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Robert E. Rhoades**

Introduction

The way we perceive our environment, other people, or every-day events varies according to our relationship to them. To most of us a camel is a camel. Or snow is simply snow. Not to the nomadic Bedouin Arab, however, who as camel herder can distinguish between hundreds of types or conditions of camels. Or to the Alaskan Eskimo who recognizes and deals with equal variety in states of snow. On another front, even though husband and wife are engaged in the same institution (marriage) and have mutual goals (a successful family) each views the situation differently. Humorous and not-so-humorous daily misunderstandings arise from this unavoidable "seeing-the-world-through-different-eyes" fact of life.

And so it is, to a large extent, with agricultural scientists and developing country farmers. We are both engaged, in our own way, in the same effort: increasing the efficiency of agricultural production. Scientists strive to achieve this because it represents the practical payoff of their research and farmers because it is their livelihood.

Yet we must be honest and admit that agricultural scientists and farmers cope with different worlds. And they see those worlds through different eyes. Our productivity, often measured by reports and publications directed toward other scientists or policymakers, is not the same as farmers' productivity, measured by basic survival, maintenance of family or increased profits.

Fortunately, farmers the world over recognize the benefits of many kinds of agricultural technology produced through science. The trick, therefore, is to bring farmers and scientists into meaningful communication so that scientists are working on real problems rather than imaginary ones.

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This is one basic reason for on-farm trials and actively bringing farmers into the research process. It helps scientists understand if their technology is worthwhile. The farmer, however, must be convinced that the scientist is not just another "rural development tourist" but honestly concerned with solving farmers' problems (Chambers, 1980). This means we have to try to put ourselves in their shoes (if they have shoes). This is no easy task, especially if status, economic, or ethnic differences stand between us.

The purpose of this paper, therefore, is to provide some simple perspectives for the applied scientist or practical field technician on how to understand the farmer's point of view, especially in relation to on-farm experiments. These guidelines should be relevant whether dealing with fully commercial farmers or remote, marginal peasants. This document serves as a socio-cultural supplement to two other CIP training documents which deal with agronomic and economic evaluations (Cortbaoui, 1982; Horton, 1980).

Seeing Eye-to-Eye: Farmers and Scientists

Farming in most developing countries is more than simply a business. For small-scale and subsistence farmers and their families it is a way of life that has evolved over time, often centuries. Such rural populations have experimented with nature, manipulating resources, and adjusting human culture and technology to the demands of their physical environment. They have, through trial and error, learned to arrange themselves socially and psychologically in order to successfully execute the mundane tasks of day-to-day farming. The agricultural systems encountered around the world today are logical outcomes of such time-tested adaptations. They are, in this sense, rational.

When agricultural scientists enter a rural area with new technology or programs not indigenous to the local culture, they encounter a farming way of life that works and is valued by those who practice it. The system may not be "perfect" but it serves well enough so that farmers will invariably cast a questioning eye on practices proposed by outsiders. This is because farmers are concerned with risk which simply means the possibility or chance of suffering loss. Farmers determine a new technology's level of risk by experimenting on their own, over time, under their conditions, and in more fields than one. If new practices prove worthy, farmers will accept. They are not traditional or conservative in a negative sense; they are simply cautious toward unproven ideas.

Expressing rural values, farmers often will go to great extremes not to offend village guests, in our case visiting agricultural scientists. This is truer in some societies, such as in Asia, than in others. What farmers say and what farmers think is often at odds. Also, farmers--especially peasant cultivators--sometimes defer to or are intimidated by educated, urban-based people.

Frequently, the element of potential gain underlies what farmers tell us. If a farmer gains prestige by association with scientists, or is hoping for inputs to be paid, his answers may be those he thinks scientists want to hear. Beware of these eager, ever-present "professional farm technology testers."

As scientists or field technicians, we should also be aware of our own biases in selecting cooperating farmers and locations for trials. On-farm research under farmers' conditions is normally difficult to logistically execute. It is natural at times for us to be inclined toward: (1) elite farmers who are economically above the average; (2) cooperating with men only, excluding women; (3) locating trials near the best roads to save us from walking any difficult distance; and (4) selecting villages that are more prosperous although not necessarily representative of a region (Chambers, 1980). There is no easy way around these biases, some of which may not be necessarily negative. However, if they are restricting the representativeness of our trials, we should seek ways to correct them.

