

A Sociological look at Natural Resource Management: Environmental Management in Australian Agriculture

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SUMMARY: Environmental or natural resource management issues are often thought of in technical terms. But they are not technical issues, they are social issues. This paper presents a sociological analysis of natural resource management, especially of environmental management in agriculture. It argues that research, development and extension (R, D & E) activities to promote sustainable management will be less than fully successful while they fail to appreciate the social basis of agriculture and the social context in which farm management occurs. Agriculture is socially, culturally, politically and historically structured, and this structuration sets the stage in which current management occurs. The declining terms of trade for agriculture, the increasing domination by agribusiness and the responses by governments (state and federal) also affect farmers' ability to implement environmental management strategies. Agricultural extension and all of agricultural science is socially naive – in particular with respect to the premises under which extension and science operate, how knowledge is created and transferred, and how technology is adopted. In place of a traditional top-down adoption/diffusion of innovations model, a case is made for understanding farming as a cultural activity, with distinctive *farming styles* emerging through the interplay of various social factors with diversity in farming practice being a manifestation of these styles. Appreciation of this leads to a rejection of notions of identifiable barriers to adoption. While critical of extension services, there is an urgent environmental imperative for extension to be proactive, and there is a renewed responsibility and obligation for extension to be publicly supported.

THE MAIN POINTS OF THIS PAPER

- Farming is a social activity, and agriculture is socially, culturally, politically, economically and historically structured.
- There is social diversity in farming and various styles of farming can be identified.
- Failure to acknowledge the social basis of agriculture will mean that attempts to improve the environmental management of farmers will also fail.

1. INTRODUCTION

Agriculture is seen by some only as a technical activity. Farmers' environmental management practices are seen as the application of scientific knowledge generated in scientific research agencies and extended/diffused/transferred to farmers through agricultural extension agencies and through Landcare. The failure of extension to satisfactorily transfer environmental management practices has led to a crisis in extension and an increased interest in new extension methods (Vanclay 1994). This paper identifies the key social issues in understanding environmental management in agriculture. It argues that the failure to acknowledge that farming is a social and cultural activity is responsible for the limited success of extension, particularly in promoting sustainable agricultural practices.

2. THE SOCIAL STRUCTURE OF AGRICULTURE

The concept of 'the structure of agriculture' incorporates both micro-level features – such as the size of farms, the activities they undertake, and how much income farmers make – and macro-level features – such as the global integration of agricultural

production, processing and retailing networks. It is necessary to appreciate that current structures did not develop by chance, but through, amongst other things, the interplay of history, government policy, and international patterns of trade. Changing world events and the global economy – and more particularly the Australian governments' responses to these changing world events – have had enormous impacts on the structure of agriculture, especially at the farm level. This structure has been socially, politically and culturally constructed through settlement patterns, subsidization and regulation. The size of farms has been influenced by both government regulation and the amount of land required to make a living. This in turn has been affected by the cost of living in rural areas, which has itself been affected by the extent of subsidization of rural life through both public ownership of important utilities and services, and regulation of private services to ensure that rural residents were treated fairly. The transition to economic rationalist policy in the 1980s, and the ensuing privatization and corporatization of government and semi-government entities, as well as deregulation of airlines, banking, telecommunications, and the removal of the agricultural monopoly marketing boards, has had

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significant effects on rural life (Vanclay and Lawrence, 1993). Considerable structural adjustment has occurred, with increasing minimum viable farm size, a commensurate reduction in the number of farms, and a change in the nature of on-farm work, and the need for off-farm income.

3. THE SOCIAL BASIS OF DIVERSITY IN AGRICULTURE

The farming community is not homogeneous. There are many ways in which diversity can be observed within the farming community: rich and poor, big and small, old and young, high mortgage and small mortgage, propensity to adopt new ideas (innovator) and propensity to retain tried and true methods ('laggard' in extension discourse), pro-chemical and anti-chemical. Farmers can be categorized on every single variable that can be logically considered in conjunction with agriculture. This means there are no single problems, no single solutions, no single extension strategies, and no best medium that extension should solely utilize. However, instead of classifying farmers according to demographic or structural variables as has been undertaken by researchers in the past, it may be more meaningful to classify farmers according to cultural groupings representing a conglomerate of social and structural variables. The main reason why individual farmers do things is that they are consistent with that farmer's appreciation of what they consider to be 'good farm management'. But different farmers have different notions of what good farm management is, and their notions about good farm management differ from the extension officers and scientists. But there are patterns amongst farmers which can be considered as 'styles of farmers'. Quite some research has been conducted to identify these styles (Vanclay et al. 1998; Howden et al. 1998).

