Der Tropenlandwirt, Zeitschrift für die Landwirtschaft in den Tropen und Subtropen
95. Jahrgang. Oktober 1994, S. 115 - 134

# Participatory Technology Development: A Babel of Terms and Concepts

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## 1 Introduction

In the last decade, "participatory technology development" (PTD) has achieved widespread attention of researchers, project planners and policymakers. In part, this is due to a growing body of literature dealing with encouraging results of more "client-oriented" research procedures. Additionally, "participation" -benefiting from increasing emphasis of international donor agencies- is becoming an integral element of the respective development agendas. Unfortunately, although terms and concepts are used interchangeably, their meanings and underlying concepts often differ one from another. That situation contributes neither to a growing scientific reputation of PTD nor does it increase the willingness of policymakers in developing countries to modify the structure and procedures of national agricultural research and extension agencies (cf. PLUCKNETT et al., 1987, p. 1).

The aim of the following article is, therefore, to present the essential characteristics and differences of those most important procedures in national agricultural research systems of developing countries that provide for the participation of target groups in the individual phases of the research process. I will start out with a problematization and differentiation of the term participation. The description and characterization of participatory methods will follow. They will be structured according to phases of research and differentiated with respect to the degree of target group participation in the research process. At the same time a survey of the unfortunately rather disperse literature relevant for participatory methods of agricultural research is given, which should be consulted when developing specific project conceptions.

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## 2 Participation and National Agricultural Research

### *2.1 The Term Participation*

The term participation is generally used on two levels - the political level and that concerned with the theory of decision. These two are interrelated; in this article I will concentrate on the latter dimension that is on the improvement of the planning process, thus a rather instrumental understanding of the term. The argument in favor of a stronger participation proceeds from the increasing complexity of decisions in the planning stage. - One can only plan directly if one knows the needs of those groups affected by the planning (cf. HOLLIHN, 1978, p. 10). The more diverse a society is, e. g. the more norms and values differ with respect to the members of a society, the less one can assume that the persons charged with the planning process know the needs of those affected. In order to avoid failures during implementation, emphasis is put on the participation of groups that are affected in all phases of the planning process:

Participation "... describes the process by which all participants (rural men and women, extension agents and management, as well as researchers) are involved in reaching a common goal. The participatory process focuses on mutual decision-finding with regard to analysis, planning, implementation, and evaluation of the development efforts" (NAGEL et al., 1992, p. 14).

Ideally, the goals of the instrumentally interpreted term participation may be presented as follows (cf. HOLLIHN, 1978, p. 18):

— reducing the planners' information deficit concerning the wishes and targets of the population through their participating in the planning, thus increasing the chance of the success of the planned project;

— informing those affected by the plans of government and private institutions through timely disclosure allowing possible resistance to be voiced early enough;

— controlling of those institutions which plan and implement these plans by the groups affected;

— integrating groups of the population during the different phases of planning, implementation and impact assessment achieving a higher legitimation of the planned actions;

— mobilizing parts of the population to take over components of the planned measures.

## *2.2 Reasons in Favor of Introducing Participatory Concepts in Agricultural Research*

In agricultural research, participatory concepts were by no means created because agricultural research had in general not produced results. One essential reason is to be seen in the fact that the conventional transfer of technology has in many cases reached but a few groups of the rural population because improved methods could only be adopted if certain preconditions were fulfilled. Especially those who cultivate the land with a limited supply of resources have hardly had any benefits from these innovations (MERRILL-SANDS, 1986, p. 88). Their frame of conditions shows a high complexity, among other reasons because of the following characteristics (cf. BYERLEE et al., 1982, p. 898):

— the longer periods of cultivation in the tropics allow for a great variety of cultivable products and, correspondingly, complex combinations of these products (intercropping systems, crop rotation); decisive climatic conditions that are subject to great changes and the lacking reliability of access to forward and backward services lead, in connection with a low income, to an increase of the relative significance of risk in the process of decision-finding;

— both personal preferences and the necessity of a continuous food supply have an influence on the production program because of the subsistence needs of small-scale farming families. Here the influence is greater than in larger enterprises;

— the availability of manpower specific to individual families calls for - proceeding from a generally low productivity of labor and seasonally fluctuating need of manpower - an adjustment according to the production system.

