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# RESEARCH

In many developing countries the 1980s have seen shifts of thinking and priority in agriculture. Robert Chambers examines the trends and the implications for research

## FARMER FIRST

It is now recognized that **who produces food, and who can command food, and also where production takes place, often matter more than how much is produced.**

It is recognised too that the relative importance of rainfed agriculture has risen compared with irrigated agriculture and that resource-poor farm families and resource-poor conditions have been less well served by agricultural research than have resource-rich farmers and conditions.

Widespread deforestation and environmental degradation have placed sustainability high on the agenda. Population projections indicate that in many countries rural areas will have to support much larger populations, with many more people living in fragile environments.

The priority has become not just sustainable agriculture, but sustainable livelihoods based on agriculture, and not only for present populations but for hundreds of millions more people in coming decades.

These points are perhaps well accepted now. If so, the implications for agricultural research are only just beginning to be recognised.

The traditional mode of agricultural research is "transfer-of-technology" (TOT). In this, scientists determine research priorities, conduct research in laboratories and on research stations, and then pass on technology to extension services to transfer to farmers. Research methods are reductionist, with few variables, and generate packages suitable for environments similar to those of research stations.

Of the three main types of agriculture in the world, two of them—the industrial agriculture of the rich North, and the green revolution agriculture of the more favoured areas of the South—have been served quite well by the TOT approach. The packaged

recommendations generated have fitted their rather simple, uniform, controllable, high-input and risk-free conditions.

But perhaps as many as 1.4 billion people in the South (roughly 1 billion in Asia, 300 million in Africa, and 100 million in Latin America), among them many of the very poorest, depend on a third type of agriculture which is more difficult, and where yields have changed little since mid-century.

### Diverse

Their agriculture is more complex, diverse and risk-prone. The complexity is physical—undulating land, with variable soils, shade, aspect and water supply; biological—with intercropping, agroforestry, and livestock interlinked; and

**"Farmer First approaches can be expected to come into their own"**

social and economic—with multi-purpose crops, trees and livestock, and many different activities and enterprises for the farm household at different times of the year.

The diversity is both in environmental conditions and in the variety of farming systems. And the risk-proneness is the vulnerability to irregular rainfall and other climatic factors.

This third, or CDR (complex, diverse, risk-prone) agriculture, is not well served by green revolution packages which need controlled conditions, in which E (the

environment) is controlled and modified through fertilisers and irrigation to fit G (the genotype). Instead, in CDR agriculture, it is more that G has to fit E.

Moreover, farmers faced with unpredictable weather and fields of different elevations and soils, need a range of seed material so that they can adapt to each season as it unfolds. Increasing productivity and reducing risk for them often entails not simpler but more complicated farming systems, with agroforestry, the harvesting of water, soils and nutrients, and husbanding more, not fewer, species and varieties of plants and animals.

They also know relatively more, compared with their green revolution colleagues, about their conditions than do scientists. And they are experimental and adaptive—they cannot afford not to be. They need, it is now realised, not messages but methods, not precepts but principles, not a package of practices but a basket of choice, not a fixed menu—table d'hôte, but a choice, à la carte; not instruction on what to adopt, but ideas about what to try, with support for their own trials and experimentation.

To meet these needs of CDR farmers, there has been much quiet new activity during the past few years. Some of the best work has been done in Peru, Colombia, Honduras, Nepal, Bangladesh, Thailand and the Philippines. Voluntary agencies, among which World Neighbours has been outstanding, and government staff and some working with international agricultural research centres, have pioneered new approaches in which farmers are primary throughout.

These approaches have several variants and labels—farmer-back-to-farmer, as detailed by Rhoades and Booth; farmer participatory research (Farrington and Martin), farmer-first-and-last (Chambers and Ghildyal) and approach development

(Scheuermeier.)

I shall use farmer first (FF) here to encompass all of these. The title does not matter. The essence is a family of approaches and methods which hang together as a new paradigm. This has been called "complementary" rather than "alternative", to emphasise that TOT will always be needed. But the difference of FF can be shown diagrammatically, as in the box.

Farmer First approaches and methods are evolving fast. One sequence which recurs in farmer participatory activities is an iterative process of farmers' analysis, choice, and experiment (FACE) with advice and support from outsiders.

## Analysis

Analysis by farmers can be promoted and supported in many ways:

- sequences of farmers' group discussions;
- inspection and discussion - visiting other farmers, research stations, or trial sites;
- innovator workshops, where farmer innovators meet and discuss their new practices;
- the use of key starter questions by outsiders such as "What would an ideal variety look like to you?", "Why do other farmers do things differently to you?", and the unhurried sequence "What was farming like when you were young, how has it changed, what problems have you faced, how have you tried to tackle them, and with what results?"
- visual aids to analysis, such as seasonal diagramming, aerial photographs and overlays, and systems diagramming on a board or on the ground.

With methods such as these, the role of the outsider is to encourage and support analysis by farmers themselves, providing where necessary the stimulus, the occasion and the incentive for meetings and discussions.

Analysis can lead straight to experimentation, but often it defines a range of choice farmers would like. It then leads to search for genetic material and for information: for species, varieties, treatments, cultural practices, or combinations of these.

