



THE IMPACT OF MASTER FARMER TRAINING SCHEME ON CROP PRODUCTIVITY OF COMMUNAL FARMERS IN GUTU DISTRICT

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(Received on: 19-02-12; Accepted on: 13-03-12)

ABSTRACT

A study was conducted in Gutu district's wards 2, 8, 17, 23 and 37 to determine what impact the Master Farmer Training Scheme, a tool in Zimbabwe's agricultural extension has on productivity and livelihoods of communal farmers. It also sought to explore the relevance of the training method to Zimbabwe's current agricultural landscape and reasons for low adoption of farming methods learnt during Master Farmer Training. A total of 300 structured questionnaires were distributed in 5 wards selected by simple random sampling. Data collected was on farm management practices, major crop yields, access to and availability of inputs, extension workers' qualifications and experience and socio-demographic information. The survey revealed that there was a general decrease in maize output between 2005/6 and 2006/7 seasons and there was a statistically significant difference in maize production between the 2006/7 and 2007/8 seasons for both trained and untrained farmers. A yield comparison of three major crops grown in 2007-08 season show no significant differences between the trained and untrained farmers. Out of the 278 farmers 8.73% trained and 4.67% untrained farmers keep records. Planning and budgeting is done by 8.52% and 4.56% of the trained farmers respectively compared to 7.91% and 3.34% of untrained farmers. The differences between trained and untrained were in both cases not statistically significant. 6% of trained farmers have conservation works and practice moisture conservation techniques on their fields. 73% of extension agents are 18-month-certificate holders, whilst 2-year-certificate holders constitute 8% of the workforce. Diploma holders constitute 6% and of the extension workforce in Gutu district only 13% of the extension agents have undergone in-service training to enhance their performance. The study reveals that despite the commitment of time, resources and manpower to the Master Farmer Training, the scheme does not have any impact on crop productivity neither does it change the farming system of individual farmers. There is therefore need to revise the Master Farmer Training policy, principles and objectives with a view to overhaul the whole scheme or conduct a re-alignment exercise in order for it to suit the current agricultural dispensation.

Keywords: farmer training; communal areas; crop productivity; agricultural extension

INTRODUCTION

Agricultural extension plays an important catalytic role in agricultural and rural development. It brings the farming community information and new technologies that can be adopted to improve production, incomes and standards of living. Agricultural extension provides a channel through which farmers' problems can be identified for research and for the modification of agricultural policies to the benefit of rural communities (Hanyani-Mlambo, 2002). The development of agricultural extension in Zimbabwe revolves around Emory Alvord (1923-1951); an American missionary when he was appointed the first Agriculturalist for Tribal Trust Lands. Alvord introduced Agricultural extension in 1927, starting off with eleven agricultural demonstration workers. It was these efforts that later saw the birth of the Department of Conservation and Extension (CONEX) and the Department of Agricultural Development (DEVAG) in 1980. CONEX had the institutional mandate to provide advisory services to white Large Scale Commercial farmers while DEVAG was meant to service native Smallholder Farming communities. At independence in 1980, the Department of Agricultural Technical and Extension Services (AGRITEX) was formed as an amalgamation of CONEX and DEVAG (Hanyani-Mlambo, 2002).

Agritex faced serious problems in the early days due to loss of experienced staff between 1981-85. Resultantly institutional memory and technical expertise in dealing with farmers were lost as new staff with limited practical knowledge of dealing with farmers and providing technical expertise took over. In addition Agritex was a product of two organisations with different philosophies and experiences having been dealing with farmers from different socio-economic backgrounds. This caused the new department to spend years trying to establish itself as a service for all farmers, especially smallholder farmers (Hanyani-Mlambo, 2002). The master farmer training scheme, a widely adopted extension approach was instituted with the primary

