Farmer Participatory Research in the UK

A Guide

Frances Harris,
School of Earth Sciences and Geography,
University of Kingston

and

Fergus Lyon,
Centre for Enterprise and Economic Development Research
Middlesex University

Cereal varieties for organic production: Developing a participatory approach to seed production and varietal selection

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1. Introduction

While agricultural research has led to dramatic technological change in the past 50 years, emphasis has been on maximising production for high input agriculture. There has been less research in complex and diverse farming systems, characteristics typical of for example organic farms. Much of the existing research has prioritised the roles of scientists and on station trials while users of the research, particularly farmers, are perceived as passive recipients of technology; defined as the central source innovation model (Biggs, 1990). However, empirical studies show that there are ‘multiple sources of innovation’ including agri-businesses, universities, farming organisations and farmers themselves. Farms are also small businesses. Research on the innovation processes of farms also show that small businesses have the propensity to research and learn, suggesting that formal scientific research would benefit from closer integration with the users of technology, not just in setting the research agenda but also carrying out the research.

Participatory approaches to research have been growing in influence in international agricultural research over the past 20 years (Pretty, 1995; Farrington, 1998) in contrast to their use in UK public sector research. These approaches are now recognised as an important part of developing sustainable agricultural production systems (Keating et al., 2000).

2. Why participate?

Prior to engaging in participatory research, it is important to think about the desired outcome of the process. Once the goal is defined, it is easier to identify who should be involved, the nature of the interaction between participants, and appropriate methods to use. Several authors stress the importance of considering the context within which participation is to be carried out prior to establishing how it should be done.

Collins and Ison (2006) state that in many cases, participation is applied to situation and participatory tools are used inappropriately. There is a lack of theory informing practice. Decker stresses the importance of considering a participatory method as a tool, a means whereby a particular issue, set within a social, political and scientific context, is addressed to reach a specific outcome.
The nature of participatory research will depend on the context of the situation, and the goal of the project. For example, if the goal of the project is to influence policy, it must be timed at the right moment to feed into policy debates, rather than after policy has been set. The aim of establishing links between policy makers, scientists and farmers, then the timing is less crucial, as the links will be more ongoing.

Participatory research has been used in a variety of ways. Broadly, these can be described as information gathering, linking different stakeholders, or information delivery. For example:

- To gather information from the public about a particular issue
- To identify priorities among a group (be it for research, for policy change, for social support)
- To establish links between policy makers and practitioners, policy makers and scientists, or scientists and practitioners.
- To link researchers and non-researchers together
- To communicate and disseminate the results of scientific or technological development to a wider audience
- To engage the public in a particular issue, and inform them about it
- To gain a better understanding of the place of science within society
- To engage in social learning: To take action, experience and reflect upon it in order to improve what we do next
- Co-production of knowledge

Participation can also be misused, such as when a “participatory process” is used to rubber stamp decisions that have already been made, and legitimise decisions.
Arnstein’s ladder of participation assumes that citizen control is the ultimate goal of participation, however the list of possible goals below shows that there can be other intended outcomes.

In reality, participatory systems research should involve ongoing feedback between all stakeholders. There should be engagement via different modes of interaction, action, experience and critical reflection, leading to the improvement of situations.

Collins and Ison (2006) argue that social learning is a more important goal than citizen empowerment. Furthermore, they argue that the ladder of participation says little about what they call “messy problems”: situations in which there is greater complexity, due to multiple interactions and uncertainty, as well as situation where multiple perspectives may lead to controversies.

The potential advantages of participation for farmers, scientists and funders.

<table>
<thead>
<tr>
<th>For Farmers</th>
<th>For scientists</th>
<th>For Funders</th>
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<tbody>
<tr>
<td>Involvement with researchers</td>
<td>Value for money, as could reduce costs of later adaptive research</td>
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<tr>
<td>Ensuring relevance</td>
<td>Potentially cost effective</td>
<td>Steering government research funding towards needs identified and research priorities</td>
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<tr>
<td>Less time needed to adapt research results to on-farm situation</td>
<td>Outreach to farmers provides a direct dissemination strategy</td>
<td>Ensures relevance</td>
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<td>Steering government research funding towards needs identified and research priorities</td>
<td>Seen to be successful in other disciplines</td>
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• Context relevance
• Value for money, as could reduce costs of later adaptive research
• Potentially cost effective
• Outreach to farmers provides a direct dissemination strategy
• Seen to be successful in other disciplines
3. The participatory process

Having established the goal of participation, the next stage is to plan the participatory process, and identify who is to be involved. The participatory process can broadly be broken down into several stages.

