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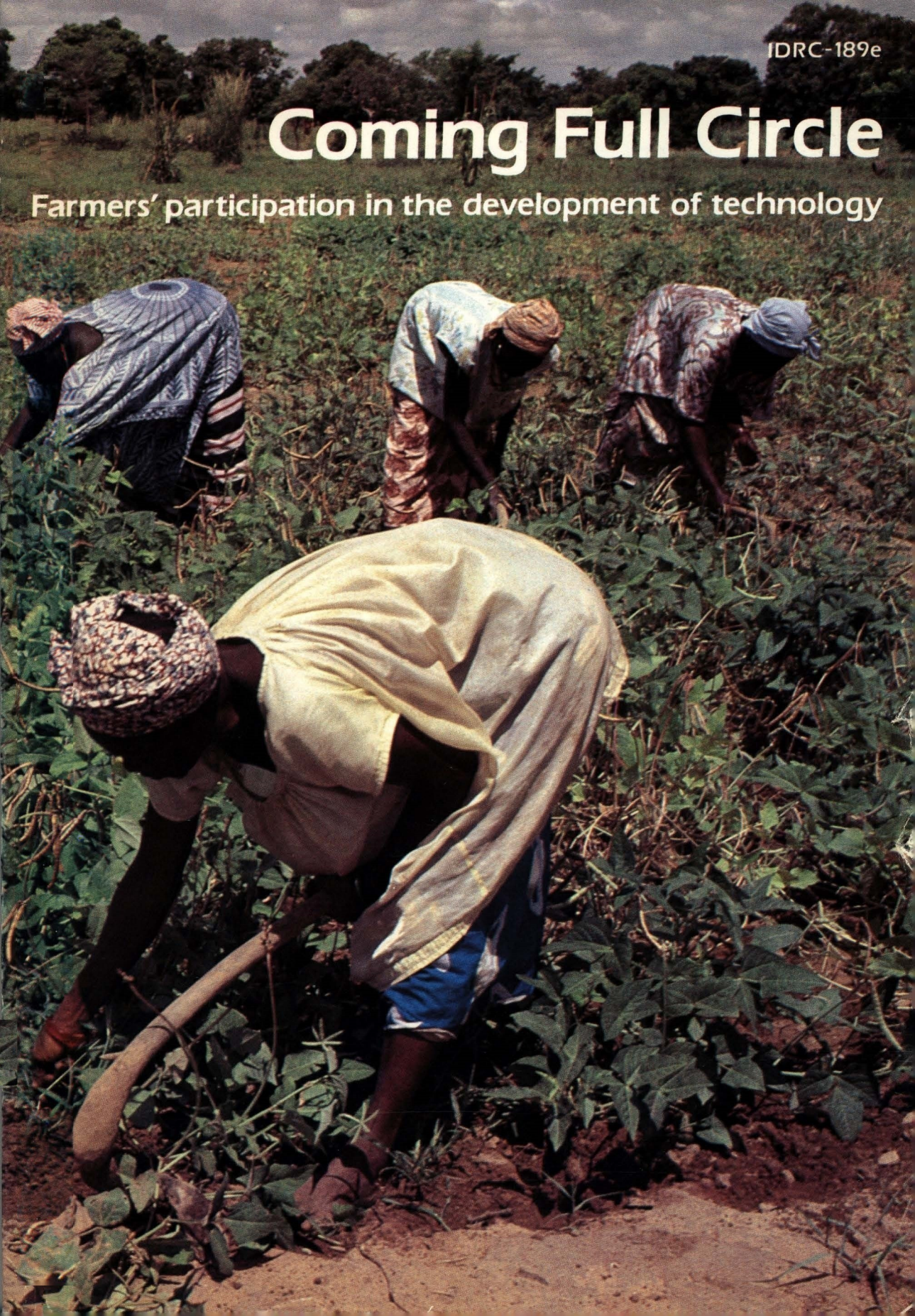
Coming Full Circle

Farmers' participation in the development of technology



Coming full circle: farmers' participation in the development of technology

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Abstract

Involving farmers in identifying the constraints to rural agriculture and in designing measures to alleviate them is the subject of this publication, which resulted from a meeting, held in Ouagadougou, Upper Volta, 20–25 September 1983. Agronomists, economists, anthropologists, and others seeking to get the most from research efforts discussed the pitfalls of assembling packages that are sound technically but have some essential flaw because the developers have overlooked some crucial constraint at the farm level. The subject is one that is receiving much attention currently as agriculture in developing countries has failed to net major increases in production despite thousands of dollars invested in research and optimistic claims that improved varieties, techniques, equipment, etc. have been developed. The gaps between results on research stations and those on farms in the Third World have prompted some researchers to view the farmers' conditions as the real laboratories. Why, how, where, and when to get farmers involved in research are the focus of this document, and the degree to which researchers and the agencies they represent have been able to listen and work with their new partners varies, as is clear from the 11 papers and the commentary that follows them.