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objective of producing a critical mass of farmers after going through a series of training sessions over a period of 2-3 years (Pazvakavambwa *et al.*, 2006). Farmers are examined periodically either orally or through written examinations depending on their literacy levels for the Ordinary master Farmer (OMF) or Advanced Master Farmer Training Scheme (AMFTS). A more widely adopted approach was the Master Farmer Training Scheme which originated in the 1930s as a way of developing competent farmers (Chipika, 1983; Pazvakavambwa, 1994). These 1930s initiatives were focused on producing a cadre who would qualify to be settled in the former Small-Scale Purchase Areas, which was a pre-independence initiative to settle the elite trained Master Farmers. This faced challenges when the trained cadres outnumbered the number of Small Scale Farms available. This led to a dramatic change in focus of the scheme. In pre-independence Zimbabwe, most extension agents' efforts to improve smallholder agriculture followed this approach. The objective of master farmer training was to spread modern scientific farming techniques in communal areas. Master farmer certificates and badges were awarded to communal farmers who adopted and practised improved methods. The approach was based on the 'trickle-down' theory of extension in which a few progressive farmers receive extension and information which they are expected to pass-on to other farmers through farmer-to-farmer dissemination and demonstration. One of the successes of these schemes was the high adoption rate of very visible innovations such as hybrid maize (Hemmes and Vissers, 1985). However, the programme failed to produce notable yield increases in many African crops because the marketing of surplus crops was difficult (Hanyani-Mlambo, 2002).

After independence AGRITEX upgraded the master farmer training scheme to include the advanced master farmer training programme. In spite of accusations that the scheme benefits only the better of farmers, excluding the bulk of communal farmers and has little contact with other target groups, thereby actually increasing existing income differentials among social groups, it remains at the core of AGRITEX's work (Mutimba, 1997). Statistics revealed that AGRITEX has trained over 300000 master farmers and up to 50000 advanced master farmers throughout the country (Pazvakavambwa, *et al.*, 2006). By 1980, an association of master farmer clubs had been established in Masvingo Province to spearhead agricultural development. This was done to allow expert instructions not only regarding the proper methods of tillage but also the treatment and rotation of crops management and breeding of livestock (Mutimba, 1984). Master farmer training has been going on at an accelerated rate in Gutu district since 1980 such that to date about 7200 farmers hold both ordinary and advanced master farmer certificates in Gutu district out of 44560 cultivators (Mutengwa, 1997). That implies that over 16% of the households in Gutu have undergone this much revered agricultural training. Despite these developments and government's investment in training, performance records indicate that there is no commensurate improvement in agricultural output. It is this observation that prompted the investigators to conduct this study in pursuit of answering the following research questions:

- Is the master farmer training scheme having the intended impact on Agricultural productivity?
- Is the Master farmer training scheme still relevant to the current Agricultural landscape in Zimbabwe in its current form?
- What are the factors causing low adoption and implementation of skills amassed during the farmer trainings?

METHODOLOGY

Study Area

Gutu district falls under Zimbabwe's natural agro-ecological region III located at a latitude of 19° 40' S and longitude of 31° 20' E at an altitude of between 1360 – 1400m. The average annual rainfall is 650-800mm and mean annual temperatures of between 20-30°C. Soils are predominantly loose sandy loams with some pockets of heavy clays.

Sample size and sampling procedure

Simple random sampling technique was used to select 5 wards out of 43 wards in Gutu district in which to conduct the survey. At ward level systematic random sampling technique was used to select a sample of 60 households. Household selected were balanced in terms of the number of household with or without Master Farmer Training.

Data collection and analysis

Data was collected using questionnaires and interviews. A total of 300 questionnaires were distributed in wards 2; 8; 17; 23 and 37 of Gutu district. Of the 300 administered questionnaires 278 were completed, returned and used in this study. Twenty enumerators experienced in data collection, with an agricultural extension background were selected, trained and used in data collection. The questionnaire was pre-tested in order to familiarise both enumerators and respondents to the research tool as well as field testing of the same. The pre-test results were evaluated and requisite modifications were effected. Key informant interviews were conducted to attain in depth information about the agricultural activities in the study area. Key informants were ward councillors, village headmen, the district agricultural extension officer (DAEO Agritex) and extension supervisors. Data collected was on general farm management, major crop yields for the past three years (2005, 2006 and 2007), input availability and access, extension worker qualification/experience, rainfall data and general socio-demographical data. All responses were pre-coded. Data entry and analysis was done using SPSS (version 10). Cross tabulation was done to generate frequencies and Chi-square test was used for significance testing. Graphical and diagrammatic representation was done using MS Excel for easier information interpretation.