Seven Key Questions in the Farmer Evaluation

To help us understand small farmers we can ask them and ourselves the following seven basic questions:

1. Is the problem to be solved important to farmers?

2. Do farmers understand the trials?

3. Do farmers have time, inputs, and labor required by the improved technology?

4. Does the proposed technology make sense within the present farming system?

5. Is the mood favorable for investing in certain crops in a region?

6. Is the proposed change compatible with local preferences, beliefs, or community sanctions?

7. Do farmers believe the technology will hold up over the long-term?

In asking these questions--all of which are common sense but often forgotten in the process of on-farm research--try to "think like a farmer." If you were in his place, given his circumstances and resources, how would you view the trials and technology being proposed. Remember a simple rule of thumb: the farmer is the teacher, "the expert" about local farming practices and you are the learner. Fight off the urge at this point to be the all-knowing adviser.

It is important to seek answers to these questions continuously throughout the trials. Talk not only with the farmer cooperating in the trial but neighbors as well. Our purpose is to objectively understand how farmers perceive the trials and the proposed technology. If farmers do not understand the technology or believe it is appropriate, they will not be motivated to use it (Hildebrand, 1980-81).

Is the problem to be solved important to farmers?

We should be careful not to project our values or preferences too much into the farmer's circumstances. For example, a potato specialist may feel that Andean farmers could speed up the process of drying potatoes for producing dehydrated products through adopting a solar drying box. However, speed of drying may not be important to farmers. Likewise, experiments with seed storage in regions where seed is not traditionally stored for good reasons but brought from other regions at planting time would be of little interest to farmers. The same is true of storage experiments to reduce sprout elongation of seed tubers through indirect light storage when farmers wish to quickly break dormancy. In other cases, farmers may have no interest in investing in potato technology since little of their cropping system involves potatoes. If onions are the big money maker and potatoes are only for family consumption, farmers may have very little interest in changing their practices. The trial is an excellent way to determine if the "problem" is important. However, it is crucial that we keep in mind that commercial production may not be the only objective; that taste, for example, to the gardener may be more important than yield.

Do farmers understand the trials?

This question is tied to a series of corollary questions. Was it clearly explained what technology was being tested and why? Was the number of experimental variables too large? Were there too many replications? Was the technology too complicated or sophisticated?

Complex experimental packages frequently are difficult to understand. Also, many technologies interesting to scientists may be alien to farmers. Promising technologies such as potato strains with hairy leaves that trap insects, true potato seed, fungus that consume nematodes, etc. may be so alien to farmers that they will have difficulty comprehending the technology's utility. In these cases, attention should be given to carefully explain the new practice. Technologies which build on existing, traditional practices will probably stand the best chance of being understood.

Do farmers have time, inputs, and labor required by the improved technology?

What are the logistical aspects of properly implementing the new technology? "Under farmer's conditions" involves much more than doing a trial in a farmer's field. While inputs may be locally available, a farmer who has to walk, take local buses, etc. operates under different circumstances than scientists or technicians with a private 4-wheel drive vehicle. Simple tasks, such as buying and hauling a sack of fertilizer, will be far more difficult for a farmer without private transportation than for us.

Planting times are extremely busy for everyone. Although a farmer may wish to make changes he--like all of us--can't quite get around to putting the idea into practice. It may just seem like too much trouble. A farmer may even see the potential benefits of a technology but for purely logistical difficulties he may not be able to make changes. As every scientist knows, the oil in his car should be changed every 2,000 kilometers for maximum performance. Those of us who change it on time, however, are few in number.

Labor and time limitations are problems for everyone, but they are often more serious for farmers. Looking at the three means of production--land, labor, and capital--we see immediately the importance of land and capital. Labor is a much more subtle factor. Its availability is not only important for getting basic jobs accomplished but also determines whether a farmer is willing to invest in changes. For example, a farmer may not cut seed tubers or hill-up due to labor shortage. Also, farmers have to consider alternative uses of their labor. For example, in many parts of the world characterized by heavy out-migration those left behind often neglect the land since remittances from migrant earnings are sufficient for family needs. Conducting research trials in such contexts could be a frustrating matter. Also, farmers fully employed with their present crops may find unattractive any practice requiring increased time or labor inputs.

