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Methodological notes on exploring indigenous knowledge and management of crop health

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These notes highlight several misconceptions which limit researchers in their investigation of local knowledge of crop health.

• Methodological precautions

Firstly, innovative researchers have sometimes presented farmers with photographs, specimens, or field examples of crop diseases and have asked them to identify, name and explain the incidence of them. Such a disease-centric approach wrongfully assumes that if farmers do not know about diseases then they do not account for them in their management of crop health. Farmers actually have many ways to assess and influence the health of a crop without explaining in terms of disease.

That the pathosystem is subsumed into a broader understanding of plant-water-soil relations means that for farmers non-disease related causes of ill-health are not distinct from disease related ones. Researchers can be mislead if they only focus their enquiry on what they consider to be disease related phenomena. Non-disease related causes of ill health such as flooding or hail can inform and be integral to the ways farmers manage and understand of crop health.

Secondly, it is a mistake to focus only on agricultural phenomena to the exclusion of local medical knowledge. Notions of health, fertility and death are common to both people and plants, and peoples understanding of one is likely to be informed by the other. If it is not, this would in itself be significant. It is hard to tell whether farmers liken plant phenomena with other phenomena in the world around them, or consider the processes to be the same. Whatever the origin and implications of the likeness will remain obscure to researchers who are unfamiliar with that other world which plant phenomena are like, or which they can be likened to. To avoid considering local explanations derived from agricultural discussion to be exclusively applicable to crops, it is therefore important to follow explanations through and ask if the idioms and causes can be applied to people, animals or anything else.

To this end, it may well be useful to carry out (or consult) a parallel study of the analytic principles in understanding personal health as this is likely to shed light onto health relations in the plant world. This does not necessarily mean visiting specialist local healers, because specialists usually deal with special occasions and often have their own 'technical' vocabulary which may differ from that applied to everyday occurrences. It is important to investigate the ways that non-specialists evaluate their own health on a day-to-day basis, and think about, diagnose and cure their own ailments.

Thirdly, researchers have been tempted to examine all local explanations of crop phenomena at face value, rather than consider different sorts of explanation to be associated with different socio-political or production contexts. In communities where farming is a sensitive social and economic issue (i.e. where farming, trading, storing, selling and consuming produce, creates social group identity, and differentiates between groups economically and conceptually) farmers can usually explain agricultural practice and phenomena in many ways. Explanations range from the polite and evasive explanatory shorthand idioms (e.g. 'there was too much rain', 'it was the will of god'), to idioms

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signalling distrust (e.g. 'it was sorcery'), to ethnic norms ('this way is our way'), and to uncertain and exploratory hypothesis.

Perhaps the most difficult task for ethno-scientists is to distinguish between these different sorts of explanations with an eye for their socio-political context. It would be wrong to consider all explanations to be somehow logically connected, but recognising the discontinuities, and their importance requires astute observational and theoretical awareness. Similar difficulties in understanding discontinuities are faced by farmers who hear about God's monopoly on creation in Baptist fundamentalist church in the morning and in the evening hear about the creation of new crop varieties by IARCs on the radio.

Researchers most easily elicit and analyse shorthand and normative explanations which are straightforward to express, and relatively standard to a community, but which are more important in managing social relations than plant health ones. We can give the impression of talking shop without saying anything of importance. The less certain ideas which infuse farmers practices, especially their most novel practices, can easily escape the researcher's attention. More experimental, hypothetical, relatively unformulated, metaphorical, 'empirical' ideas are generally socially and intellectually harder to discuss. In many circumstances novelty and expressing individuality can be socially very problematic indeed. That these ideas are less coherent across the community, and that they are thus harder to analyse does not make them any less significant.

Different social strata may have different experiences and knowledge of farming. As a result, it can be the case that young and old men understand the origin of abundance differently; that men and women understand weed relations differently, and that those who cultivate for a wage on other people's land and those who cultivate for themselves on their own can understand fertility relations differently. Husbands who live in the same village all their lives have a different comparative experience to their wives who move to be with their husbands at marriage.

Those who have examined historical changes in local knowledge within the changing social, economic and political context of farming stress the need to examine agricultural expression within the local relations of production of knowledge; relations (& struggles) between these groups (Bebbington 1990; Fairhead 1990). This means that one cannot link knowledge to a place but to relationships between peoples.

• Methodological hints

I consider these precautions as fundamental to any sort of methodology (in the narrow sense of `data collection tool'). Formal methodologies and questionnaires are not appropriate to learning how farmers understand crop health. I would be wary even of rapid appraisal tools as the prerequisite is to have a good and enduring relationship with several farmers from whom one can learn in an iterative way. There are perhaps several ways, however, which can be used to speed up the iterative learning process.

Both Bentley in Honduras (1989) and myself in Zaire have found that farmers used notions of heat and cold, and burning, and cooling (freezing) to describe the diseased state of plants. Given this description is common, it is then important to explore the conditions which are seen to cause these and the causal linkages - this is where the local knowledge of health relations really lies. One can discuss each successive stage in the cultivation cycle, and see if there are practices which alter the incidence of these phenomena (easier said than done). This requires a very detailed knowledge of the subtle variables which farmers alter or account for at every stage of the cultivation cycle, and the rationale behind such manipulation. This requires great persistence by the observing researcher, and astute observation which takes nothing for granted (for problems of observation of micro-environments, see Chambers 1990).

The way I checked what I saw and heard, and deepened my analysis was to try out explanations derived from one informant, when in similar situations with others. Did it shock? (i.e. ideas conflict, or the original ideas was creative) or does it pass unnoticed as correct.

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• Variants not norms

The interesting aspects of the production system are the variations, and not the norms. Indeed we should avoid any notion of norm, and contrast the reasoning or practices of one informant with those of every other and not any 'norm'. By focusing on the subtle differences in the way tasks are done between times, people and places (e.g. which weeds are left where, which leaves are picked off the plant) it is possible to derive sources of farming flexibility. (Certain things one cannot talk about with farmers whilst observing, and one must rely on discussion alone e.g what does one vary if one is late planting? or if there is a drought? or excess rain?). Such questions will be more effective if the sources of flexibility are already understood.

• Choosing informants

Although certain people can have a local reputation for their farming skill, they are not necessarily the best informants. The success on which their reputation is built might reflect their reduced need to make less compromises than their skill per se. It is often wealthier farmers who have more land, who can hire labour, store seed etc. and who therefore have more ways to control the health of their crops who are considered 'good farmers'. It would be wrong to rely only on such informants. The ideas of others who struggle to meet more intractable problems to the best of their ability are as important to elucidate, if not more so.

These are only quickly jotted down ideas. They ought to complement both longer term research results (Trutmann et al, 1991) and the sorts of methodologies being developed under participatory rural appraisal.

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