RESULTS AND DISCUSSION

Maize production in Gutu is generally low for a district where hybrid varieties were introduced a long time ago and also hosting a very large number of trained cultivators. Figure 1 below shows that there was a general decrease in maize output in Gutu district between 2005/6 and 2006/7 seasons. There was a significant ($P<0.05$) decrease in maize production between the 2006/7 and 2007/8 seasons for both trained and untrained farmers. Even though yields for trained farmers are numerically higher than those for the untrained the differences are not statistically significant. The significant ($P<0.05$) decrease in maize yields seen in 2007/8 season could probably have resulted from the political turmoil and economic meltdown experienced during that season. The political instability hampered farming operations as farmers were expected to spend a huge proportion of their time at political gatherings. Moreover the economic meltdown affected such things as inputs accessibility, acquisition and distribution, which could have impacted on the farmers' timeliness of planting and related operations. The numerical superiority posted by trained farmers over the untrained could be attributed to better record keeping and not superior cropping competence.

Yield comparisons of three major crops grown in 2007-08 season show no significant differences between the trained and untrained farmers. For maize and sweet potatoes trained farmers yields are numerically superior to those of the untrained farmers whilst the opposite is true for rapoko figure 2. The observed low yield in staple maize could be attributed to an unfavourable socio-economic and political environment that prevailed at the time. Moreover the compilation of yield figures from Gutu North and South into a common average tends to have a neutralising effect on the higher yields obtained in Gutu South by the low yielding drought prone Gutu North. Nevertheless the insignificant difference that so exists between trained and untrained farmers' yields for all the three major crops could suggest that they are using similar approaches in their farming operations indicating that the Master Farmer training did not manage to change their mindset and farming approach.

Farm management practices namely record keeping, budgeting and planning are practiced by very few farmers in Gutu district, trained and untrained alike. Figure 3 shows a significant difference in the number of trained and untrained farmers who practise record keeping, though their percentages remain very low at 8.73% and 4.67% respectively. Planning and budgeting is done by 8.52% and 4.56% of the trained farmers respectively compared to 7.91% and 3.34% of untrained farmers. The differences between trained and untrained were in both cases not statistically significant. The fact that less than 10% of the trained farmers practise farm management procedures points out that there is low adoption of the fundamentals taught during the Master Farmer training sessions. This scenario is particularly worrisome due to the fact that farm management is one of the four subjects that a farmer has to pass in order to be awarded the certificate or badge. The observed scenario could be a result of the fact that the trainers (extension workers) we have today are para-professionals who happen to have very little knowledge and experience of their subject areas. In most cases they are less knowledgeable than the farmers they are billed to train. Such a situation breeds lack of faith and confidence in the extension system leading to low adoption of the techniques preached by the extension agent. Also the extension worker to master farmer trainee ratio at inception was supposed to be 1:50 but nowadays one extension worker could be training up to 100 trainees. This scenario leads to compromised training procedures and supervision of the trainees and graduates of the scheme. In addition, the selection criteria spelt out in the Master Farmer Training policy document (Chikumbu, 1983) is no longer being followed. The observed trend in Gutu is that every farmer willing to undergo training is allowed in the programme. Such an approach has been seen to allow wrong calibre of farmers onto the scheme which ends up reducing the intended impacts of the training programme.

Of the surveyed farmers figure 4. shows that only 6% of the trained farmers have conservation works and practice moisture conservation techniques (potholing) on their pieces of land. Whilst the absence of conservation works may indicate lowered levels of skills implementation of the part of trained farmers, key informant interviews revealed that the farmer is not entirely at fault. Despite knowledge and willingness to put up conservation works, the calibre of extension agents at the farmers' disposal are not able to carry out such technically demanding operations as pegging. Furthermore pegging and conservation works have been shifted from Agritex to the Department of Engineering and Mechanisation which is also plagued by lack of requisitely trained and experienced staff, equipment, financial resources to fund operations and is very thin on the ground.

Figure 5 shows that the majority of the extension agents are 18 months certificate holders constituting 73%, 2 year certificate holders constitute 8% of the workforce whilst only 6% are diploma holders. Only 13% of the extension staff have had a chance to undergo in-service training to enhance their performance. The observed trend was chiefly a result of the massive brain drain that the country suffered during the 2005-09 period. The socio-economic pressures coupled with poor salaries saw a large number of experienced extension agents leaving their Agritex department in pursuit of better remunerating organisations outside Zimbabwe's borders. In order to quickly fill this void the Ministry of Agriculture devised shorter mass training programmes (at vocational training institutions) which have since churned out thousands of half-baked cadres now posing as extension workers in the rural wards. Worsening the situation is the unavailability of funds to take these cadres for in-service training as shown in figure 5. Furthermore, the majority of the extension workers are not motorized and have to walk to service centres which further restrict their inter-phasing with farmers.