Résumé

La participation des paysans à l'identification des problèmes agronomiques et à la recherche de leurs solutions est le sujet de cette brochure qui rapporte les états d'un séminaire tenu à Ouagadougou (Haute-Volta) du 20 au 25 septembre 1983. Afin de mieux exploiter les résultats des recherches, des agronomes, des économistes, des anthropologues et d'autres personnes intéressées ont discuté du danger de préparer des blocs agronomiques, solides sur le plan technique, mais possédant des vices fondamentaux, les développeurs n'ayant pas pris en compte certains obstacles critiques au niveau des fermes. Ce thème est largement débattu aujourd'hui alors que la production agricole stagne dans les pays moins avancés malgré l'injection de milliers de dollars dans la recherche et les espoirs mis dans la création de variétés, techniques et équipement améliorés. La différence entre les résultats obtenus dans les stations de recherche et ceux recueillis sur les fermes ont conduit des chercheurs à reconnaître que la ferme même constituait le vrai laboratoire. Le thème principal de cet ouvrage qui se dégage des onze communications présentées et des commentaires qui suivent, est donc de déterminer quand, où, comment et pourquoi les fermiers doivent participer à la recherche et aussi, jusqu'à quel point les chercheurs (et les organismes qu'ils représentent) ont su être à l'écoute des paysans et travailler avec eux.

Resumen

La participación de los agricultores en la identificación de las limitaciones a la agricultura rural y en el diseño de medidas para superarlas es el tema de esta publicación que resultó de una reunión celebrada en Ouagadougou, Alto Volta, del 20 al 25 de septiembre de 1983. Agrónomos, economistas, antropólogos y otros interesados en obtener lo mejor de los esfuerzos investigativos, discutieron los problemas de producir paquetes técnicamente válidos que no obstante presentan fallas básicas porque sus diseñadores han perdido de vista alguna limitación crucial a nivel de la finca. El tema recibe actualmente mucha atención debido a que la agricultura de los países en desarrollo no ha podido aumentar la producción pese a los miles de dólares invertidos en la investigación y a las optimistas voces que proclaman haber desarrollado variedades, técnicas, equipo y otros elementos mejorados. La brecha entre los resultados de las estaciones de investigación y aquellos de las fincas del Tercer Mundo han hecho que algunos investigadores consideren las condiciones de los agricultores como los verdaderos laboratorios. Por qué, cómo, dónde y cuándo involucrar a los agricultores en la investigación es el tema central de este documento, y el grado en que los investigadores (y los organismos que representan) han podido escuchar y trabajar con sus nuevos socios varía como lo demuestran los 11 trabajos del libro y el comentario final que los sigue.

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Farmers' participation in the development of technology

COMING FULL CIRCLE

Editors: Peter Matlon, Ronald Cantrell, David King, and Michel Benoit-Cattin

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Introduction

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That farmers should participate in developing and evaluating technology for their own use is so evident that it has generally been ignored. In the past and still today, few efforts to help farmers have been designed with their participation.

This book aims to help correct this error — once again, unfortunately, without the farmers.

Saying that dialogue between researchers and farmers is essential implies that the two sides have something to say to each other and proposals to exchange so that they build mutual trust. What farmers can bring to the dialogue is a wealth of knowledge and skills to deal with the environment's harsh constraints: the true value of these assets must be recognized and understood. The researchers' contribution is innovation and resources, which provide the means to be taken seriously and the freedom to move away from the beaten path of traditional technologies.

Clearly, research to design a technology for farmers, who have multifaceted lives and constraints, must be developed by multidisciplinary teams. This assumes a commitment by all research disciplines to work together on the same problems, on the same scale, and with the same agenda. Moreover, researchers have no monopoly on discovery. Not only farmers but also extension and development personnel have valuable knowledge about rural societies and must be constantly associated with research efforts.

Brief background

The concept is not new. Over the years, many researchers and development workers have attempted to bring their work objectives and activities more in line with farmers' needs. Their efforts, however, have often been uncoordinated, if not contradictory.