Ideally, a team of researchers and farmers come together, discuss ideas informally, and identify a research question (or hypothesis) that they wish to address jointly, and apply for funding to enable them to do so. Research then follows. However, in reality, research funding drives the process, so that either a research call is issued (possibly asking for participatory research) which then sparks the development of a team of people to work together to seek funding. The team building really only occurs once the funding is confirmed, and then further training may be carried out prior to research beginning.

A good team is a key asset in participatory research. This means that researchers and farmers should be partners in the process, rather than their being a hierarchy. Arnstein’s ladder of participation identifies level of commitment and involvement of participants. This has been further developed in relation to farming by Biggs et al. (1990).

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### Research approaches – a continuum

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<thead>
<tr>
<th>Location</th>
<th>Contractual</th>
<th>Consultative</th>
<th>Collaborative</th>
<th>Collegial</th>
<th>Co-learning</th>
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<tbody>
<tr>
<td>Design Location</td>
<td>On station</td>
<td>On farm</td>
<td>On farm</td>
<td>On farm</td>
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<tr>
<td>Design Location</td>
<td>Contractual</td>
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<td>Collaborative</td>
<td>Collegial</td>
<td>Co-learning</td>
</tr>
<tr>
<td>Design</td>
<td>Researchers design trial and control all treatments. Farmers rent or donate land</td>
<td>Farmers design trial and control all treatments. Farmers encouraged to use controls and replicates.</td>
<td>Farmers decide on trial design and evaluation criteria.</td>
<td>Farmers decide on trial design and evaluation criteria.</td>
<td>Researchers decide on trial design and evaluation criteria.</td>
</tr>
<tr>
<td>Methods of data</td>
<td>Researchers collect all measurements. Farmers invited to offer their opinion</td>
<td>Researchers collect what quantitative data they can and get farmers' opinions through interviewing</td>
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<td>Researchers document farmers' evaluation/ reflections at certain points during the season.</td>
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The position of the research on the continuum from contractual to co-learning will depend on the desired goal of the project. A clear decision about where the project wants to be on the continuum will enable planning of farmer interaction, time inputs, and resources to be made in a more realistic fashion at the outset of the project.

Research on several participatory projects in the UK has identified key points that are important to ensure good participatory process (Harris, Lyon and Clarke, 2005).

1. Communication is imperative. Interdisciplinary and participatory research, by its very nature, brings together people from varying backgrounds, disciplines, skills and perspectives. Effective communication, using accessible language and terms, is necessary to ensure that the group understand each other and can discuss the aims and expectations of the research, as well as implement plans, interpret information and disseminate results to the wider community. Communication should be multidirectional: identify all communication channels that need to be maintained, such as among members of the research team, between farmers and the project team / key researchers; provide feedback of results to farmers; act on farmers recommendations; facilitate farmer-farmer learning; listen to informal feedback from farmers / field-level researchers.

2. Team building is important at the outset of the project, and should be continued periodically throughout. Team building should seek to enable team members to explain their background and reason for participation in the project. It is also important to discuss the goals of the project, as well as recognise the goals of individuals involved. Team building provides a forum to convey new concepts to some researchers, and to train people in farmer participatory research skills. Team building can identify synergies between people, as well as potential conflicts. It can also develop capacities (such as facilitation skills) among team members.

3. Goals need to be negotiated. Farmers may want practical ideas that they can implement immediately. Lobby group scientists want to disseminate research breakthroughs rapidly, via membership newsletters or popular press, possibly before scientists feel they have been thoroughly tested. Researchers may want statistically tested and valid results that can be disseminated via publication in peer-refereed journals, a process which can take many years. Businesses want to act on information quickly, while it can give them a competitive advantage. Participatory research needs to balance the needs of these different stakeholders to enable and ensure co-operation continues.

4. Training in Farmer Participatory Research (FPR) should be provided for both farmers and researchers. Farmers need to learn a new culture: what is expected of them, what they can contribute and how to respond. Researchers need to learn to value non-academics as members of the team, who have important views and roles to play. Training should include information on research methods and ways of interacting with people from different disciplines and non-research backgrounds. Less formal training, such as periods or meetings where critical reflection and learning take place, can also provide opportunities to learn.