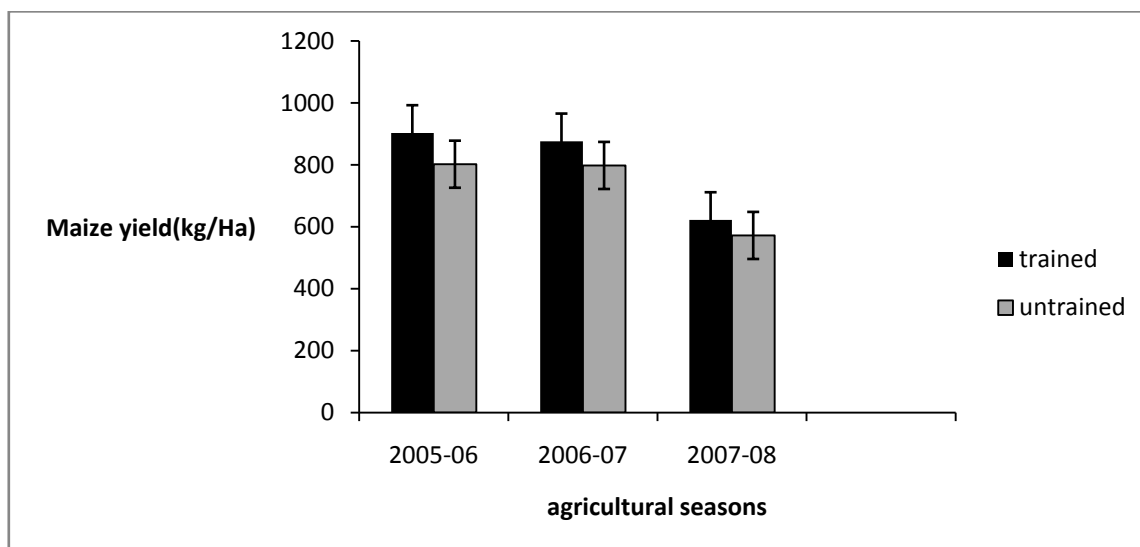


Fig.1: Maize yield comparisons Across seasons.



Fig.2: Yields comparison for maize, sweet potatoes and rapoko.

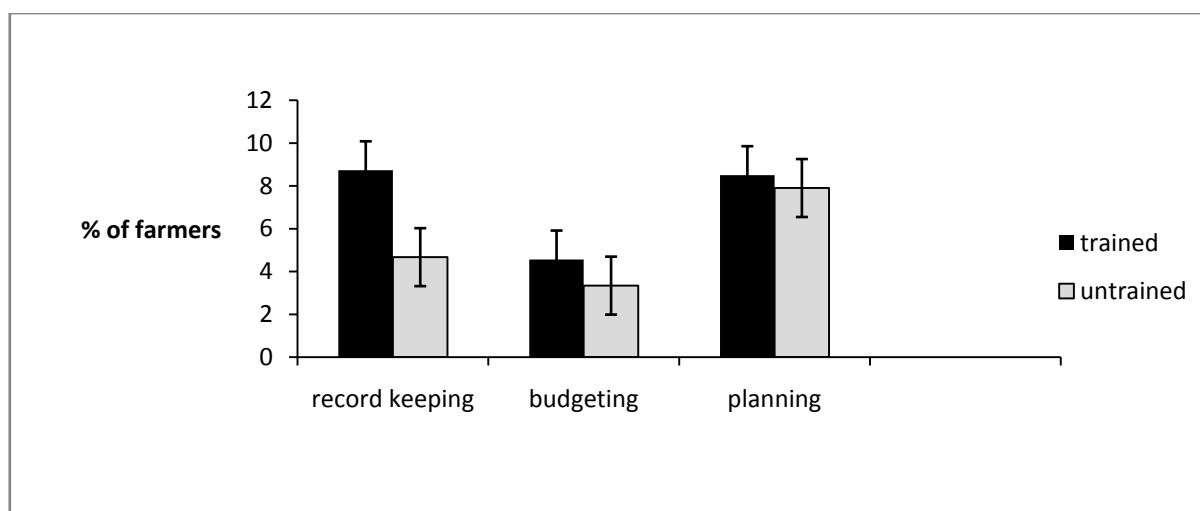


Fig. 3: Farm management practices.

