

**USER CONTRIBUTIONS AND PUBLIC EXTENSION DELIVERY MODES:
IMPLICATIONS FOR FINANCIAL SUSTAINABILITY OF EXTENSION IN SOUTH
AFRICA**

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ABSTRACT

Extension channels form the bridge that extension agents use to communicate messages to recipients. The high recurrent costs faced by the public extension service constraint the number of visits farmers receive. This study examined a number of extension communication channels through which farmers received farm management services/information from the public extension agent. The idea was, first, to find out the dominant channel(s) through which information/services were received and, second, to assess the willingness of users to contribute financially to support the public extension services in providing more visits through that dominant channel to the clients who opt to pay. The study was conducted in three districts of the Free State Province, South Africa, between 1 September, 2010 and February 2011. Convenience and purposive sampling techniques were used to survey medium-scale commercial crop farmers (97) using semi-structured, self-administered questionnaires. The results show extension visits as the dominant channel through which respondents received information from the public extension agent for all the management practices investigated in this study. In addition, most respondents were willing to contribute financially to receive more visits from the public extension agent. It could be concluded that producers' payment for more public extension visits could contribute towards financial sustainability of the public extension service.

Keywords: User contribution, public extension, delivery mode, financial sustainability

1. INTRODUCTION

Financial sustainability problems of public extension services seem to be pervasive and persistent around the world, affecting both developed and developing countries (Fei & Hiroyuki, 2000; Umali & Schwartz, 1994: xii; World Bank, 1994a:42).

The problem being addressed by this study relates to the inadequate operational funds facing the public agricultural extension services world-wide, including in South Africa which manifests among other things in few visits to farms by field-level extension workers. This problem is revealed in the assessment of the Provincial Departments' expenditures on agricultural extension services for the period between 1999/2000 and 2005/2006 by the Intergovernmental Fiscal Review Committee: "all allocations per programme include personnel expenditure and thus mask the much lower allocations for non-personnel expenditure within these programmes" (National Treasury, 2003:211). The non-personnel expenditure includes extension delivery e.g. extension visits.

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It is hypothesized that farmers' willingness to pay for the delivery of public extension visits is positively influenced by the desire to receive more extension visits.

The study was motivated by the need to explore user contributions as a way of increasing the number of extension visits to farmers; the latter will improve farmer exposure to more farm management innovations which in turn could lead to profitable farm business. Düvel (2002) shows that the group of farmers identified in this study as medium-scale commercial farmers constitute 50.2% of farmers which make use of public extension services in South Africa. With financial contributions from this group of farmers the service could afford to provide more visits to these farmers; it could then use its limited funds to service the subsistence farmers. Discussions on user contributions for services have been documented in government policy papers (Department of Agriculture, 2005:7). No empirical study of extension visits as a source of revenue that could augment public funds has yet been conducted, however. This is the motivation for the study. Generating funds from other sources is important because any shortfall in treasury allocations to agriculture leads to reduced funds for extension work (FAO, 1990).

Personnel costs are identified as one cause of the financial problem (National Treasury, 2003:34, 211; Sulaiman and Sadamate, 2000); another is the cost of extension visits which take up by far the largest proportion (47.15%) of extension funds (Wilson and Gallup (1955). Dinar (1996:3-4) quoting Elkana and Epstein (1972) indicates that extension visits take up 39 % of the total time of the extension advisor. This indicates that extension visits to farmers take up a lot of financial resources to accomplish.

Fiscal constraints lead to limited resources for extension work (Feder, Willet & Zijp, 1999) including lack of capacity (Working Group on Agricultural Extension, 2007; Gebremedhin, Hoekstra and Tegegne (2006:21). Farm visits are reduced, perhaps as little as one per month or less, (Oladele, 2008:168; Ajayi, 2006) or occur irregularly (Ulimwengu & Sanyal (2011:11). Fiscal problems also lead to late release of budgeted funds, which negatively affects field extension work (Bagchee, 1994).