With respect to the adoption of innovations, it has been realized that these complex external conditions restrict producers with limited resources more than those farmers who are better off, which has led to methods of Farming Systems Research (cf. for example NORMAN, 1978; LAGEMANN, 1982). The (further) development to participatory research could, however, only take place after a number of studies had shown the breadth and depth of the farmers' knowledge about natural basics of production and alternatives of action*. However, the prejudices regarding the researchers' superiority and the ignorance of the small farmers could not be overcome. But they could be restrained (cf. WATERS-BAYER, 1989, p. 3) .

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* See HARWOOD (1979); BIGGS, CLAY (1981); CHAMBERS (1983); RICHARDS (1985). In these studies the significance of farmers' knowledge and experiments is represented comprehensively as the main factor of the evolution of production systems within fluctuating frameworks.

A decision in favor of participatory concepts in agricultural research implies on the one hand a normative background which states that trickle-down effects of new technologies do not follow in a quasi-automatic way but that differentiated measures must be taken in order to reach target groups of small-scale farmers. On the other hand not only innovation potential is imputed to these groups but one assumes that the development of new technologies can and must be based on already existing knowledge (HALL, 1981, p. 7).

### *2.3 Result: Principles of Participatory Agricultural Research*

Methods of participatory agricultural research are based on the following principles:

— The adoption and sustained application of new technologies are dependent on goals and conditions of the users. The decisions in question are made in the basic units (enterprise, household, collective groups); these cannot be taken away from them by anybody (THIMM, 1989, p. 9). Improved methods have thus to be oriented according to the framework of these units and have to be measured according to their effect on the units' specific goals (cf. DOPPLER, 1989, p. 270).

— The expansion of the production system approach by the dimensions "family" and "household" requires a systematic methodology. The knowledge of production technologies and economy must be interdisciplinary linked with aspects of ecology, sociology and anthropology (BYERLEE, TRIPP, 1988, p. 145).

— The researchers' problem perceptions play a smaller role than those of the producers involved (SIMMONDS, 1986, p. 2). Both sides see themselves as partners and contribute mutually to the success of the research process (FARRINGTON, MARTIN, 1988, p. 250).

Participatory agricultural research is thus a concept which combines the knowledge and capabilities of researchers and potential applicants of improved technologies in an interdisciplinary and equal way and which refers to the system of production, household and family, whose goals, problems and conditions are a guideline for the research process.

### *2.4 Possibilities and Limitations of Participatory Agricultural Research*

Participatory agricultural research is not a panacea for solving all problems of producers with limited resources when other instruments of a rural development policy do not produce results. The decisive factors of the small-scale farmer's production system, his household, his family lie outside the effective sphere of participatory agricultural research: ecological frames, economic conditions, in-

frastructure, backward and forward services are fixed data to which individuals can but react. Referring to Liebig's minimum law illustrated by his famous "minimum barrel"*, the following is valid for the just mentioned frame of conditions:

— the individual components of the environment determine the frame of action and thus the production potential of a given production system;

— these elements can but to an extent be substituted. Thus the usage of the potential is decisively restricted by that factor which is in the minimum barrel.

The results of agricultural research cannot substitute other necessary components for agricultural development; on the other hand, favorable conditions alone, without the knowledge of improved methods of production do not provoke the exploitation of the existing potential. Many small-scale farming systems find themselves in this position: the agricultural research "staves" which are tailored to producers with many resources do not fit in the gap of their "minimum barrel". Participatory agricultural research tries to support the producers in their endeavor towards stopping up the minimum barrel. The methods that are at its disposal are subject to the following chapter.

