5	10	8	3	9	4		
(iv) credit	10	12	4	6	6	6	7		
(d) Commercial inputs									
(i) Limitation on inputs of production									
				1972/73 limitation		Expected 1980		Expected after 1980	
				Yes	No	Yes	No	Yes	No
—fertilizers:	specific kind	15	8	5	—	1	—	—	—
	quantity	17	5	6	—	2	—	—	—
—power equip:	specific kind	14	8	4	—	0	—	—	—
	quantity	14	6	7	—	1	—	—	—
—irrigation equip:	specific kind	15	5	6	—	1	—	—	—
	quantity	15	4	8	—	2	—	—	—
—insecticides } pesticides }	specific kind	10	12	6	—	3	—	—	—
	quantity	13	8	7	—	3	—	—	—
—seed:	specific kind	16	7	5	—	2	—	—	—
	quantity	16	6	4	—	2	—	—	—



		1972/73		Expected 1980		Expected after 1980	
		Yes	No	More	Less	More	Less
<hr/>							
<i>(e) Government policy</i>							
<i>(i) Based on data</i>		13	10	19	—	17	—
<i>(ii) Decided by discussions</i>							
—involving farmers		5	13	15	—	14	—
—not involving farmers		15	5	—	—	—	—
<hr/>							
		1972/73 available		Increased availability 1980		Increased availability after 1980	
		Yes	No	Yes	No	Yes	No
<hr/>							
<i>(f) Advisory and other services available</i>							
<i>(i) Specialized services</i>							
—government		free	19	—	17	—	17
		for a fee	5	—	6	—	6
—independent of govt:		free	3	—	3	—	5
		for a fee	11	—	10	—	14
—both:		free	6	—	6	—	6
		for a fee	7	—	5	—	6
<i>(ii) General services</i>							
—government		free	17	—	15	—	16
		for a fee	6	—	5	—	7
—independent of govt:		free	0	—	2	—	2
		for a fee	12	—	10	—	12
—both		free	7	—	6	—	7
		for a fee	8	—	7	—	7
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	1972		Expected 1980		Expected after 1980	
	Yes	No	More	Less	More	Less
<b>2. What to produce</b>						
<b>(a) Short-term credit being used</b>						
—for some crops only	18	6	18	4	18	4
—for minimum acreage only	4	12	5	5	4	6
<b>(b) Insurance being used</b>						
—for some crops only	7	17	13	7	14	6
—for minimum acreage only	0	16	2	7	3	6
<b>(c) Subsidies on inputs prevailing</b>						
—fertilizers	12	12	10	8	8	10
—equipment	9	14	8	9	7	11
—others	12	10	8	9	6	4
<b>(d) Guaranteed prices established</b>						
—number of crops	17	6	16	3	16	2
—one year in advance	8	11	13	4	13	4
—two years in advance	1	15	2	6	3	6
—more than two years in advance	1	14	3	7	3	7
—export crops only	0	16	6	4	8	4
—export and other crops	7	14	12	2	13	1
<b>(e) Allocations, quotas, production orders</b>						
—number of crops	5	14	9	6	11	4

	1972/73							Expected 1980			Expected after 1980		
	-10%	11-20%	21-30%	31-40%	41-50%	over 50%	More	Same	Less	More	Same	Less	
<b>3. (a) Returns (or a share of total) to:</b>													
—labour (%)	0	1	1	3	3	8	6	2	5	6	1	5	
—management (%)	8	6	0	0	0	1	7	5	1	8	1	3	
—capital (%)	2	6	3	1	0	3	7	6	0	5	4	3	
—land (%)	3	7	1	2	0	2	3	3	7	2	2	8	
<b>(b) Farmers' participation in the:</b>													
—provision of physical inputs (%)	0	0	4	2	0	11	10	0	3	10	0	3	
—provision of credits (%)	9	0	0	1	0	5	8	1	3	7	1	3	
—marketing of products (%)	5	1	0	1	2	10	6	2	8	4	2	8	
—processing of products (%)	12	1	2	0	0	1	8	3	3	8	1	4	

SPECIAL GROUP H REPORT  
No Report prepared