The restructuring of public agricultural extension services globally is, therefore, an attempt to make them more financially sustainable and demand-driven as distinct from supply-driven. Market reforms include the introduction of user contributions and in extreme cases privatization (Connolly, 2004; Qamar, 2002). User-financed contributions towards extension delivery also make the service more demand-driven, improve accountability, and empower users (Neuchatel Group, 2002).

2. METHODOLOGY

This paper reports on a study conducted in three of four districts of the Free State Province, South Africa, involving medium-scale commercial crop farmers¹⁰ and field-level, public extension workers. Due to the lack of a reliable sampling frame, convenience and purposive sampling techniques were employed to survey respondents. A semi-structured, pre-tested, self-administered questionnaire was used to collect information from 97 farmer respondents between 1 September and 7 October 2010.

¹⁰ After careful study of the literature, the small/medium-scale farmer definition adopted for this study was: "farmers who produce mainly for the market and land redistribution for agricultural development (LRAD) beneficiaries who may have their own consumption and the market in view as the ultimate purpose of production".

In addition to other information, the farmer questionnaire asked respondents to indicate the channels through which they received information/service for farm management decisions in the last three years preceding the survey and to indicate their willingness to pay for more visits by the public extension agent. The reliability of the measuring instrument was assessed for Information Source Index produced a Cronbach alpha value of .770. The data were analysed using the software, Statistical Package for Social Science (SPSS) version 18. The main analysis of data comprised descriptive statistics.

3. FINDINGS AND DISCUSSION

It is generally accepted that extension workers use a channel or a combination of channels to send messages/information to recipients. This study investigated a number of extension communication channels through which farmers received farm management messages/services/information. The aim was to find out the dominant channel(s) through which information/services are received and the willingness of users to contribute financially to support an increased number of extension visits. The findings are presented in this paper.

3.1 Production information channels

Respondents were asked to indicate the most important channel through which they received information about farm production decision activities such as seed cultivar choice for the farmers' environment/climate, soil sampling, testing and fertilizer recommendations etc. The results are presented in Table 1.

TABLE 1: DISTRIBUTION OF RESPONDENTS' MOST IMPORTANT INFORMATION CHANNELS FOR PRODUCTION DECISION MAKING (N=97)

| CHANNEL | Respondent's per production activity category | | | | | | | | | | | | | | | |
|-----------------------|---|-------------|---------------|-------------|---------------|-------------|-------------------------|-------------|---------------------------|-------------|-------------------|-------------|----------------------|-------------|-------------------------------|-------------|
| | Seed cultivar choice | | Soil sampling | | Planting date | | Land preparation issues | | Pests and disease Control | | Irrigation Issues | | Crop rotation issues | | Return on per hectare of land | |
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % |
| Farm/home visits | 65 | 67.0 | 64 | 66.0 | 46 | 47.4 | 39 | 40.2 | 59 | 60.8 | 40 | 41.2 | 36 | 37.1 | 29 | 29.9 |
| Group discussion | 3 | 3.1 | 0 | 0.0 | 1 | 1.0 | 2 | 2.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 2 | 2.1 |
| Training classes | 5 | 5.2 | 2 | 2.1 | 23 | 23.7 | 14 | 14.4 | 21 | 21.6 | 13 | 13.4 | 15 | 15.5 | 13 | 13.4 |
| Television | 0 | 0.0 | 2 | 2.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Agricultural Journals | 0 | 0.0 | 1 | 1.0 | 3 | 3.1 | 0 | 0.0 | 1 | 1.0 | 1 | 1.0 | 1 | 1.0 | 0 | 0.0 |
| Leaflets | 0 | 0.0 | 0 | 0.0 | 1 | 1.0 | 0 | 0.0 | 1 | 1.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Seminars | 0 | 0.0 | 0 | 0.0 | 1 | 1.0 | 1 | 1.0 | 1 | 1.0 | 1 | 1.0 | 2 | 2.1 | 1 | 1.0 |
| Farmers' Days | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 1 | 1.0 | 2 | 2.1 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Method Demonstration | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4 | 4.1 | 0 | 0.0 | 0 | 0.0 |