## 3 Participatory Methods

In structuring participatory methods I would like to use a classic pattern which is based on the different phases of the research process.** These are then examined as to what extent participation of a target group can take place or does already take place.

### *3.1 Phases of the Research Process*

The research process in national agricultural research can generally be subdivided as follows (see figure 1; cf. MAXWELL, 1984, p. 3).

These steps generally show the following constituents:

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* A barrel which consists of staves of unequal length can only be filled to the brim of the shortest one. The projecting length of the others is useless (cf. HEILENZ, 1987, p. 42).

** Beyond that there are other possibilities of categorization: SIMMONDS (1985, p. 11) structures according to production system research *sensu lato* and *sensu stricto* and adds "On-Farm Research" and "New Farming Systems Development"; DOPPLER (1989, p. 267) uses for classification i) the method of collecting data, ii) the degree of complexity of the production system analysis, iii) philosophy, foundation and thrust; BYERLEE, TRIPP (1988, p. 141) distinguish according to "interactions"; MERRILL-SANDS (1986, p. 101) pursues the full integration of "key concepts" into the different methods.

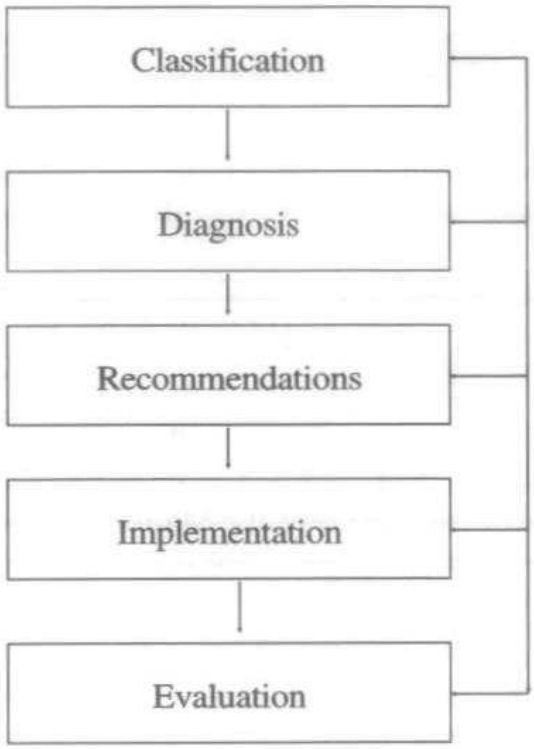


Fig. 1: Steps in the Agricultural Research Process (Source: Adapted from MAXWELL, 1984, p. 3)

— *Classification is* the identification of largely homogeneous groups of producers which present similar natural or socio-economic traits. Thus the basis emerges for the distinction according to the types of production systems (or, according to the method pursued, the household- or family system) and for the selection of distinct target groups. The decision concerning the field of research also depends on the method.

— The *diagnosis is* the phase in which goals, needs, potentials and frame conditions of the earlier identified target groups are determined.

— *Recommendations* affect the choice and specification of the next research phase in that either the verification of already existing knowledge or the generation of new knowledge is focused on.

— The planned (respectively agreed on) steps are executed in the phase of *implementation;* the phase of *evaluation,* which has to accompany all other phases, assesses the impacts and results of the respective research steps.

### *Classification*

The decision for or against considering a specific group must be made before the research process begins. It should be made on the basis of considerations with respect to development policies and on the basis of investigations that have alrea-

dy been carried out; or on the basis of new studies in order to make the preferences of those transparent who make these a priori-decisions .

The most important reason for collecting and evaluating information about the production system of a specific region and for the classification of potential target groups is the identification of production and household systems*, which, with respect to some characteristics, should be as homogeneous as possible and which then allows for the determination of so-called "recommendation domains" (SHANER et al., 1982, p. 44). In the case of a high variability of selection criteria, sub-groups must be formed (DOORMAN, 1991, p. 244).