In viticulture, Mesiti and Vanclay (1996) identified six styles: traditional; conventional; innovative (together with progressive); labour efficient; 'Collins Street' or corporate growers; and lifestylers. In wheat farmers, Howden et al. (1998) identified 27 styles, but they are not sure that all styles exist in reality, although they argue that the styles act like a repertoire of parables to inform and control farmers. The styles Howden et al. identified are as follows:

Major styles

- Innovative
- Middle of the road
- Progressive
- Resource limited - personal
- Resource limited - structural
- Traditional

Minor styles

- Autocrat
- Developer
- Diesel burner
- Doom and gloom
- Expansionist
- Grazing emphasis
- Hard driver
- Lazy
- Lifestyler
- Old rich
- Opportunist
- Organic
- Perfectionist
- Risk taker
- Secret farmer
- Skite
- Tinkerer

Poorly defined styles

- Committee person
- Lucky
- Mediator
- Safety-net farmer

4. THE SOCIAL BASIS OF FARMER DECISION MAKING

An early premise of Landcare and other environmental management programs was that all that was needed to improve environmental management in agriculture was an extension program to raise awareness about land degradation problems, and an education program to change farmers' attitudes to adopt or incorporate a 'land ethic' (Roberts 1990). However, this is not the case. Farmers' attitudes are not antagonistic towards the environment (Rickson *et al.* 1987; Vanclay 1992; Vanclay and Lawrence, 1995). Farmers do not believe that they are raping the earth while driving their tractors. Surveys have shown that farmers have positive attitudes about environmental management generally. They may, however, have different views about what environmental management means, about how to implement it, and they have concerns about whether the agricultural management practices being promoted as sustainable are, in fact, sustainable and/or profitable (Vanclay and Lockie, 1993; Vanclay and Glyde, 1994; Vanclay and Hely, 1997). To some extent, this is intuitively obvious. It is not likely that farmers would have environmentally hostile views. The case of land clearing, for example, can be understood from the perspective of many farmers as being 'land improvement' – and may even have been required as a

condition of the lease. Even if other groups in society (eg, conservationists) would regard some farming activities as degradation and/or destruction of the environment, the understanding of the farmer is different. Thus, the problem is not one of farmers having the wrong attitude, but one of a conflict of views about the right way to manage the farm. This view is further reinforced by the observation that the primary motivation given by farmers for undertaking much land management practices, is to pass the farm onto their children in a better condition than they themselves received it.

The view that farmers' attitudes are the problem, rather than there being a difference of opinion about appropriate (and profitable) farm management practices, represents: (1) an over-emphasis on the *individual* basis of decision making by farmers; and (2) a reliance on a *technocratic* and linear top-down diffusion process of technology transfer – instead of a sociologically-informed understanding which would see farm environmental management as an artefact of farming subculture and farming style. From the farming styles perspective, decision making is not necessarily a consciously rational individual act, but a socio-cultural process, with change occurring when new techniques are consistent with the knowledge base of the farming style.

5. THE SOCIAL BASIS OF FARMING KNOWLEDGE

The most important feature of the idea of styles of farming is that each style has its own knowledge base. Thus the behaviour or management practices of members of a group will be consistent with the premises (values, attitudes, knowledge, beliefs) held by this group. Extension will not work simply by exposing individuals to new ideas or new technology, since those innovations must be integrated with the existing belief system. In order to be effective, therefore, extension needs to identify and target each of the subgroups that exist.