The results (Table 1) show that the two most important channels through which most respondents received production information on most activities investigated were farm visits followed by group methods (e.g. training classes). The individual farm visits are expensive but in the context of this study, because most of the farmers operated in groups, the cost of this method per farmer is relatively low. Farmer payment for the extension visit by the group, therefore, makes it affordable for the individuals in the group. Furthermore, the training classes' method is also cost-effective since the information was passed on to many farmers at the same time in groups. Yapa and Ariyawardana (2005:78) similarly found that training classes were second to seminars as the most important channel through which respondents received information

The most consistent and ubiquitous finding in the literature on the success of knowledge dissemination activities is the primacy of personal contact/interaction (Buyinza et al., 2008:11; Hoag, 2005:11; Wilson and Gallup, 1955 citing Wilson, 1926; Research Utilization Support and Help (RUSH), 1996 citing Crandall, 1989:95; David, 1991: 292, Felker, 1984:37, Fullan, 1991: 53, Peterson, 1983: 243, Huberman, 1990: 365, Hutchison, 1995: 100). Hence for the group of farmers in this study, an increase in the number of extension visits could improve the rate of adoption of recommended practices.

3.2 Financial information channels

Farmer respondents were asked to indicate the most important channel through which they received information related to the following financial issues: preparation of financial

statements, preparation of farm budgets, where to obtain funds/credit. The results are presented in Table 2

TABLE 2: DISTRIBUTIONS OF RESPONDENTS' MOST IMPORTANT CHANNELS OF INFORMATION FOR FINANCIAL DECISION MAKING (N=97)

| CHANNEL | Respondents per financial activity category | | | | | |
|------------------|---|-------------|------------------------|-------------|-----------------------------|-------------|
| | Preparation of financial statements | | Where to obtain credit | | Preparation of farm Budgets | |
| | n | % | n | % | n | % |
| Farm/home visits | 28 | 28.9 | 20 | 20.6 | 30 | 30.9 |
| Office calls | 3 | 3.1 | 0 | 0.0 | 3 | 3.1 |
| Training classes | 34 | 35.1 | 27 | 27.8 | 30 | 30.9 |

As was the case for farm production information, most respondents in the survey received financial information on all three activities investigated through training classes followed by farm visits (Table 2). As explained earlier, this is a cost-effective method of reaching this group of farmers. This group operation makes payment for the extension visits affordable for individual farmers in the group. Again, this finding is significant for the adoption of recommended farm innovations and, as was mentioned in section 3.1, increased numbers of public extension visits are needed to secure more adoption of farm management innovations recommended by extension workers.

3.3 Marketing information channels

The marketing issues to which farmers were asked to show the channels through which they received information include farm produce quality, where/when to sell produce and supply and demand issues of produce. The results are presented in Table 3.

TABLE 3: DISTRIBUTION OF RESPONDENTS' MOST IMPORTANT CHANNELS OF INFORMATION FOR MARKETING DECISION MAKING (N=97)

| CHANNEL | Respondents per marketing activity category | | | | | |
|------------------|---|-------------|-------------------------------------|-------------|------------------------|-------------|
| | Where/when to buy inputs and sell produce | | Supply and demand issues of produce | | Produce quality issues | |
| | n | % | n | % | n | % |
| Farm/home visits | 24 | 24.7 | 22 | 22.7 | 21 | 21.6 |
| Office calls | 1 | 1.0 | 0 | 0.0 | 0 | 0.0 |
| Training classes | 29 | 29.9 | 14 | 14.4 | 11 | 11.3 |
| Group discussion | 0 | 0.0 | 2 | 2.1 | 1 | 1.0 |
| Agric. journals | 0 | 0.0 | 0 | 0.0 | 1 | 1.0 |
| Farmers' days | 0 | 0.0 | 0 | 0.0 | 2 | 2.1 |

Training classes followed farm visits by extension officers were the two most important channels through which respondents received marketing information (Table 3). For the same reasons as was mentioned in sections 3.1 and 3.2, it is necessary to increase the number of public extension visits to secure adoption marketing technologies in this regard. Similarly, it could also be said that a third channel in addition to farm visits and training classes would increase the adoption of farm marketing innovations being promoted by the public extension service.