A methodical auxiliary device has been developed for German technical cooperation agencies and provides planners with an analysis of affected groups as a component of an objectives-oriented project planning (a kind of a logical framework approach). Not mentioning the method's inherent weaknesses, the analysis can contribute to laying open the priorities of the different groups of planners that are involved; it can thus contribute to a higher transparency of interests influencing decision-making on that level.

### *3.2 Participation of Target Groups in the Planning Process*

The characterization of individual research phases shown in section 3.1 does not yet reveal much about the participation of target groups in the planning process. Constellations are possible that range from "no participation" to a complete taking over of the decision-making process by the producers themselves. Table 1 on the following page is a matrix where the different methods applied in developing countries and described in the literature are placed according to the degree of participation they allow for and to their applicability for the different research phases. The following sections describe these methods.

#### *Diagnosis*

If information concerning merely the region in question is needed and land utilization in general is of interest, aerial photographs or satellite pictures supported by accompanying maps are sufficient, in order to inform the planners (BARTELS, POHLMANN, 1988). From time to time producers are recruited as technical helpers for making maps and charts. The advantages of these methods which are on a solely technical level are the relative swiftness and a documented objectivity. They are, however, of limited use when the inhabitants of the region assessed in

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* A wide-ranging and recent synopsis of all relevant production systems in the tropics and subtropics, from subsistence-oriented to market-oriented systems, can be found in DOPPLER (1991); cf. also RUTHENBERG (1976).

Table 1: Possibilities for the Participation of Target Groups in Different Phases of the Research Process

| Research Step | Participation of target groups | | | | | |
|---|---|---|---|---|---|---|
| | No participation | Supply of resources | Supply of information | Participation in discussions | Participation in decision-making | Autonomous decision-making |
| Diagnosis | remote sensing, aerial survey, maps | physical support during mapping and data collection | surveys, rural appraisal, case studies | workshops, group discussions with farmers | "participatory rural appraisal" | exchange of information between farmers |
| Recommendation | innovations of international research centres, farmers' technical messages | seed and seedlings coming from studies environments | surveys, rural appraisal, case | workshops, "field hearings | "pre-screening" | "indigenous research" |
| Implementation | experimentation sites outsides research stations | on-farm research with hired workers (farmers) | on-farm research with the farmers themselves | on-farm research with farrmer groups | "decision-making participation" | farmers' experiments |
| Evaluation | analysis of informations by researchers and supervisors | | interviews | discussions, "field hearings" | "farmer-back-to-farmer", "farmer-first-and-last" | adoption of innovations |

Source: Author

such a way are not a homogeneous rural population but differ considerably with respect to the availability of and access to resources.

Information about socio-economic parameters is not accessible through remote sensing. It must be gathered on the level of precisely those groups that are affected. But the studies that are conducted for this purpose turn out, as CHAMBERS (1992, p. 7) puts it:

> "...long-drawn-out, tedious, a headache to administer, a nightmare to process and write up, inaccurate and unreliable in data obtained, leading to reports, if any, which were long, late, boring, misleading, difficult to use, and anyway ignored."

Increasingly, approaches like the Rapid Rural Appraisal (RRA) to analyse rural development and to differentiate groups of the population have proven superior to conventional studies, among others because of the following reasons:*

— RRA is less time-consuming;

— RRA is more flexible;

— RRA comprises a larger section of the reality;

— RRA is based on an interdisciplinary procedure.

RRA is an iterative procedure which means that individual steps and goals are not set in advance but are developed in the course of the study by the team, corresponding to the growing awareness of the situation. Therefore there can of course not be a "hand-me-down" methodology - the particular procedure which will be implemented is decided upon in compliance with the conditions of the individual case and according to the capacities and the qualification of the members of the research group. They conduct the study together and great emphasis is layed on a permanent exchange of ideas**. Concerning discussions carried out in the field, informal collection of information has priority over formalized methods.