Targeting has been a technique of extension in the past, although most targeting was to so-called 'top-end' farmers and/or the innovators, on the mistaken assumption that the ideas would diffuse or trickle down to all other farmers. Extension also went to considerable lengths to identify so-called 'opinion-leaders'. In practice, however, the opinion leaders identified by extension staff were seldom the opinion-leaders of farmers. What was wrong with these targeting strategies is that they did not service the majority of farmers. Instead, the 'elite' farmers who were being targeted were greatly privileged or advantaged with research and extension methods to solve their particular problems and concerns, while the problems or concerns of all farmers – or more specifically, of each of the different styles of farmers – went unaddressed.

It is a mistake to believe that only 'Science' (as a social institution) creates knowledge that is then transferred to the public via extension. All individuals and groups are in the business of creating knowledge about their own experiences of the world. Thus, information that is transmitted via extension is evaluated against other information, knowledge and beliefs held by each individual. Nothing is accepted without evaluation. More and more, especially as the community is becoming more empowered and more skeptical, 'authoritative' information is being rejected. Science, therefore, does not automatically have credibility and legitimacy.

Farmers create their own knowledge through experimentation and trial, and through their own theorizing. The knowledge of Science – the knowledge created by scientists – is used by farmers when it is consistent with their own understanding. Even then, however, it is adapted to fit their own worldview, and so 'adoption', itself, represents a form of scientific inquiry ('science' as a methodology) by farmers. The knowledge of Science is rejected when it is inconsistent with the worldview of farmers. Thus farmers are their own scientists, theorizing, hypothesizing and experimenting to determine what works.

Sometimes the knowledge farmers create through this process is especially adapted to specific local conditions. The harnessing of this local knowledge has improved the applicability of scientific knowledge. This local knowledge, often collected through Rapid Rural Appraisal and other techniques, has also assisted in improving the applicability and usefulness of technology designed in western countries, but destined for a different cultural context in developing countries.

Farmers develop considerable knowledge about their own farm. They know the local history and local conditions and they use that information in their decision making and management. Within the viticulture industry, for example, it was found that while many agronomic management systems required careful examination of crops for pests and diseases, and extension agencies promoted specific 'scouting' strategies, the precision expected in the course of such scouting was rarely undertaken by farmers. Instead of thorough examination of the whole crop, many farmers used their knowledge of local 'hot-spots' – locations on the farm where pest and disease outbreaks were likely to occur first – to minimize their scouting effort (Glyde and Vanclay, 1996).

6. THE SOCIAL BASIS OF ENVIRONMENTAL PERCEPTION

Vanclay (1992) has argued that because of the influence of dramatic images in the general media and in extension literature, farmers' concern about degradation has become inflated (that is they have increased awareness), but they do not perceive themselves to be at risk because the land degradation

they experience is not as severe as the images being depicted. In earlier research, Vanclay and Cary (1989) identified that one of the issues in relation to adoption of salinity control methods was the lack of knowledge by farmers of the early warning signs – the salt indicator species. However, the problem with many early warning signs is that they are not unique to a single issue, and can easily be attributed to other reasons. For example, a poor germination rate, reduced prolificness, or reduced species prevalence could be attributed to a lack of moisture, too much rain, hot weather, cold weather, poor seed, pests, diseases, etc. Sometimes, tell-tale signs become so common that they are simply disregarded – for example, few farmers would believe that muddy dams, or cloudy creek water were evidence of soil erosion. It is desirable, then, that farmers develop an understanding of the land, and that they consider the environmental processes, especially land degradation processes, that may contribute to any feature of the landscape they observe. Terry White (1992) refers to this as ‘land literacy’ and argues that all people need to be able to read the land for what it is telling us about its health and about the health of our society and our production systems.

One way of relating the concept of land literacy to farmers’ notions of the appropriate ways to farm is the concept of the ‘farmer’s gaze’. This concept emphasizes the notion that perception is socially conditioned, and thus the farmer’s gaze on the environment is not about objective physical science notions about the state of the environment, but more to do with the way the environment is experienced by farmers. Farmers’ gaze is socially produced and reproduced with each farming style characterizing a particular gaze, representing an outlook on the land. Degradation is only perceived as such when it is not filtered out by the farmer’s gaze.