5. Relations with farmers are crucial. Farmers play a pivotal role in enabling ‘on-farm agro-ecosystems’ research to be carried out. However, alongside their involvement in a research project, farmers are still running a business, with contracts to meet (for delivery or farm
products), environmental management agreements (such as ELS, CSS, WIGS), legislation to be adhered to (e.g. health and safety, environmental pollution), and profitability to consider. Therefore research projects must work around pre-existing commitments, bear in mind the demands they are making on farmers, and accept that sometimes farmers’ priorities will not be those of the researchers.

6. Boundary spanners are facilitators with the knowledge and skills to bring disparate groups together. They may be researchers from a farming background, advisors, agronomists, facilitators or research co-ordinators. They are the key people who could facilitate the development of relationships, ensure clear communication, and help stimulate the development of trust between all parties.

7. Longer term commitments - A long-term commitment to farmers enables them to feel more valued. Ideally, farmers are known by the researchers before the project begins and contribute to project development. Farmers should not be dropped at the end of a project: the ethics of disengagement needs to be considered and you need an initial exit strategy before you start.

8. If appropriate to the project objectives, statistical advice should be sought as the research proposal is being developed. This will give an indication of the number of farms (or area) required to provide statistically robust results, as well as guidance on experimental layout. Planning of research should also ensure there are enough sites and / or replicates as it may not be possible to use data from all the farms originally involved in the project. Too many projects only call on a statistician towards the end of the project, when results are coming in. At this point, it is too late to make any changes.

9. Farmers are usually operating the whole farm system, not focussed on particular research topic. Therefore the project team may need to be prepared to think more widely than specific project focus. The definition of the boundary of the research is subjective. Research at multiple scales is almost always necessary. Data may need to be collected from small scales, such as plots, to the scales at which farmers operate (i.e. the field or whole farm), to the landscape scale (especially where examining the interactions of species that move across larger distances). Projects must consider how data from different scales will be brought together in the final analysis.

4. Participatory skills

Having identified research priorities, and considered the research process, it is necessary to consider the participatory “tool box” (Decker, 2005) of skills and methods that can be used. There are many methods used in participatory research, and valuable manuals already exist which outline who to carry out key tools. A selection of suggested reading is in Appendix 1. This section will consider the broader skills necessary to enable farmer participatory research in the UK to be carried out, leaving the specifics of standard participatory methodologies to the manuals already covering such things.

As already stated, a key element of participatory research is communication. Much of the work relies on talking to farmers and other stakeholders. However it is important that such talking is more than a conversation, but becomes a valid method of information collection, which is consistent in approach, and rigorous enough methodologically, that the information collected can stand alongside more traditional scientific outputs, rather than being denigrated as an “anecdote”. Two elements of learning from farmers will be discussed here: experiential
learning by farmers, and gathering farmers’ views (on research priorities, or evaluating crop varieties etc).

4.1 Capturing experiential learning

Organic agriculture emerged through the interest and determination of farmers committed to alternative farming methods. Due to the lack of outside support, farmers had to work together, exchanging ideas and experiences to enhance their knowledge and expertise.

There is considerable debate in the literature concerning the differences between what farmers do and the generation of ‘modern scientific knowledge’ (Kloppenberg, 1991; Molnar et al, 1992; Scoones and Thompson, 1994). To summarise the debates, ‘scientific knowledge’ is seen to relate to concepts, practices and technology that are based on tried and tested theories leading to universally applicable results, or results related to a specific set of conditions. Knowledge is generated through rigorous procedures that attempt to control variables in order to get quantitative results for statistical analysis. Robust results can be used to convince others, make confident recommendations and can also be extrapolated to different contexts.

At the same time, farmers, grain traders and food processors are doing their own research, often through observing their experiences. They may not refer to this as research or experimentation, but it is an important way of learning and generating ‘anecdotal’ evidence.

4.2 Gathering farmers’ views

A key element in establishing a clear role for communication with farmers in farmer participatory research (FPR) is ensuring that their inputs are considered as valid as scientific trial outputs. To do this, there must be a clear differentiation between informal chatting, and gathering information as research. The skills to do this are commonly used in social science, but can pass unnoticed by inexperienced observers. Conversely, those who chat to farmers occasionally find that their “results” are considered as anecdotes by those who are looking for a more solid foundation on which to draw conclusions.

Qualitative research is a useful method for discovery and exploration of ideas, and also for explanation of issues and relationships. Therefore it is an important part of farmer participatory research, with the potential to explain why farmers do the things they do, where farmers feel new research should be focused, and how the things they do are interlinked. Thus qualitative research complements, rather than replaces, scientific research. Furthermore, there is a structure and method to qualitative research which will provide academic rigour, so that the results can be as valid, and used alongside, scientific research.