In West Africa, attempts to establish dialogue between the partners in agricultural development gained impetus in the 1960s. Agronomists, biologists, and agricultural economists wanted to put "improved" technologies from research stations to the test in the reality of local environments.

Briefly and without nostalgia, I would like to recount the major steps on the road from the station to the farmer's field. In my view, there were five:

- Decentralizing the research structures and efforts: national centres

began to open regional stations, then subregional support points, and local outposts. A number of developing countries have now become dotted with simple, decentralized research structures. The aim was to foster personal and direct relations with local social groups. This first step brought about farmer-cooperators, test plots, demonstration fields, reference farmers, and so on.

- Building knowledge of the real environment: having met the agricultural producer — the farmer — researchers wanted to know more: the potential user's physical and economic environment. This step led to successful screening and selection of technologies for a particular environment.
- Enriching the technical message: researchers then enriched their proposals by going beyond single innovations and producing coherent technical "packages" of related innovations; testing these packages in the real environment to detect limiting factors such as work time, variations in farming practices, transportation problems, and crop processing; following up to ensure that unforeseen problems such as soil degradation, weed proliferation, and new pests, didn't emerge; and tailoring their experimental methods to local technical constraints. About 1965, some researchers took a fourth step.
- Refocusing objectives based on production conditions: researchers gradually found that when they had done their best to ensure that innovations (varieties, manuring, techniques) were valid, consistent, and well promoted by extension personnel, these innovations were sometimes rejected and sometimes widely accepted in a short time. Some crucial factors in the farmers' experience, methods of managing resources and tools, had been overlooked and were making the farmers unwilling or unable to adopt some technical proposals. Discovering those factors was recognized to be the work of multidisciplinary teams on site. The study would have to deal with the plot or herd; the farm; and the landscape or rural community, all of which affect the farmer daily. In other words, the farmer had to be at the centre of research. The farmer decides how to manage production to meet his or her objectives, taking into account natural resources and environmental constraints. This was a key step: researchers realized that, no matter how good their innovations were, they were not valid unless they fit into existing systems.
- Fashioning innovations to suit agrarian systems: the fifth, and current step, was taken shortly before 1970. In this step, researchers finally got into the farmers' fields. They moved not just their laboratories but themselves into the milieu. The research is closely linked with development, aimed at generating involvement and action by rural communities and districts (production groups, villages, groups of villages, and so on). Farmers negotiate with development personnel for the types of experiments they want and thus hold the real power to decide which techniques are the most appropriate. Researchers and extension personnel are involved in the effort on the same site, at the same scale, and at the same pace. Working together, gaining experience of each other's tasks, constraints, approaches to problem-solving, is the teaching method for all three groups of participants — farmers, extension personnel, and researchers. The

on-the-job training gives them each a means to fine-tune their methods.

Thus have been born truly operational research projects — pilot projects, experimental development projects, and research-and-development projects. They have attracted the interest of financial institutions such as the World Bank, the United States Agency for International Development (AID), the European Development Fund (EDF), and the Caisse centrale de coopération économique (CCCE). Funding agencies see this new type of research as a route to development that is more self-motivated and, from a technical and even an economic point of view, more independent than previous efforts. The new projects have fostered great hopes; the challenge is to not betray them.

Intention vs action

Although respect for the farmer is increasingly regarded as a prerequisite for research and development, it is not always achieved. The reasons include:

- Deeply rooted prejudices or ideas: even the most egalitarian people sometimes have prejudices, believing that anything traditional is inherently inferior to anything modern, equating illiteracy with ignorance, and assuming that farmers are by nature conservative and opposed to innovation. Another, unfounded belief is that a project can be successful only if researchers (or, more often, extension personnel) introduce a series of simple innovations, separately and progressively. The advocates of this belief and practice say that farmers are not well-educated enough to cope with larger changes. They do not communicate their objectives and strategies to the farmer, much less negotiate them. Also, many people believe that involving selected farmers will result in spontaneous extension. In fact, carrying on dialogue with only a few farmers singles them out and isolates them from their social groups, which are often striving to prevent inequality. A related concept is that researchers should closely supervise participating farmers.
- An ignorance, often tragic, of what agricultural intervention should involve: the ignorance stems not from a lack of studies — these are often numerous, thorough, and rich — but rather from a shortcoming in the studies, which are often geared to analysis and knowledge, not change. It also stems from a difficulty in applying what has been learned. Many farmers are tired of having their needs and constraints repeatedly analyzed and not receiving any help in answering their questions.
- Institutional difficulties: the three-pronged approach involving research–development–production (RDP) simultaneously is still rare because of the burden of past practices, cumbersome structures, power struggles, and disputed jurisdiction. These institutional difficulties mean that not only the farmers must take risks but also the researchers and the extension personnel. Proposals are not enough: one must convince, take part, be committed. Researchers must scientifically prepare the conditions for the diffusion of new systems;

development workers must reconcile the desirable and the possible. When these two groups have adequately done their jobs, they will have reduced the risk for the producer, who, at present, is assuming too much of the load.

