

Full Length Research Paper

Agricultural extension delivery in Ghana: A case study of factors affecting it in Ashanti, Eastern and Northern regions of Ghana

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The agricultural sector in the developing world is changing rapidly and is driven by a number of factors. The sector also faces a number of challenges which are ever increasing and becoming more complex. These consequently place enormous demands on extension services which have a crucial role to play in promoting agricultural innovation to keep pace with the changing context, and improve livelihoods of the dependent poor have also increased significantly. Ghana's agricultural sector has not seen any major improvement over the years: The main reasons behind this are small farm sizes and inefficient farm management. One of the most important tools to resolve these problems is the extension service. The aim of the study was to find out the factors that affect extension delivery in Ghana. The study involved using questionnaire administered to 105 respondents made up of Research Scientists Technical Officers and Extension agents. The study reveals that there was a need to actively involve farmers in the extension delivery, also extension agents need to have the required competence to enable them deliver on their given roles as far as agricultural development is concerned.

Key words: Extension delivery, agricultural innovation, improves livelihood, extension agents, farmers.

INTRODUCTION

The development and dissemination of the right information at the appropriate time among farmers is key to providing change in agriculture and this is the function extension education purports to provide. Apart from this central role of disseminating useful, and practical information in agriculture to farmers, extension education fulfills two other educational purposes in making farmers accept and adopt relevant change.

According to Bown and Okedara (1981) agricultural extension education enables the farmer and his family to develop knowledge, skills and favourable attitudes which empower them, "to benefit from research and technology with the ultimate aim of raising their efficiency and achieving higher levels of living". In terms of using such knowledge, it could be said that, extension education provides the opportunity for farmers to learn and use the practical knowledge in solving the problems they face in their daily activities.

It is important to note that, change in whatever field one

is engaged in, is more easily accepted when one recognizes and appreciates the reasons for the change. Extension therefore, could be described as the primary process through which the farmers can learn about the reasons for change, the values of change, the results that can be achieved and the uncertainties inherent in change.

Fiagbey (1994) in discussing the role of the contact farmer in the extension system stated that most often, farmers are afraid of changing from their traditional practices because of the lack of alternatives ways of doing their work. Agricultural extension education provides the medium through which they become aware of these alternatives and to chose from the most desirable as well as the different methods available for carrying out their farming activities. Works by Agricultural Research Institutions such as the International Institute for Tropical Agriculture, (IITA) Ibadan, and Council for Scientific and Industrial Research (CSIR), for example,

have led to the production of high yielding varieties of crops such as oil palm, maize, cowpeas, cassava and yams. They have also developed the most efficient methods of cultivating these crops. But the farmer cannot benefit from these research results if the information, the newly developed knowledge or technique is not made available in the area of the operations of the farmer using the appropriate channels.

To sum up, Maunder described extension as: a system of service which assists farm people through educational procedures, in improving farming methods and techniques, increasing production efficiency and income, bettering their levels of living, and lifting the social and educational standard of rural life.

The role extension activities play in Ghana's agriculture cannot be overemphasized. In the presentation of 2006 budget, the then Minister for Finance and Economic Planning Kwadwo Baah Wiredu conceded the inadequacy of funds allocated to extension services in Ghana and therefore recommended the channeling of adequate resources to the sector in order to overcome many challenges facing the agriculture sector. On his part, Kwabena Duffour, Minister for Finance and Economic Planning in the presentation of the government's 2009 budget statement, corroborated Baah Wiredu's position by stating that government considered agriculture as Ghana's greatest strength and critical for the country's industrial growth. He therefore announced government's plans to ensure food security, improve incomes, sustain land and environmental management, and improve extension service delivery and irrigation as well as other sub-sectors (Duffour, 2009).

Effective dissemination of agricultural technologies is crucial in agricultural development, especially the role played by extension agents. The effective dissemination of innovative technologies requires measures which ensure that extension agents acquire the needed competencies to improve their effectiveness. A study conducted by Gholamreza (1993) suggested that almost all the professional competencies should be learned or developed after extension agents are employed. This will require an articulated continuing education programme which addresses the specific professional needs of agents. Need assessment of this kind serves as a tool that minimizes risk and portrays the picture needed by programme planners to ensure its relevance (Okorley et al., 2002). Apart from the facts above, there is the need to ensure that technology transfer is accorded the needed attention. This is because technology transfer or dissemination has been identified as the weakest link in most National Agriculture Research Systems (NARS).

A research carried out by Ngomane (2003) reviewing the World Bank and USAID activities in Africa identified research extension linkages as a limitation on realizing the benefits of research. Although agricultural technologies have and continue to derive great benefits for the private sector, public sector research and technology

transfer institutions have in the past failed to provide research output and technologies that meet the user needs. This research extension linkage remains a critical area of concern to the small holder clientele in many developing countries.