In order to differentiate between individual and general opinion, and ensure robust data collection, those involved in participatory research need to know how to carry out qualitative research, to ensure that information is collected in a structured way, according to an established method, and analysed rigorously to provide sound results.

Semi-structured interviews are often used, as they ensure that a core set of information is gathered, but at the same time, allow flexibility for individuals to delve into particularly interesting issues, or add to the core of information being collected. These can be done individually (one-to-one) or in a group setting. Answers can be open ended, or rely on the use
of scales, rating or ranking exercises. To ensure cooperation, it is important to establish a mutually convenient time and place to meet, at a location that is relaxed, informal, and easily accessible to all.

Information recorded should cover what was said, but also observations on facial expressions, gestures, and the general mood of the conversation. The notes become the “data” akin to scientific tables of data, and these are then analysed to identify key themes and issues that come up. Analysis tables can be used to draw out themes. Case studies, quotes or local phrases can illustrate points.

Sample analysis table concerning reasons why some farmers leave the organic farming sector.

<table>
<thead>
<tr>
<th></th>
<th>Farmer Smith</th>
<th>Farmer Jones</th>
<th>Farmer Brown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic regulations</td>
<td>Inspection too time-consuming</td>
<td>Inspector not supportive, nit-picky</td>
<td>No problem</td>
</tr>
<tr>
<td>Techniques of organic farming</td>
<td>Ok, almost farming organically anyway</td>
<td>Difficulty with weed control</td>
<td>Challenging but managing</td>
</tr>
<tr>
<td>Market</td>
<td>No buyer for organic milk in his area</td>
<td>Prices not as high as expected</td>
<td>Producing organic cheese on premises to sell in farm shop</td>
</tr>
<tr>
<td>Personal</td>
<td>Death in family, gave up farm-tenancy</td>
<td>Retirement</td>
<td>Foot and Mouth disease</td>
</tr>
</tbody>
</table>

A fundamental difference between the collection of scientific and social science data is that scientific measurements are often assumed to be more objective, usually on inanimate objects, whereas social science methods are often much more subjective. To ensure quality control in qualitative research, it is important to consider three points:

● Consistency
   – Researcher trained in interviewing techniques
   – Use of semi-structured interviews ensures comparable data collected from each interview
   – Awareness of potential bias in process
● Corroboration
● Triangulation: when evidence gathered from several sources all points towards the same conclusion
● Evidence
   – Document the process (method, analysis)
   – Transcripts

5. Challenges in implementing collaborative research between farmers and scientists.
Scientists are the link between the “problem” to be resolved, and the “solution”. Scientists not only have the research capacity to investigate the problem, they are also able to access money from research funding bodies, thus bringing new funds to address specific problems. If the solution is linked to the use of inputs, technology, or other services with value which can be provided by the market, then scientists can also attract money from private agricultural companies seeking to sponsor research which may lead to the development of new, marketable products, or greater use of their existing products. Scientists have had considerably greater influence in setting research agendas than other stakeholders because of their close relationships with funding bodies. Although scientists are key in connecting problems and solutions, like all stakeholders, they also have their own agenda.

While the scientific method has led to considerable advances, for many researchers the quality of research is judged according to ‘internal criteria’ such as publications and peer review, rather than on external achievement and end user satisfaction (Pretty and Chambers, 1994). Thus, scientific communities have ensured that much agricultural research is carried out on agricultural research stations, environments of known field history and relative uniformity. Rather than tackle variability and complexity of farming systems, scientists tend to concentrate their research on those areas that yield to the reductionist method and work well under laboratory or controlled conditions (Knorr-Cetina, 1981:2). In contrast, organic farmers tend to work in highly diverse systems, and have exchanged ideas between themselves, based on their own “research” and multiple criteria of evaluation, to develop their farming systems.

Ideally, science needs controlled, replicable conditions in which formal experiments can test hypotheses of the effectiveness of new treatments, methods or equipment. The reality of farmers’ fields is quite different: variability (in soil types, topography, soil fertility, and field history, to name a few) means that carrying out scientific experiments on farmers’ fields is fraught with complexity that can jeopardize the validity of the research outcome. For scientists, this can also influence career and promotion prospects, assessed according to research publications, which in turn affect scientists’ ability to gain further research funding.

Agricultural research is made up of inputs from many different backgrounds: agronomy, soil science, biology, ecology, sociology, and economics. When seeking to study whole farming systems, it is important to be able to integrate the research priorities and results of each disciplinary tradition. In practice, the farmer, the decision-maker at the centre of any farming system, integrates all these areas of knowledge on a daily basis. A focus on the farmer and the issues driving his/her decision-making is an entry-point to integrating social and scientific disciplines in agricultural research.