Against RRA it has often been argued that it supplied vague results which were not representative. But already the first implementations of that approach at the *Centro Internacional de Mejoramiento de Maiz y Trigo* (CIMMYT), to which the respectively more detailed studies were connected, dispelled this objection: "So far this formal sampling has always verified the findings of the pre-survey" (COLLINSON, 1981, p. 444). Opinions about RRA are divided; the "hard" data that

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* See MACCRACKEN et al. (1988, p. 7). The presented synopsis allows for an easy access to the method and implementation of RRA.

** For example in the "Sondeo Approach", which was developed by HILDEBRAND (1981, p 425).

convinces decision-makers must, as COLLINSON says (cf. above), obviously come from comprehensive studies.

In order to avoid the disadvantages connected with the surveys and as a means of supplementation to some "quick and dirty" RRAs, case studies can be called upon (DOORMAN, 1990, p. 279). They are for example advisable in situations where the RRA's instruments are not sufficient (cf. MAXWELL, 1986, p. 151):

— the phenomenon which is to be examined must be limited to but some units (enterprises, households, villages);

— the data to be collected calls for open questions, unstructured interviews or the assessment of the conduct and attitude of the members of the target group;

— the results must be highly accurate and quantifiable;

— numerous and repetitive interviews of the same units of the study are necessary;

— the causal relationships between the collected data is given special emphasis;

— processes of development and changes in the lapse of time should be registered.

It is valid for case studies as for RRA that the researchers are highly dependent on information from the target group and thus on the participation of its affiliates*. This kind of cooperation is, however, mostly one-sided: "RRA ... entails outsiders obtaining information, taking it away, and analysing it ... the normal practice of non-participatory RRA can be described as extractive ..." (CHAMBERS; 1992, p. 9).

In addition one must mention, especially with multi- or interdisciplinary teams, the danger that there are several researchers to each farmer with the consequence that the equal distribution of power in a discussion turns into a disadvantageous one for the farmers (CHAMBERS, JIGGINS, 1986, p. 24).

Group meetings are a way of taking precaution against such a development. This method, which has been tested in various research projects**, has, among others, the advantage that it will not only lead to an interaction between researchers and producers; it, moreover, encourages a discussion among the farmers and this often is the beginning of a learning process by contributing to the widening of their awareness. It is, in addition, an important issue that by means of this method, more information is exchanged within a shorter period, which helps save both

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* See also BEEBE (1985, p. 26). The publication contains a checklist for the implementation of RRAs.

** See among others CHAMBERS, JIGGINS (1986); NORMAN et al. (1988); FARRINGTON, MARTIN (1988, p. 153).

time and money. If these meetings include extension officers as well as researchers then they, too, will get a better picture of the target groups' problems and potentials. Problems may arise when there are strong super- and subordinations within the group: the probability of all farmers taking part in the discussion will decline the more heterogeneous the group is. One must also pay attention to the possibility that the participants give exactly those answers that the researchers expect - simply because they do not want to disappoint them.

With respect to participation of target groups it is important that the workshop method puts the producers in the center of attention and that there are multiplier effects which other methods do not possess. The discussion is continued until both researchers and farmers reach an agreement on problems, conditions and the resulting priorities of the research project. A level of participation which goes beyond this "collaborative research" differs from the preceding one in so far, as the discussion is carried on until the farmers agree on the topics in question (WATERS-BAYER, 1989, p. 10). CHAMBERS (1992, p. 12) calls such a procedure which puts the researcher in the role of a moderator (or a catalyst) a "Participatory Rural Appraisal" (PRA). The "discoveries" made by CHAMBERS (1992, p. 20) which determine the distinctive features of PRA can be summed up as follows:

— The rural population is - more than hitherto thought - capable of describing or quantifying its specific situation in the form of maps, diagrams, estimated values and values of ranking.

— A ("relaxed") relationship between researchers and farmers can and should be build up at an early stage.

— The results from the farmers' presentations, accompanied by their visualization, allow for supplementations, evaluations, changes during the meetings. The information "belongs" to the farmers and not to the researchers.

— According to the situation, segments and rudiments of already known procedures can, with PRA, be combined, repeated, and added together.