7. THE SOCIAL BASIS OF (NON) ADOPTION

Because extension has been predicated on the notion that knowledge transfer was uni-directional, science the only originator of new ideas, and that farmers were passive non-evaluative receivers of new technology, it also held that all new ideas, if successfully extended, would be adopted. Non adoption could only mean that information transfer had not taken place (not enough media attention) or there was a barrier to adoption – some reason why farmers could not adopt the new technology, such as a lack of money. This argument is somewhat absurd. Surely, if it really did make sense for a farmer to adopt a new technology, and a commitment to that innovation existed (i.e. a thorough belief that the benefits outweighed the costs), then a way would be found to adopt. Where non-adoption occurs, obviously a real commitment to the innovation does not exist and non-adoption is a sensible strategy, at least in the opinion of the farmer. There are many reasons why farmers may not have a real commitment to new technologies, and thus non-adoption is rational from the

perspective of the farmer (Vanclay and Lawrence, 1995).

Many extension staff believe that non-adoption of the practices they promote is the main barrier to sustainable agriculture, consequently expressing concern about those farmers who do not adopt tree planting and altered management systems. However, it was adoption (not non-adoption) of the practices that were promoted in the past – particularly tree-clearing, and the excessive use of sub and super (subterranean clover and super-phosphate) – that was largely responsible for the environmental problems of today. Farmers have become skeptical of extension with their simple message that all that has to be done to solve all the problems is ‘such and such’. Farmers know that farming is more complex.

8. THE SOCIAL CRITIQUE OF AGRICULTURAL EXTENSION

Vanclay and Lawrence (1995) identified five major criticisms of traditional top-down extension. While contemporary extension agencies are moving away from traditional extension practices, the ideology that supported top-down extension persists in subtle forms. It is worth reiterating those criticisms of traditional extension to help ensure that those problems are not manifested in modern extension. First, extension has uncritically accepted the products of agriscience and agribusiness, and has seen its task simply to promote those products. Second, the uncritical acceptance of those products, and their adoption by farmers, has led to considerable social and ecological impacts. Third, the adoption-diffusion model is premised on commercial innovation in which it is perceived that farmers would benefit. Thus, it does not cater for environmental innovations, which may not be of benefit to individual farmers. Fourth, farmers’ local knowledge has been marginalized, trivialized, subordinated and ignored. Finally, extension utilized a psychological model of individual decision making and ignored the social, political, cultural and historical context of agriculture and adoption behaviour (Vanclay and Lawrence, 1995)

9. CONCLUSION: FARMING IS A SOCIAL AND CULTURAL ACTIVITY

This paper has argued that farming is a social and cultural activity. Farm management practices are physical manifestations of cultural expression, they are not solely technical. Diversity in agriculture should be conceived in terms of social, rather than in physical or structural processes, and the way to conceptualize this social diversity is in the form of styles of farming. The objective of farming is to adhere as closely as possible to the conception of ‘good farm management’ that develops in each style. Farming styles also account for lifestyle preferences. While some farmers (at least one style) would see profit maximization as an important objective, most farmers (other styles) value other

priorities such as workload, lifestyle, risk, and the need to look after the environment (stewardship).

From the perspective of each farming style, current management practices generally make sense, even if they are discredited by extension and/or conservation agencies. Attitudes are not the cause of non-adoption of new management practices. Farmers' attitudes are generally positive about environmental issues. Non-adoption arises because of differing opinions about the right way to manage the land – about what constitutes 'good farm management'. Farmers do not uncritically accept the information that is being promoted, they evaluate that information against their own knowledge and experience and, furthermore, they experiment and hypothesize. Thus, even if they ultimately wind up doing what was being promoted, it is likely that such an outcome was the result, not of their adoption of what was being promoted, but of their adaptation of an idea and of their own knowledge production processes.

Appreciation of this social understanding of farming is daunting. It implies that extension can only influence farmer behaviour when the practices being promoted concur with the worldview/subculture/farming style of each farmer. Extension agencies must see their role as social change agents rather than as pursuing the technical task of technology transfer. It must also be recognized that the probability for substantial change may be slim, especially if the innovation requires fundamental change. This does not imply that extension agencies have no role. While farmers are critical of extension services – especially in terms of the practical application of the advice available, and more recently the availability of individual assistance – they would not want to be without the extension services they have (Vanclay and Glyde, 1994; Vanclay and Hely, 1997). Extension services are still required for individual assistance, especially for individual problems.

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