

EDUCATIONAL EXTENSION LITERATURE FOR FARMERS - JUST HOW GOOD IS IT?

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Abstract

Agricultural extension throughout Australia is undergoing change. Publications for farmers are an extension strategy which uses enormous resources, yet there is little scientific enquiry validating this expenditure, particularly given the high levels of functional illiteracy among Australian adults. *Operation Quality Wheat* is an innovative educational program which emphasises user-friendly literature. Two publications were designed and tested with farmers to trial an illustrated plain english approach to transferring information. Results confirmed much interest in the change, by farmers, but less so by extension professionals.

Introduction

Extension is a major activity of Departments of Agriculture throughout Australia. NSW Agriculture, for example, spends an estimated \$0.5B per decade on extension, employing about 300 frontline extension staff. While very skilled in technical matters of interest to farmers, these agents are generally under-skilled in education and communication matters (Wissemann and Wilson 1988). Yet an important objective in agricultural extension is to change the ways farmers manage agricultural resources. Education, therefore, must be an integral part of extension methodology.

Evidence suggests that extension in Australia has only mixed, and sometimes limited success (Lees 1990). Given this, it should not be surprising that the efficacy of agricultural extension throughout Australia is presently being debated. This protracted discussion, largely initiated by the Commonwealth corporations which fund much of the operating costs associated with research and extension, is sanctioned by the Departments of Agriculture, the traditional providers of extension. This implicit support suggests that extension, in its current application, is failing to maximise information transfer and accordingly, requires an urgent re-assessment, in terms of its objectives and mechanics. Clearly, it is becoming increasingly difficult to find well argued justification for the continued existence and reliance on traditional extension methods, that is, based largely on technical experts rather than on trained educators and other communications specialists.

In response to this problem, it is refreshing to observe that one of the more noticeable changes in agricultural extension practices over the past few years has been a trend for a shift in emphasis from one to one communication with farmers, to group work through the application of adult education principles. Unfortunately, however, this innovation alone has not yet initiated major changes in extension practice.

Extension repertoires are varied and, indeed, each has its niche. But what works best, where, for whom, and on what types of problems remains unclear. Framed by our dynamic environment, these are clearly not trivial questions. Rather, there is a need to recognise that times change, and that methodologies appropriate to one era may not be suitable to another. It is imperative that this reality is fully understood if extension/ education programs are to work more effectively.

Audio and video cassette technology, for example, has been readily available for many years and yet are not widely used by extension agents.

Educational Extension Publications

Publications remain a major strategy currently used in extension programs, acting as conduits to transfer information to farmers, and to educate them about new methods of production and technologies. While their application represents a sizeable investment drawn from increasingly scarce resources, this investment remains open to scrutiny for justification and continued funding. The Publications Unit within NSW Agriculture, for example, has an annual operating budget of about \$0.99M, with a staff of 35 (Murray, personal communication). Counting the costs associated with salaries and overheads of authors and referees would escalate these figures. While this level of investment has resulted in publications that are strong in topic range and information quality, little research has occurred regarding the return on this investment and whether alternative strategies would be more effective in meeting departmental objectives. The previously mentioned discrepancy between technical versus educational paradigms is clearly reflected in departmental publications as well. The plethora of titles are technically sound, but generally not written from an educational perspective.

Indeed, preliminary survey data suggests that departmental publications may not be as widely read by the farming community, as intended (Condon 1986; Hartley *et al.* 1990). The ramifications of these findings are important. If extension publications are not widely read by farmers, then it is appropriate to ask why not and to speculate on what changes to the publishing philosophy may be needed to inspire greater readership. Hartley *et al.* (1990) have addressed some of these issues following an internal review of extension literature in NSW Agriculture in the late 1980's.

Central to the debate on the usefulness of extension publications is the question of functional literacy among farmers. This is raised not to challenge the intelligence of the farming community, nor to doubt their abilities to be effective farm managers. But what if farmers spend little time reading, or what if a significant number are functionally illiterate? Knowing the answers to these questions would provide a sound basis for determining the type of publications needed in order to gain the best value out of the investment, as well as economic justification for investment in a publishing strategy.

Wickert (1989) first drew attention to the surprisingly high functional illiteracy rate among Australian adults. She argued that illiteracy was more common among older people with comparatively low educational achievements, characteristics known to describe the average farmer (Hartley *et al.* 1990). This research is endorsed by TAFE statistics, which claim there are more than one million functionally illiterate adult Australians. In view of these findings, the issue of functional illiteracy among farmers is not trivial. Unfortunately, however, we still do not know to what extent illiteracy is a problem among farmers, nor do we understand their patterns of reading behaviour. Nonetheless, we can hypothesise that, for whatever reasons, farmers may not spend much time reading, whether this be due to underdeveloped reading skills, insufficient time, or simply indicative of preferential use of alternate information sources.