— The training for methods of PRA can be completed within several hours for first action, at least within ten days.

Experiences with this approach have until now rarely been published; they can be found mostly as conference contributions or so-called "grey literature" (cf. ILEIA 1989).

Finally one must mention the mutual "exchange of experience" between farmers, which can refer to former contacts between them and researchers but which does not require them. The researcher - if he is integrated at all - withdraws to the role of an observer. Our knowledge about this exchange comes mostly from anthropological studies.

*Recommendation*

In this phase of the research, resulting from the established frame of conditions of the rural producers, one determines those innovations which are to be verified or still developed in detail. In the case where no representative of the target group participates in this choice, the alternatives are confined to already known innovations of the international agricultural research centers or on recommendations that are already applied by the extension services. These are then tested with respect to additional criteria which the researcher believes to be important. Even when including local varieties (seed or seedlings) in the experiments, the researcher's view of the problem plays the decisive role. It is of course not impossible - but also not very probable - that this research process will produce any innovations that can be adopted by the target group.

Those procedures - described extensively - for the diagnostic phase as for example (case) studies and RRA, as well as workshops and group discussions are equally suited for the identification of those areas of research which are to be dealt with. The danger of hierarchic social structures hindering the flow of information is here less than in the diagnostic phase because one deals with the exchange of pieces of information and knowledge which are basically well-known.

An interesting variant of a case study was presented by BOX (1987): an attempt is made in a "biographical analysis" to acquire an insight into the evolution of the cultivation of certain plants. A subsequent "problem deduction" carried out by the researchers themselves develops hypotheses about the reasons for the changes. This deduction is finally subject to a "problem verification" in group discussions. A further possibility of integrating target groups in the discussion about research topics can be found in regular "field hearings" (KNIPSCHEER, SURADISASTRA, 1986, p. 209) .

Methods which go beyond this level of participation are scarce, as the decision about the selection of research topics represents at the same time the setting of priorities for the research program. Not accounting for the political level (which is responsible rather for national priority setting and the corresponding resource allocation) the researchers reserve for themselves the right to classify a collection of those innovations that will become part of their research program (cf. BYERLEE et al., 1982, p. 902). Only in a few cases did producers up to now have had any influence on the experiments that were to be conducted. In most cases, for example in plant production, it is assumed that the improved varieties were superior to the traditional local ones. ASHBY et al. (1987) describe a so-called "pre-screening" procedure which at least allows the producers to choose the varieties to be tested from a number of improved varieties of beans and cassava, whose characteristics had been made public in advance.

*Implementation*

It can be said that probably in this phase of the research process the greatest confusion of terms exists. The term "Farming Systems Research" is by now used for almost every possible research activity which takes place outside of research stations (BIGGS, 1985, p. 3). These stations, in order to find out the influence of different ecological factors on parameters in question, relocate parts of their experiments to other ecological zones. In such "researcher-managed, researcher-executed trials" and "researcher-managed, farmer-executed trials" (MUTSAERS et al., 1986, p. 134) producers are expected to contribute nothing but rented areas or hired manpower. Although at times the workers' reactions are noted alongside the results of the experiments, the focus of these procedures lies on bio-technical aspects (STEINER, 1987, p. 138).

From time to time the researchers try themselves to simulate the farmers' production methods by including assumed cultivation practices as variables in the experiment. What is, however, not simulated are the farmers' adjustment reactions to the evolution of the experimental design (COLLINSON, 1987, p. 380). These reactions can, in parts, be discovered through interviews of individual farmers, or of groups, before carrying out the experiment. The most important piece of information that can be given by the producers in this research approach is the definition of parameters that for them stand for the success or failure of an experiment (TRIPP, 1989, p. 6).

ASHBY (1986, p. 7) describes the implementation of experiments on farmers' fields where the producers themselves were responsible for the experiments' design: in a meeting between researchers and a group of farmers the research team learns how technologies are "normally" tested. The results of the discussion, to which the researchers, of course, contribute, determine the features of the experiment - with the improved technologies recommended by the researchers.