3.4 Environmental/legal decision information channels

Respondents were surveyed on the channels through which they received information about soil, water and air pollution issues as well as farm labour issues. The results are presented in Table 4.

The results (Table 4) show that group methods (training classes) followed by farm visits were the two most important channels through which most respondents received environmental/legal information.

TABLE 4: DISTRIBUTIONS OF RESPONDENTS' MOST IMPORTANT CHANNELS OF INFORMATION FOR ENVIRONMENTAL/LEGAL DECISION MAKING, (N=97)

| CHANNEL | Respondents per environmental/legal activity category | | | |
|------------------|---|-------------|--------------------|-------------|
| | Soil, water and air pollution | | Farm labour issues | |
| | n | % | n | % |
| Farm/home visits | 18 | 18.6 | 12 | 12.4 |
| Training classes | 19 | 19.6 | 38 | 39.2 |
| Group discussion | 1 | 1.0 | 2 | 2.1 |
| Radio reports | 0 | 0.0 | 4 | 4.1 |

This finding once again shows that it is possible to solicit farmers' contribution to deliver extension visits to help improve the financial sustainability issues of the public extension service since visits are an important channel through which farmers receive information/services. The group delivery makes it affordable for members in the group to pay for the extension visits because the cost is shared among them.

3.5 Payment for public extension visits

It is generally accepted that information plays a critical role in decision making. Poor access to marketing information was found to be barrier confronting small-holder dairy producers in Ethiopia (Holloway and Ehui (2001). Agricultural extension plays an important role in disseminating information on the latest farm management technologies. It is, therefore, expected that farmers would be content to make monetary investments (e.g. contributions towards cost of public extension visits) to ensure that they receive their desired number of contacts over and above the one to two visits per annum usually provided free of charge by the public extension service. Improved levels of visits would enable them to secure more farm management information/service (assuming that credible information is transferred). Increased visitation by extension agents is known to increase the effective price received by farmers/net return for production or value of crop production (Holloway and Ehui, 2001:766;

This analysis of the situation was investigated by asking farmers to state their willingness to pay for more public extension visits. The results are presented in Table 5.

TABLE 5: DISTRIBUTION OF RESPONDENTS AND THEIR DECISIONS TO PAY FOR THE DELIVERY OF PUBLIC EXTENSION ACCORDING TO THEIR DESIRED NUMBER OF EXTENSION VISITS (N=97)

| Decision to pay | Desired number of visits per month | | | | | | | | | | | |
|-----------------|------------------------------------|-------|---|-------|----|-------|----|-------|---|-------|-------|-------|
| | 1 | | 2 | | 3 | | 4 | | 5 | | Total | |
| | n | % | n | % | n | % | n | % | n | % | N | % |
| No | 12 | 66.7 | 1 | 16.7 | 2 | 10.5 | 15 | 30.0 | 0 | 0.0 | 30 | 30.9 |
| Yes | 6 | 33.9 | 5 | 83.3 | 17 | 89.5 | 35 | 70.0 | 4 | 100.0 | 67 | 69.1 |
| Total | 18 | 100.0 | 6 | 100.0 | 19 | 100.0 | 50 | 100.0 | 4 | 100.0 | 97 | 100.0 |

The results presented (Table 5) confirm and support the study hypothesis of a positive relationship between the number of visits desired by farmers and their willingness to contribute towards/pay for the delivery of more public extension visits. This is indicated by a significant chi-square value test for independence at 1 percent level $p = .002$.