Does the proposed technology make sense within the present farming system?

To function, all parts of a farming system must fit together relatively harmoniously and be adapted to the surrounding environment. Various activities must be coordinated: dates of planting, movement of herds, crop rotations, labor scheduling, and so on. Think of the analogy of an automobile. Engine and component parts, electrical system, drive mechanism all must be integrated and coordinated. A failure or alteration in one part of the system affects the entire system. Proposed technology must not clash with existing practices and technologies.

Indigenous farming practices have evolved from local conditions, although we can never say the adaptation is perfect and could not benefit from change. Farming practices related to a given crop are linked; a change in one practice will affect others. Setting up the planting date to avoid hail damage for example may not be possible because seed is not available earlier, other crops on the land are not yet harvested, family labor is in the jungle working the coffee harvest, or village herds have not yet been moved to higher pastures and would destroy the early emerged crop.

Agricultural systems are often finely tuned, and an alteration in one part of the system reverberates throughout the system. Changing the variety of potato may mean that a host of practices may have to be altered, including cultivation methods and storage. In another vein, if farmers have traditionally used locally available organic fertilizers (barnyard manures) or combined them with chemical fertilizers then experiments using only chemical fertilizers may make little sense in the farmer's logic and budget. If he starts using only chemical fertilizers, what will he do with his barnyard manure? The farmer may look at a parcel of land in terms of a relation system. For example, when fertilizer is applied to a field, he may be consciously fertilizing not only the next crop but several crops that follow. And if a parcel goes to fallow next year, no fertilizer may be used at all.

Finding out if a technology is compatible with a farming system or local technology is not easy. One has to probe deeply. For example, say a field in a certain mountainous zone has been selected as the location for trials. Agronomists have decided that regularly scheduled weedings would improve production. Their results show the possibility of increasing yield through regular weeding. However, a closer examination of farmers' full range of activities may reveal why they don't weed. Farmers must make decisions about many parcels at different elevations. They have a ranking system in which some parcels, especially those exposed to frequent frost or drought and located far from a community are considered marginal (high risk, low productivity) while other more favorable plots are given high priority (lower risk, higher productivity). In nearly all cases, farmers have limited access to labor so the marginal parcels are left unweeded, although they hope for some production.

Although farmers in ecologically heterogeneous areas allocate their resources over several zones of production, it is crucial that we identify homogeneous types of farmers so that a technology can be general enough to be relevant to the whole group rather than one farmer. This also is not an easy task and involves grouping farmers according to cropping systems, agro-economic constraints, and sociological characteristics.

<u>Is the mood favorable for investing in certain crops in a region?</u>

Essentially, this means understanding farmers' orientations toward investment or innovation in crop production brought about by broader economic conditions. If you are conducting trials when prices have hit rock bottom and have stayed there for 2 or 3 seasons, promoting changes could be a losing battle. Even if farmers believe a change may be good, they may respond with general pessimism. This is also true in regions where one crop is being replaced by a commercially more attractive crop.

The same can be said for individual households: some are more innovative and receptive to change than others. This may be due in part to the position in the life cycle of the farming unit. Older farmers with departed offspring tend to be less interested in change than younger farmers. Young growing families will tend to intensify land use (because of pressure to feed more mouths) than families where many members have migrated. In fact, some argue that the basis of agricultural innovation and intensification throughout history has been the pressure of population on less and less land.

<u>Is the proposed change compatible with local preferences, beliefs, or community sanctions?</u>

Scientists generally consider cultural phenomena such as taste or color preferences of foods, superstitions, or ceremonies to be quaint. Yet while we are quick to recognize the superstitious nature of Third World farmers, we are slow to see it in ourselves. But modern, urban man's superstitions are not so different. Why is there rarely a gate 13 in airports, a seat 13 on airplanes, or floor 13 in hotels? Generally, in farming, superstitions do not interfere with rationality; in fact, they often exist to help facilitate day-to-day matters. Planting days tied to religious festivals may be an ingenious way of guaranteeing that work is done by a certain day. If God says it must be finished, it must be.