Some of the barriers to participatory research are as follows:

- The language of communication: Researchers and farmers use different language to communicate their ideas, and this difference can be seen among groups of interdisciplinary scientists, between natural scientists and social scientists, and between scientists and farmers. When key phrasing, and particular terms (jargon?) are used to excess, this can exclude those from other backgrounds. This can result in different disciplines being unable to communicate clearly to each other, and in particular, unable to formulate research questions together.

- Defining boundaries: Many research traditions will acknowledge that some research on the wider context within which their research is situated is useful. However, it is difficult
to define the boundaries of the wider context. There is a risk of carrying out such a broad, all-encompassing study that it inevitably becomes superficial (as there are insufficient resources to carry out such a large study in detail).

- Research methods: Natural scientists like robust experiments which are based on objective measurements and replicable. Rules of scientific rigour must be followed to ensure validity of results, and ultimately, publishability. Social scientists often adopt methods that seem, to the outsider, to be less rigorous. Social scientists often focus on processes, rather than outcomes. Case studies and interviews seem too subjective, unstructured, and unreplicable to satisfy scientists that they are rigorous research.

- Institutional constraints: Researchers are appointed to particular posts within institutions, and in some cases deviation from the job description is frowned upon. Researchers seeking to progress up the defined career ladders within an institution may be wary of straying from the main path. In other institutions, territoriality may impede collaboration and melding of disciplines. (This also links to questions of use of research budgets).

- Research funding: Most funding comes from institutions or bodies following the submission of a clear research proposal, with proposed outcomes. This does not sit well with a more participatory mode of research, in which the research question is developed through collaboration. The funding system does not match the participatory approach, so that funding for such projects may not be obtained, in spite of it attempting to address important research questions.

- Publishing results: For most academic researchers, the goal of research is to gain publications in journals considered to be prestigious within their field. This means that rigorous scientific procedures should be followed, and the compromise involved in working in real-life situations the current structure of the Research Assessment Exercise does not encourage academics to experiment outside of their field.

- Cost. Farmer participatory research is not necessarily cheaper or quicker. Rather than investing in equipment and experiments, it requires a lot of staff time, often at unusual hours (e.g. evenings) and staff need to develop working relationships with farmers. Research projects cannot expect to “hit the ground running” with a new group of farmers.

- Power relations: In developing countries, power relations between development projects and beneficiaries mean that participation can be coerced. Researchers can promise benefits in return for participation, such as participatory needs assessments leading to the first stage in an aid programme. Researchers may raised expectations that results will lead to policy changes in favour of participants. In the UK, power relations between researchers and farmers are completely different, and participation is more voluntary. This is a real challenge in adapting a development tool for use in the UK. While there are clear benefits for both farmers and researchers in collaborating in research, (especially concerning the relevance of the research) there are also times when the two can be in conflict with each other. The different goals of farmers and scientists (and even among scientists or among farmers) can mean that the team is not working towards a single goal. However, for participatory research to work, each side must bring what it can to the collaboration. Scientists are usually in a better position to leverage funding for research. Farmers have the fields and equipment on which the research is to be done. Respect for farmers’ commitments, and an appreciation of the demands the research project is making
on farmers’ normal working practices, is crucial to maintaining good relations. In particular, the timing of research work should take into consideration other events in farmers’ work calendar. Thus, participation is often easier in evenings, and so the project should budget for overtime / flexitime for research staff.

- The longer term: Project funding seldom last for more than 5 years, and often less. Yet farmers remain in farming for longer. They are the most valuable asset of a project and so some consideration of a long-term commitment to farmers should be made. Ideally, the relationship with farmers should extend beyond project time frame, and develop into further research projects. However, short-term funding and other pressures often mean that scientists and institutions move on all too quickly.
Appendix 1: Recommended Reading


IIED Participatory Learning and Action (formerly PLA Notes and RRA Notes, http://www.iied.org/NR/agbioliv/pla_notes/backissues.html


Yohannes Gebre Michael & Karl Herweg. 2000. *From indigenous knowledge to Participatory Technology Development*
References


Kloppenberg, J (1991) ‘Social theory and the de/reconstruction of agricultural science: local knowledge for an alternative agriculture’ in *Rural Sociology* 56 (4)


Scoones, I and Thompson, J (Eds.) (1994) *Beyond farmer First: rural people's knowledge, agricultural research and extension practice*. IT Publications