For the Philippines and Mali, REINTJES et al. (1992, p. 119) describe the farmers' influence on the planning and implementation of experiments as going even further. Here, the producers not only determine the technologies that are to be tested - be they developed endogenously or brought in from outside - but also the areas where the experiment is to take place. The researchers' contribution was limited to methodological advice: size of the research perimeter, number of repetitions, establishing priorities with respect to parameters which were to be tested so that they could be interpreted statistically.

An insight into the farmers' "primitive laboratory" is given most of all by anthropological studies of which one must mention especially those carried out by HARWOOD (1979) and RICHARDS (1985). Subsequent publications described the way farmers experiment (cf. among others the anthologies by BOIRAL et al., 1985;

CHAMBERS et al., 1989; DUPRE, 1991), which often takes place unobserved by conventional research. RHOADES (1987, p. 12) for instance reports from Tupac Amaru in the Peruvian jungle how immigrants adapted a new production system, based on swamp rice to the existing ecological conditions. In a research station not far from there, situated on the other side of the river, fifteen years of research were spent developing new production systems in order to stop shifting cultivation without having any impact on farmers' behaviour. FUJISAKA (1993) describes a much more spectacular case from the surroundings of the International Rice Research Institute - for ten years rice farmers were advised to use an incorrect method of fertilizing, on the grounds of the station's research results; a method the farmers did not take over. Only recently some studies have shown how rational these farmers were.

An enlarged insight into and understanding of other systems of generating knowledge can contribute to change both, orientation and procedures of national agricultural research institutes (ROELING, 1991, p. 510). Going beyond the already cited information which allow for a priority-setting that is better suited to producers, such studies allow for the discovery, the further development, and the enlarged promotion of methods of participatory agricultural research (LIGHTFOOT, 1987, p. 88).

*Evaluation*

The evaluation and analysis of experiments carried out under conditions of agricultural production systems is, in general, carried out by researchers or rather by special supervisors. In doing so, the criteria of the evaluation are determined by those researchers who pay special attention to the statistical possibility of interpreting the parameters. Information about the individual units is, no doubt, necessary, for example for estimating the income effect or the risk, but in this structure of an experiment the agricultural production system is merely the "nutrient fluid" for the researcher's experiment (cf. GOMEZ, GOMEZ, 1984, pp. 562-590; STEINER, 1987, pp. 175-215).

The more information one can obtain about the producers' reaction in the course of the experiment, the higher one's chance of carrying out modifications of the experiment's structure early on, or of integrating additional parameters in the evaluation. At the same time obstacles for the integration of new procedures in the existing production systems become apparent, obstacles which otherwise are only discovered during the introduction and through extension services. The recording, isolation, and quantification of the various factors, however, involve particular difficulties which can only be overcome in an interdisciplinary way (COLLINSON, 1987, p. 384).

The opinions of the producers with whom and on whose fields the experiments are carried out can - either after the harvest or after completing the experimental phase - be inquired into in different ways. ICAZA and LAGEMANN (1983, p. 107) discovered the acceptance of innovation by means of a formalized questionnaire; LIGHTFOOT (1987, p. 87) recommends informal talks with individual farmers with the help of checklists. ASHBY et al. (1987, p. 10) conducted two "preference-evaluations" in the course of an experiment; WATERS-BAYER (1989, p. 12) suggests frequent and continuous contact between researchers and farmers.

An exchange of ideas which also includes other producers is made possible through group discussions. These can either be led by the researchers (KNIPSCHEER, SURADISASTRA, 1986, p. 212), or by the farmers themselves. In this case, the researcher will take the role of an observer (CHAMBERS, JIGGINS, 1986, p. 122). At this point the delineation of the different methods are blurred; in principle, what matters is the degree of the target group's participation in the preceding research phases; this degree indicates which method is the one most adjusted in each case.