This poor communication between researcher and end-user was noted as an impediment to efficient research and development in the National Agricultural Research Strategy Plan (NARSP, 1994), and the Agricultural Services Sector Investment Programme (AgSSIP, 1998-2000). The Research-Extension Liaison Committees (RELCs) were established under the National Agricultural Extension Project (NAEP) to try to bridge this gap. However, again, inadequate funding for RELCs is given by the members as the reason they appear to have little real influence (Kenyon and Fowler, 2000).

The focus of the study was to find out the factors that affect extension delivery in Ashanti, Eastern and Northern regions of Ghana.

MATERIALS AND METHODS

The sample frame consisted of one hundred and five respondents comprised of Research Scientists and Technical Officers from three CSIR Institutes made up of Crop Research Institute, Savannah Agricultural Research Institute and Oil Palm Research Institute and Extension agents Ministry of Food and Agriculture in Ashanti, Eastern and Northern regions of Ghana. Eighty five respondents (55 research Scientists, 30 Technical Officers) were randomly selected for the study. The Research Scientist (Plant Breeders and Agronomists) and the Technical Staff were involved in information dissemination activities. Additionally 20 Extension Agents were also randomly selected for the study.

Questionnaires were sent personally by the researcher to solicit responses from the respondents. The questionnaire for respondents was mostly closed ended items with very few open ended questions.

RESULTS AND DISCUSSION

Generally, Scientists, Technical Officers and extension agents involved in dissemination of farming technologies faced four main challenges including lack of funds, perception that the technology developed is expensive to adopt, the level of training of extension agents and low involvement of farmers in dissemination issues (Table 1).

The main challenges facing CSIR in terms of dissemination of farming technologies were perception that the technology is expensive to adopt, training of extension agents, unwillingness of farmers to accept the technology and inadequate funding. The result of the survey indicated that farmer's perception of the technology affect the adoption rate. This is because when farmers perceive that the technology lacks some traits associated with the traditional ones, they find it difficult to adopt. Van de Ban Hawkin (1988) defines perception as the process by which we receive information or stimuli from the environment and transform it into psychological

Table 1. Challenges faced in the dissemination of farming technologies developed.

Challenges	Frequency	Percentage
Lack of funds	48	87
Low involvement of farmers	35	64
Farmers educational level	14	25
Training of extension agents	38	69
Farmers perception on the technology	40	73
Inadequate funds	3	5
Total	178	323

Total exceeds 105 and 100% due to multiple responses.

awareness. Decision making model of Norton and Mumford (1983) shows that, on the basis of perception of the problem, a farmer assesses expected outcomes. The farmer's choice of action (decision) will depend on his evaluation and all outcomes, in terms of his own personal perspectives. Chilonda and Huylenbroeck (2001) summed it up that "farmers attitude determine adoption of new technologies, attitudes are evaluative responses towards the technology, and are formed as farmers gain information about it". Therefore, it is important to know how farmers perceived the technologies for better understanding of their choice in the decision of adoption or not.

The unwillingness of the farmers to adopt some technologies is as result of unattractiveness of some of the technologies. A typical example is incomplete husk cover of *obatanpa*, which makes the maize variety unattractive.

The posture of some extension agents is a disincentive to effective dissemination of farming technology; the study revealed that there was an impression that the farmer is illiterate and must accept everything from the extension agents. As a result farmers refuse to adopt the technology simply because they perceived that they are not respected.

Adequate consultation with and involvement of farmers in the initial planning and development of technologies are essential to the effective dissemination and adoption of farming technologies. According to the respondents pre-evaluation is a stage whereby farmers' views are solicited on how best the technology could be disseminated before the formal introduction of the technology. However, the respondents concede that the level involvement is needed to be strengthened. As noted by Kenyon and Fowler (2000), there is poor communication between the researcher and end-user (farmers) which was identified in 1994 National Agriculture Research Strategy and the 1998-2000 Agriculture Services Sector Investment Programme as an impediment to efficient research and development.

The knowledge and experience of the farmers play a vital role in the dissemination and adoption of new technologies. Cohen and Levinthal (2000) stated in the theory of absorptive capacity that, there is the need for

willingness on the part of scientists to incorporate farmer's local innovations into their research activities and also the local farmers should be willing to share their local knowledge. This would help make dissemination of technologies easier which would increase adoption rate.

Deshler and Merrill (1995) emphasized that both research and extension service providers must take on new roles as educators, as facilitators, and as builders of community coalitions using as a reference point proven successes of traditional knowledge, local institutional resources and political commitment. The importance of harnessing local knowledge into policy, into programme design, and implementation cannot be overemphasized; inherent to such an orientation is an increased likelihood of bringing communities and researchers into a closer, more meaningful and relevant partnership which will result in practical research for social change.

To buttress the points espoused by Desher and Merrill (1995), it is generally accepted that the use of new strategies in technology development and transfer not only incorporates the collective views of all key players, but it increases the likelihood that research findings will be accepted as community ownership.