Data from Table 5 show that of the total number of farmers who desired one visit per month (18), 66.7 % did not wish to pay for visits. As many as 30 % of the farmers (50) who desire to receive four visits per month from their extension officer do not wish to pay. This response is perhaps due to the current prevailing feeling in the country among mostly the black community that the government ought to provide free services to its citizens including black farmers.

On the other hand, of the farmers who wished to receive between 2 and 4 visits per month, with a mean of 3.16 visits per month ($SD=1.213$), most farmers (70-83.3 %) wanted to pay for the delivery of more public extension visits. The mean number of visits reported here is close to the designated visits of one every two weeks (or 2 visits per month) in the Kenya extension project (Gautam, 2000:18) and similar to the 2 visits per month requested by livestock farmers in Turkey (Budak, Budak & Kaçira 2010:1190).

The finding that farmers were willing to pay for more extension visits agrees with farmer-respondents' views in a more direct question regarding the overall effect of public extension visits on improvement in farm production efficiency and management practices. As many as 67.0% of respondents agreed or completely agreed that visits from the public extension officers improved their production efficiency (yields, profit) and management practices (Table 6).

TABLE 6: DISTRIBUTIONS OF RESPONDENTS' VIEWS ON THE EFFECT OF PUBLIC EXTENSION VISITS ON PRODUCTION EFFICIENCY, MANAGEMENT PRACTICE IMPROVEMENT (N=97)

| Opinion | N | Total |
|---------------------|----|-------|
| Completely disagree | 1 | 1.0 |
| Disagree | 2 | 2.1 |
| Partially agree | 29 | 29.9 |
| Agree | 28 | 28.9 |
| Completely agree | 37 | 38.1 |

Farmers' financial contribution (R) for more public extension visits was investigated and the findings are summarised in Table 7.

According to Table 7, of the number of respondents (60) willing to make financial contributions, 29.4 -79.6% of such respondents were prepared to pay between R2 - R5, either on per hour or kilometre basis.

TABLE 7: DISTRIBUTIONS OF RESPONDENTS AND THE AMOUNT OF MONEY COMMITMENT TOWARDS PAYMENT FOR PUBLIC EXTENSION VISITS (N=97)

| Amount (R) | Respondents per charge area | | | | | |
|------------|-----------------------------|------|-----------|------|---------------------|-----|
| | Hour | | Kilometre | | Kilometre plus hour | |
| | n | % | n | % | n | % |
| 0.5 – 1.5 | 20 | 40.0 | 28 | 56.0 | 2 | 4.0 |
| 2.0 – 5.0 | 12 | 79.6 | 5 | 29.4 | - | - |

4. SUMMARY AND CONCLUSION

The general picture that emerges from the study shows that the dominant channel through which farmers in the study received farm management information/services was through the public extension agents' visits. Many farmers are also prepared to pay to receive more/desired number of public extension visits, thus confirming the study hypothesis.

This finding is significant in that, unlike most previous studies which looked at extension channels through which farmers received information, the present investigation shows empirically that charging for a channel such as extension farm visits could be a source of funds for greater/more intense extension service delivery. It could, therefore, be concluded that charging for extension visits might be explored further by the public extension service as a potential source of funds to augment treasury allocations. This money could be used to provide more visits to farmers who opt to pay, and therefore, help mitigate some of the some of the financial problems facing the public extension service and contribute towards its financial sustainability.

The non-probability approach adopted for this study limits the wider application of the findings; there is, therefore, need for replication in similar environments.

To accelerate the adoption of farm production, financial, marketing and legal/environmental innovations promoted by the public extension services, there is need to expose most respondents to multiple channels; in this case at least to a third channel in addition to farm visits and training classes (Ostreicht, 2010:10 citing Seschrest et al., 1994; Wilson and Gallup, 1955).

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