Taste and color preferences are extremely important in the diets of most peasant households. It is not always clear why certain people prefer, for example, a certain color or shape of potatoes. It may be a cultural-psychological matter. In Nepal, for example, large white potatoes are rejected in favor of small red potatoes. Large, white "improved" potatoes are believed to cause a disease in men known as hydrocele, a condition where testicles reportedly swell to enormous size.

All farming systems are socially or politically controlled, either by the local community or outside government bodies. In many Third World villages, communal populations control planting and harvest dates, field rotations, irrigation, crops to be planted, and many other important agricultural activities. Frequently, governments control many of the same activities and enforce them through severe sanctions. New technology cannot violate these rules unless the rules are changing or poorly enforced.

Do farmers believe the technology will hold up over the long-term?

Trials are generally conducted in one or two seasons. However, a farmer's view is normally based on the long-term, not only on a couple of seasons but on years and even generations of experience with the crop and his land.

Studies of farmer decision-making show that short-time studies seldom reveal the major stresses faced by small farmers causing them to "hedge" and continuously look for low risk alternatives. This could mean, however, regularly low yield but sure production. The Karimojong of Uganda, for example, face an extremely drought stricken environment which causes crop failure one year in ten and poor yields once in five years. They thus continuously opt for a low yielding but a trusted drought-resistant variety of sorghum (Netting, 1974). High yielding varieties must prove their drought-resistance to become acceptable. Similarly, in Peru's highlands where frost damage over seven years equals losses amounting to one year's potato harvest, farmers must think in terms of these probabilities in selecting varieties, not in terms of one year. Until a new technology proves its ability to withstand time (obviously not forever) farmers will remain suspicious.

Conclusion

As scientists or agricultural technicians, we are under strong pressure to generate or identify successful technologies. This is a tough job. It is our profession to provide answers to farmers' problems and at times the pressure to succeed is so strong that we feel we must give answers even when we do not fully understand the problems or farmers' conditions. Farmers catch on to this superficiality fast. They know when a technologist is bluffing and hiding behind fancy words.

However, if we have seriously asked ourselves and discussed with farmers and their neighbors the above 7 questions and tried to "think like a farmer," we should have a good idea about technology's potential acceptability. If doubts arise because the technology conflicts with these socio-cultural aspects, we must not necessarily give up. We should try to alter the technology to fit the farmer's condition. If it is too costly, try to make it cheaper. If it is too labor and time demanding, try to make it more efficient. If the farmer is rejecting our ideas due to biases (say the variety we are introducing has a foreign name which farmers reject for national pride reasons), then we should try to remove the bias (change the variety's name).

The point is simple: it is easier to adapt a specific piece of technology or practice to a complex farming system than to ask the farmer to change his farming system to fit our technology.

In the end, the acceptability of a technology depends on what the farmers actually do. This may not, as we have stressed, be the same as what they have told us. We can discover this only in a final stage of farmer testing where farmers themselves take over the new technology and incur all risks, costs, and benefits. Until this final step is taken, all other evaluations remain only suggestive of the technology's potential.

References

Chambers, Robert 1980 — The Small Farmer is a Professional, Ceres 13(2): 19-23.

Cortbaoui, Roger 1982 — Planning and Implementing On-Farm Trials. Social Science Department. Training Document 1. Lima: International Potato Center.

Hildebrand, Peter 1980-81 — Motivating Small Farmers, Scientists and Technicians to Accept Change. Agricultural Administration. 8:375:383.

Horton, Douglas 1980 — Partial Product Analysis for On-Farm Potato Trials. Social Science Department. Training Document 8. Lima: International Potato Center.

Netting, Robert 1974 — Agrarian Ecology. Annual Review of Anthropology. 3:21-56.

Rhoades, Robert E., and Booth, Robert H. in press — Farmer-Back-to-Farmer: A Model for Generating Acceptable Agricultural Technology. Agricultural Administration.