## "Reverse"

Search then becomes a major activity for outsiders, reversing the normal roles of extension. The task becomes to find and present farmers with choices to fit the needs they have identified. Examples are:

- minikits (a well-established approach)

containing several varieties of a crop, and/or several fertilisers, for farmers to test and choose from;

- planting a variety of material followed by farmers' "wait-and-see and pick-and-choose", practised especially with multi-purpose trees;
- releasing small batches of advanced breeders' lines matched to the characteristics of farmers' landraces, for farmers to plant and evaluate;
- pre-screening of varietal materials by farmers, as with bush beans and cassava at CIAT.

With more to choose between, farmers have a wider repertoire, more cards in their hands for their game against nature, and can respond and adapt better to uncertain conditions.

Finally, farmers themselves experiment, and develop and adapt technology, evaluating results and sharing their experiences through farmer to farmer extension.

Approaches to these and similar lines are being developed in many parts of the world. A conference of "Farmers and Agricultural Research: Complementary Methods" held at the Institute of Development Studies, University of Sussex, Brighton, UK in July 1987 brought together about 50 biological and social scientists who were practitioners of these participatory methods. It was evident that in most institutions, those working in an FF mode were a fringe minority.

But for the 1990s, as scientists come to grips with the challenges of CDR agriculture, FF approaches can be expected to come into their own. Those who are now marginal will have been the vanguard.

The need now is for many more professionals, in agricultural research, in extension, and in voluntary agencies, to develop these approaches and methods, to learn from their experience, and to communicate to others. Communication, though, is not enough. Farmer-first approaches need more than knowledge of what to do; they need empathy, and a basic respect for farmers, their knowledge and their competence. That empathy cannot be taken for granted.

My impression is that those who have so far made the running are exceptionally open, friendly and sympathetic people. The personality factor cannot be ignored. What works with one person may not work with another. FF demands a lot of its outsider practitioners, not least a capacity to listen and learn. FACE may not be a bad acronym, since the face-to-face relationship of outsider and farmer is crucial.

Gathering and systematising experience is also important. Much experience is lost because those who gain it either do not see its importance, or think it not fit to publish. But there are networks, institutions, and journals which print and disseminate FF experience. With astonishing bad judgement, the FAO has axed CERES, which was open to farmer-first ideas; and SPAN has now gone out of print. But this



"Why not try putting us first for a change?"

magazine and others continue—and publish practical first-hand farmer experience\*. There are plenty of good ways to communicate.

## Revolution

To put farmers first, and resource-poor farmers first of all, requires quiet personal revolutions. For these to occur, scientists and extensionists, like risk-prone farmers themselves, need a wider repertoire, and freedom to experiment and adapt.

This freedom is contrary to the reflexes of normal professionalism and of normal bureaucracy. Much therefore depends on whether those in authority in agricultural research and extension encourage and allow their staff to work and experiment in the FF mode. If they do not, the 1990s will continue very largely to leave out the resource-poor farmers of the third agriculture; but if they do, and if farmer-first approaches and methods are adopted widely and well, the gains in production and well being should be great indeed.

Note: A limited number of copies of *Experimental Agriculture* vol 4 part 3, and of Jacqueline Ashby et al's paper "Farmer Participation on On-farm Varietal Trials" are available from John Farrington, Overseas Development Institute, Regent's College, Regent's Park, London NW1 4NS, as are selected papers from the Conference on



Personal revolutions would help. Rice farmers in The Gambia Cr:IFAD

Farmers and Agricultural Research: Complementary Methods, which are also forthcoming (1988) in *Farmer Innovation and Agricultural Research*, edited by Arnold Pacey et al.

Other material on the subject includes: "Two Ears of Corn: a guide to people-centered agricultural improvement" by Roland Bunch. (World Neighbors, 5116 Portland Avenue, Oklahoma City, Oklahoma 73112. USA) "Small Farmer Research: the Key Element of Permanent Agricultural Improvement"; paper by

Roland Bunch for the Conference on Farmers and Agricultural Research: Complementary Methods, 26-31 July, IDS, University of Sussex, Brighton, U.K. "Agricultural Research for Resource-Poor Farmers: the farmer-first-and-last model", Chambers, Robert and B P Ghildyal, *Agricultural Administration*, 20, 1, pp 1-30.

Also: "Improved Livelihoods, Genetic Diversity and Farmer Participation: a strategy for rice breeding in rainfed areas of India"; D.M. Maurya, A Bottrall and J Farrington, *Experimental Agriculture*, 24, part 3, pp 311-320. "Farmer-Back-to-Farmer: a Model for Generating Acceptable Agricultural Technology", R.E. Rhoades and R.H. Booth *Agricultural Administration*, vol 11, pp 127-137. *Approach Development*, by Ueli Scheuermeier, LBL (Landwirtschaftliche Beratungszentrale), CH 8315 Lindau, Switzerland.

Robert Chambers is a fellow of the IDS at the University of Sussex.

\*We are keen to publish examples of practical farmer-first experience. Readers are invited to write-up for us anything suitable in which they have been involved or have close experience.

### Transfer-of-technology and farmer-first compared

	TOT	FF
Main objective	Transfer technology	Empower farmers
Analysis of needs and priorities by	Outsiders by outsiders	Farmers assisted
Transferred by outsiders to farmers	Messages Precepts	Methods Principles
The "menu"	Package of practices Fixed	Basket of choices A la carte
Farmers' behaviour	Act on precepts Adopt, adapt or reject package	Apply methods a principles. Choose from basket. Exper- iment and adopt

N.B.

Outsiders = research scientists, extensionists, NGO workers etc.