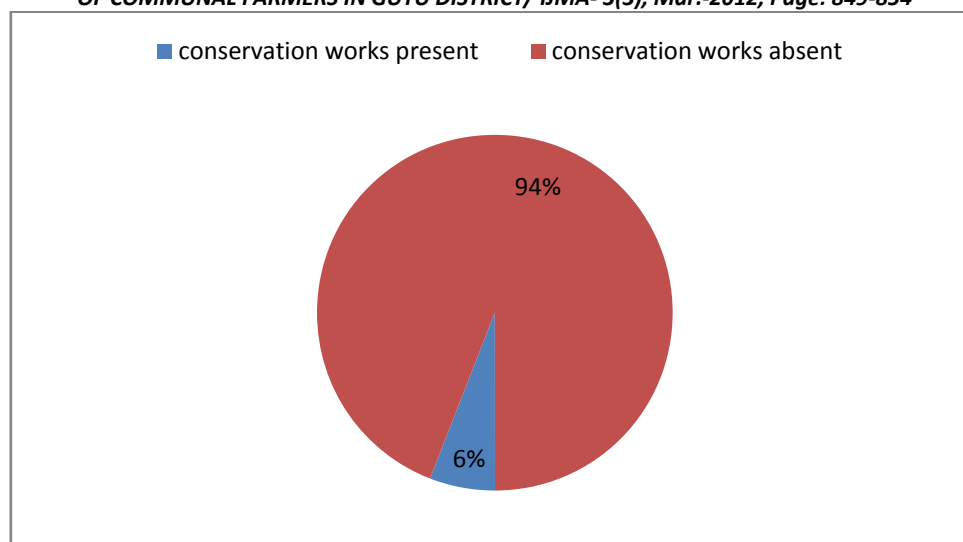


Fig.4: Trained farmers practising conservation works

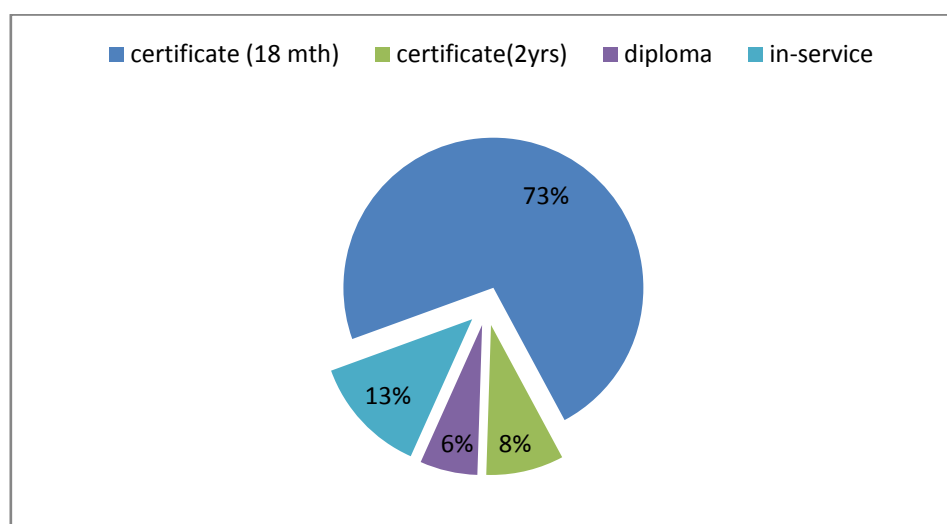


Fig.5: Extension Worker Qualification and Training

CONCLUSIONS

The study reveals that despite all the commitment of time, resources and manpower to master farmer training, it is not bringing the desired impact on the ground. This fact is clearly demonstrated by the poor yields for trained and untrained farmers alike as well as low adoption and implementation of farming practices and techniques amassed during the master farmer training sessions.

RECOMMENDATIONS

Drawing from the findings of this study we can recommend the following:

- Revisiting of the master farmer training policy, principles and objectives and see how these could be achieved in turbulent environments.
- Re-alignment of the training scheme to suit the current agricultural dispensation
- Accord the extension agents to undergo rigorous in-service training to impart requisite skills so as to boost both confidence and competence
- Avail funding in form of small start-up grants/loans to master farmer graduates in order to boost productivity
- Reduce the number of farmers served by one extension worker in order to increase effectiveness of training and supervision.
- Retraining of the half-baked extension workers who are to be the majority in Zimbabwe's extension services today.

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