Extension Literature For Wheat Farmers in Northwest NSW

The need to target wheatgrowers is important, for their own sakes as well as for Australian wheat exports. Wheat is one of Australia's major export industries. It's easy to grow with little management needed by farmers between planting and harvesting. This has led to widespread exploitive farming to the extent that Australia now has a serious problem. Too many farmers are growing low yielding and poor quality crops. And unless regular supplies of high quality grain are maintained, lucrative export markets could be lost. Average wheat yields are 1.7t/ha, well

below the breakeven cost of production. Grain protein content, an important quality indicator, is declining also. There are about 38,000 wheatgrowers in NSW alone; many needing education on wheat, presumably.

Faced with stagnating wheat yields and declining grain protein content, cereal farmers in the Northwest of NSW recently took part in an education program codenamed 'Operation Quality Wheat' (OQW). The program sought to motivate and educate farmers about the need to change from exploitive farming practices, which have little regard for future generations, to more sustainable farming. While not directly concerned with the issue of farmer literacy, the results nonetheless did provide some interesting insights into the interaction between farmers and extension publications.

Of particular interest to the discussion of farmers' use of extension literature are two OQW extension booklets (*The Farmer's Guide to Growing Better Wheat, and Rejuvenate Aging Wheat Soils with Legumes*). Despite wheat having been the backbone of the region for decade, there was a dearth of well-presented information and virtually nothing that brought all the information together prior to *The Farmer's Guide to Growing Better Wheat*. Even less was available on legumes.

The combination of attributes in these publications, which distinguishes them from the bulk of other agricultural extension literature, are:

1. Integration of messages through artwork and text that entices visually.
2. Adoption of plain english.
3. Consideration is given to the user, in terms of readability, comprehension, and available time.

It was reasoned from the start that the booklets needed to have impact so that farmers would read and assimilate the information within, and ultimately act on the material presented. Hartley (1991) has summarised this methodology in nine steps for more effective information presentation.

In view of the apparent general inertia regarding enquiry into the efficacy of extension literature for farmers, these two booklets were tested with farmers and other agricultural professionals to determine the usefulness of this 'new' approach to rural educational processes. What follows is a brief summary of what took place and what farmers' reactions were. The measured responses testify to the desirability of extension literature characterised by certain traits.

The Farmer's Guide to Growing Better Wheat

Twenty-three thousand copies of *The Farmer's Guide to Growing Better Wheat* were printed and mailed to wheatgrowers throughout NSW in February 1989. Subsequent demand from agricultural science teachers in high schools, university agricultural faculties, and overseas scientists resulted in a further 15,000 copies being printed.

The philosophy behind *The Farmer's Guide to Growing Better Wheat*, from the agricultural viewpoint, was that it should convey the notion of integrated wheat management together with fundamental farming information. This involved examining what constitutes sound wheat management, isolating the key operations on which farmers make decisions (and which are known to influence yield and protein content) and highlighting the issues within each operation. The concept of photosynthesis was used, upfront and throughout the booklet, as the basis for

interpreting and understanding the significance of every decision taken by the farmer. Wheat farming is about maximising photosynthesis for the available moisture and nutrients, over which the farmer exerts considerable control through management. Every decision taken should be considered in relation to these variables and the subsequent effects these will have on yield and quality. This was the key message of the booklet.

In other words, the booklet took a complex scientific issue about which most farmers would be ignorant, yet which underpins the success or otherwise of a wheat, and tried to demystify it, at the same time providing a meaningful schemata on which to reinterpret their management decisions.

The fact that the booklet was funded and that it went to a reprint are measures of its success. Of particular note was the interest shown by some agricultural faculty lecturers; this was unexpected. By contrast, demand from high school teachers was reasonably predictable. Of more interest was the considerable debate within NSW Agriculture and among farmers on the impact and value of the booklet. Many technical people had asserted, before publication, that farmers would find the booklet insulting to their intelligence, because of its simplistic style (by contrast, the essential messages were far from simple). This was, however, reflected more from within NSW Agriculture than from farmers themselves, though a significant number of farmers (<20%) did express these sentiments.

A very small follow-up survey 12 months after mailing the booklet indicated that 84% of respondents endorsed the style of presentation, as reflected in the following testimonials.

"Words, drawings combined to give a clear understanding. The book was great."

"Easy to read and informative."