Finally, the most important criterion for the success of a new technology is its adoption by the producers (CHAMBERS, GHILDYAL, 1985, p. 21; RHOADES, BOOTH, 1982, p. 132).

Because of two further reasons it is reasonable to enlarge the research process beyond the transfer of the innovation:

— in order to be aware of the changes and the further developments that the new technology goes through under the farmer's "control";

— to identify those factors which have made the introduction of the new technology easier and which possibly lie outside the farmers' and researchers' sphere of influence (price policy, subsidies, infrastructure, etc.).

## 4 Conclusion

There is no standardized definition for the various types of participatory agricultural research. The attempt by different authors to shed light on the phenomenon by means of new, modified or extended terms has rather increased the confusion of terms. In this paper I have, therefore, renounced from creating new definitions or from changing already existing ones. It can, however, be said that in different stages of research varying forms of farmers' participation are possible and - according to the situation - are more or less sensible.

For that reason it seems recommendable to use the *degree* of participation in the different *phases* in those conceptions of agricultural research programs that include target group participation. The matrix proposed in this paper can be extended

and modified according to other phasing models. However, this may involve more time and space in presenting than the transmission of simple, pleasing labels such as "On-Farm Research with a Farming Systems Perspective" (BYERLEE et al., 1982) or "New Farming Systems Development" (SIMMONDS, 1986) or "On-Farm Client-Oriented Research" (MERRILL-SANDS, MCALLISTER, 1988) etc. But such a procedure does contribute to a greater insight into the orientation of the projects and programs and forces - not least - the planner to a reinforced reflection of those methods that are carried out.

**Summary**

Increasingly, participatory methods in agricultural research are developed, implemented and described augmenting the number of terms used as well. This paper describes different methods and approaches and relates them to the various phases of agricultural research on the one hand, and to their degree of target group participation, on the other. It is argued that new labels and fancy terms are not helpful for research managers and planners. Thus, it is much more sensible to choose the specific approaches according to the stage of the research process and the level of participation aimed at leading to a greater transparency of research project planning.

**Acknowledgements**

The author gratefully acknowledges the many helpful comments of the participants of a workshop on methods for integrating target groups into national agricultural research systems' activities in June 1993 at Schloss Rauischholzhausen in Germany where an earlier version of this paper (in German) was presented. The proceedings of this workshop have been published by PREUSS, STEINACKER (1993).

**Zusammenfassung**
***Babylonische Sprachverwirrung in der zielgruppenorientierten Agrarforschung***

Der Erfolg zielgruppenorientierter Agrarforschungsmethoden ist in vielen Publikationen dokumentiert worden. Die verwendeten Begriffe und Konzepte werden jedoch häufig nicht voneinander abgegrenzt. Oft werden auch neue Bezeichnungen kreiert, obwohl sich dahinter die alten Ansätze verbergen. Der vorliegende Beitrag charakterisiert zielgruppenorientierte Forschungsansätze nach dem Grad der Beteiligung der Produzenten und ordnet sie mit Hilfe einer Matrix den verschiedenen Forschungsphasen zu. Eine solche Strukturierung erlaubt es, die verschiedenen beschriebenen Methoden gezielt bei der Gestaltung von praktischen

Forschungsprogrammen nach Maßgabe der jeweils vorliegenden Rahmenbedingungen einzusetzen.


## Resumé

***La recherche agricole participative : Une confusion babylonienne de termes et concepts***

Le succès d'approches de Recherche-Développement orientées vers des groupes cibles a été exposé dans bon nombre de publications scientifiques. Néanmoins, les termes et concepts utilisés ne sont pas clairement définis. Très souvent, de nouvelles expressions apparaissent bien qu'on retrouve derrière les mots les méthodes déjà connues. Cet article analyse les approches de Recherche-Développement selon leur degré de participation respectif et les classe sous les différentes phases du processus de recherche à l'aide d'une matrice. Une telle structuration permet de tailler les programmes de recherche correspondant à l'environnement spécifique.


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