- Possible political impact: the RDP approach inevitably involves political authorities. Building support among them is essential: they can aid in solving problems: technical (selection of producers, technical levels to attain), economic (balances within and between regions, input costs, surpluses and price structures), social (management of rural areas, land tenure), institutional (cooperatives, farmer organizations, credit, marketing), logistical, and political.

RDP: the methods

For farmers to play an active role in selecting their development path, they must be involved in the various phases of creation and extension. Farmers' participation is required, first, in diagnosing the problems, second, in designing technical improvements, and, third, in using and evaluating the innovations. Each phase requires different methods, some of which are available already; others are being developed or have yet to be developed.

These methods seem to me to fall into three categories:

- Evaluations using various criteria and at various phases; the criteria take into account relationships between the ecological and technical environments, between techniques and farming systems, and between techniques and societies. The phases concerned are diagnosis, prescription, explanation, and follow up. The evaluations must recognize and take into consideration the remarkable store of knowledge that the farmers can contribute. The challenge is for researchers to use methods that involve farmers and that draw on this wealth of knowledge, for example, in analyses of soil potential, production of inventories and maps, selections of and decisions about innovations, problem-solving, and resource management. What role do researchers play in the analyses? How can agronomists come to understand farming processes at the various levels (the plot, the farm, the countryside)? How can one get farmers to help evaluate the potential and risks for developing or extending techniques and systems? I believe that the evaluations must be conducted by experienced researchers working directly with the farmers. However, in the traditional linear RDP scheme, those directly involved are development personnel whose level of technical knowledge might quickly be challenged by the farmers themselves.
- Experiments; the methods for testing on research stations or in controlled environments are generally available, and only need to be adapted to the particular constraints and objectives of the experiments. Not so the methods for testing in the actual production environment. Many authors distinguish between researcher-managed and farmer-managed tests, and the statistical and biometric methods for the latter testing have not yet been developed. Some researchers consider farmer-managed tests an extension of experiments started on the station; others see them as the beginning of experiments — the

true framework for dialogue with the farmer. The tests, which are carried out on as many sites as possible, provide information about actual production and consumption at the level of the plot, the farm, the rural community, and the country.

- Adoption, extension, and adaptation; the methods for extension — an experimentation–evaluation process — involve close cooperation between researchers, farmers, and extension personnel in both real and controlled environments to generate innovations adapted to the various types of landscape and production that exist. Some attempts are being made to follow up innovations and establish directions for change and scenarios for the future by taking into account the major social, institutional, and logistical factors of the environment.

But how is the transition in scale to be made from activities in small areas to development at the regional level? Adopting, communicating, and extending techniques in rural areas involve five key elements: choosing sites that represent a large agricultural area (the method found suitable is zoning, although only recently have human, social, and cultural factors been introduced into this zoning); selecting farmer–partners who are also representative and with whom innovations will be negotiated (the methods used currently are to establish structural and functional types of farmers by closely studying communities); communicating and demonstrating possible development plans on the sites in rural communities, with training and professional organization of farmers; assisting farmers to adapt the techniques; and instituting the organizational structures required to complete the undertaking.

Conclusion

The resources and conditions required for successful participatory research and development are a key consideration if more than a small number of farmers are going to become involved. I feel that certain questions must be kept in mind: What is a suitable ratio of farmers to researchers and teams of researchers and extension workers? What is the best way to assist farmers in replicating the models they have developed? What institutional support should be given to the new RDP approach? What means must be developed to communicate the results of the experiments? What role can be played in this communication by the networks of RDP projects? What methods, organizational systems, and procedures will have to be invented so that projects — experiments — take into account the macroeconomy and regional and national policies?

Although the type of participatory research I have described is quite new, it has been the subject of numerous publications. To date, the documents have had a limited impact. I hope that this publication — available in both English and French, in a simple, straightforward style — will be read widely by development personnel, planners, researchers, and extension workers. I also hope that in the future, a workshop about farmers' participation will include farmers.