From the points raised above it is clear that there is the need to actively involve farmers and also incorporate traditional knowledge in the planning and dissemination of farming technologies. Ngo Chi and Yamada (2002) pointed out that the personal characteristics of the extension worker such as credibility, good relationship with farmers, intelligence, emphatic ability, sincerity, and resourcefulness, ability to communicate with farmers, persuasiveness and development orientation are key to effective dissemination and adoption of new farming technologies.

It also revealed by Kenyon and Fowler (2000) that the Research Extension Liaison Committee (RELC) established under the National Agriculture Extension Project (NAEP) aimed at bridging the gap between the researcher and the end-user is under resourced thereby making it difficult for it to achieve its desired goals. This confirms one of the issues raised by respondents of this study that inadequate funding is a key drawback to dissemination of farming technologies. There is the need for staff to involve in extension delivery to have appropriate

Table 2. Attendance of adult education course.

Assumptions	Frequency	Percentage
Yes	20	19
No	85	81
Total	105	100

Table 3. Visit to farmers after the introduction of farming technology.

Visit	Frequency	Percentage
Very often (fortnightly)	10	18
Often (once a month)	25	46
Occasionally irregular	20	36
Never	0	0
Total	55	100

appropriate knowledge in adult education practice.

Out of 105 respondents only 20 (Table 2) have had the opportunity to attend short courses in adult education. Adult education plays a very important role in effective dissemination and adoption of farming technologies. This is because the teaching techniques in the formal education are different from the non-formal system.

The traditional extension system has a long and distinguished history of non-formal education focused on enhancing the well being of individuals, families and communities. It is therefore imperative for persons involved in extension activities are well endowed in techniques of transferring the findings of agricultural research to farmers.

Van Der Veen (2000) and Loevinsohn et al. (2000) described three principal learning theory approaches and their relevance to the adoption of farming technologies. The first approach is termed reproductive learning which involves breaking down the subject matter into its essential elements. For example researchers and extension workers demonstrate to farmers how to apply specific practice or technical options through the distribution of pamphlets, training and or on- station demonstration.

There is also the constructivist learning which advocates for learning in collaborative forms of participatory research. The theory is summed up in the following words "theory and practice are not viewed as separate moments, but rather as inseparable aspects of a single practice and theory is a powerful change agent.

The third learning approach is transformative learning. In this approach, 'learners' build more integrated or inclusive perspective of the world. Through the learning process, they jointly transform some part of their worldview for example their understanding of social relations in their own community (Vernooy and McDougal, 2003).

Researchers and extension officers' appreciation and

the use of three learning theories will go a long way to help them come out with effective teaching methods that will bring about effective dissemination and adoption of new farming technologies. The few respondents who have had some knowledge in Adult Education maintained that such knowledge helps them to select effective methods of dissemination and identify some special needs of the farmers. The results of the survey revealed that generally visits to farmers after the introduction of the farming technology is not regular. In assessing the Adoption and impacts of improved maize production technology: A case study of Ghana Grains Development Project Morris et al. (1999) concluded that several improved maize technologies have been developed and released to farmers. Among them are *Dobidi*, *Okomasa*, and *Obtanpa* which are superior maize varieties to the traditional ones in term of grain yield. There has not been any follow up to investigate the extent to which farmers have adopted the varieties.

Training and visits is one of the extension systems promoted by the World Bank in the 1970's which chalked apparent successes in some countries. However, one of the shortfalls of the Training and visit is that it was essentially a supply-driven and top-down system, promoting agricultural messages that had been designed and developed by research scientist, with limited input from the technology user (farmers). Despite the shortfall, Thompson (2002) affirmed that research should also seek to obtain direct feedback from the field itself, through field visits undertaken by research scientists, preferably accompanied by extension workers. Farmers should also have the opportunity to present and to directly pose specific problems to both research and extension. In effect farmers require regular visits to help them adopt technology holistically. Arene (1994) reported that farmers complained about the lack of regular or meaningful contact. In addition when the agent contacted the farmers, the duration of the visit was too brief to allow for meaningful exchange of ideas and understanding. The conclusion of most farmers was that many extension agents seemed uninterested in their problems which are exhibited by the limited one sided communication and insensitivity to the farmer's needs.

The study revealed that only 18% of the respondents paid regular visits (fortnightly) to farmers after the introduction of farming technology. This confirms farmers' assertions that irregular visits or no meaningful contacts were factors that were imparting negatively on the extension activities in the country (Table 3).

Conclusion

The result of the study indicated that there were many problems bedeviled the extension of agricultural information to users (farmers). These problems ranged from perception that the technology is expensive to basic competence of extension agents. There is the urgent

need to address these problems to help farmers to have the right information and the needed competencies to boost agriculture production. The need to overhaul the current extension system is crucial to enhancing effective extension of agricultural technologies to increase productivity.

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