"I would prefer a book like this more often than all the pamphlets that the Wheat Board sends out."

"It gave a good basic knowledge put together straightforwardly."

"The simple presentation was easy to understand and the printing and layout excellent."

Sixty per cent of respondents sought more information as a result of reading the booklet, while three-quarters of respondents requested a similar booklet on legumes. It is noteworthy, indeed, that despite the pre-emptive criticism from the technical fraternity, farmers on the whole endorsed the publication and were sufficiently motivated to say so. The significance of this will be discussed later.

Rejuvenate Aging Wheat Soils with Legumes

Unlike wheat, legumes are relatively new to farmers in the Northwest of NSW. There is no expectation that farmers ought to know how to grow them. With the current decline in cereal grain prices (wheat), farmers are actively looking for alternative cropping strategies. As a result, there is a lot of interest in grain legumes.

Rejuvenate Aging Wheat Soils with Legumes was designed to impart basic information on legumes (what they are, what they do) and to motivate farmers to think about changing over to a legume crop, periodically, in their cropping sequences. This booklet was designed similarly to the other, but with more text, detail, and fewer diagrams.

The booklet was tested with 150 randomly chosen wheat farmers throughout the Northwest of NSW. Again, the style of presentation was endorsed by most farmers, 95% of respondents in this case. Thus in two surveys on farmers reactions to OQW literature, the responses were overwhelmingly supportive and positive.

Discussion

Part of OQW strategy is to give farmers comprehensive, but user-friendly and educational literature. Before this campaign and before the issue of literacy was raised, it might have been argued that almost all extension literature was user-friendly. Literacy surveys now clearly suggest this is in fact incorrect. So it was appropriate to trial publications which were somewhat 'different' from the norm, specifically written for what was thought the audience wanted. The results, a mixture of qualitative and quantitative data, obviously preclude unequivocal argument towards a revised publishing paradigm, particularly given that the surveys were pilot studies and preliminary in nature. Nonetheless, it is appropriate to speculate on the significance of these results for extension literature for farmers, and indeed, for adult educational-type literature in general.

Endorsement by a majority of farmers of the style of presentation of information in the two OQW booklets deserves emphasis. Information only has value if it is used. Agricultural science has accumulated a lot of information, a significant amount of which is not being used by enough farmers. It is obligatory, therefore, that every effort be made to establish a return on the investment in agricultural research. If relatively simple changes in presentation, to a style which clients find easier to interact with, encourages greater readership, then extension agents must use this knowledge. Failure to do so in the past may, in part, account for the failure that now surrounds extension. And the problem may not be peculiar to agriculture alone.

Yet there is little evidence that technical professionals gleaned much from publication of the two OQW booklets, as evidenced by subsequent extension publications. Some did respond to the notion of presenting information more effectively in order to educate the reader, others were already incorporating such principles in their publications; however, both groups remain the minority. The assertion is that extension publications continue to reflect the conceptualisation of extension as an information provider. This is despite the fact that extension itself is wanting to move very much towards adult education. There remains, therefore, a fair gap between intention and practice which needs to be addressed.

Although criticism of the booklets by farmers was relatively minor, it was interesting that more farmers perceived an illustrated plain English booklet on wheat too simplistic for their needs (since they had been growing wheat for years) than a similar booklet on legumes (crops with which they were less familiar). Yet, as previously implied, the majority of wheat growers are hardly earning a living. Just how to educate an audience like wheat farmers who are conditioned by tradition, to change to more desirable farming practices is problematical. The approach taken in *The Farmer's Guide to Growing Better Wheat*, as previously mentioned, was to introduce the notion of photosynthesis on which to hang management decisions. Much of what needs to be learned in farming is not new, the challenge is to repackage the information in ways which make it appear to be new so as not to offend the audience. Important as this point is, it would seem to have been lost by many technical professionals, despite the personal encouragement of the authors to the contrary.

Conclusions

The methodology of the work presented has some flaws, though this should not undermine the arguments raised. It was not designed to be the definitive study on what literature works for farmers and what does not. But, bearing in mind that producing extension literature for farmers uses a lot of resources, then studies such as these in lieu of more astute enquiries, do contribute to an understanding of how literature ought to be designed and used. Why have extension literature if we do not continually refine the medium in the light of what we learn about the clientele and their needs. Until we try new approaches, we will not know how they will be accepted. The evidence presented in this paper suggests that among the largest audience, such changes may have a high degree of acceptance indeed.

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Resume

Dr Hartley's interests lie in information transfer, synthesising the essential messages and presenting them in ways to entice interaction with the intended audience, assimilation and recall. He does original research in this area.