

Training and Visit Extension Program Outcomes in Ninia Governorate, Egypt

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The Training and Visit (T&V) approach was introduced by Benor and Harrison (1977). In this approach to extension services, the village extension agents (VEAs) are expected to focus their entire efforts on providing farmers with timely and relevant technical advice, and not become involved in the distribution and management of inputs or credits. They work with contact farmers or farmer groups and follow a regular calendar, alternating visits every two weeks to contact farmers or groups. The farmers or groups participate in training sessions held by technical subject matter specialists. The selected contact farmers are trained extensively on current and most needed farm practices on the condition that they agree to demonstrate and explain what they have learned to 10 to 15 fellow farmers, as Roling (1988) called them. The T&V system illustrates how many communication strategies can and must be built into an effective program for providing education to small farmers (Benor and Harrison, 1977; Benor and Baxter, 1984; and Benor, Harrison, and Baxter, 1984).

According to Benor and Harrison (1977) the Training and Visit system of agricultural extension has helped increase agricultural productivity in several areas. In the Seyhan project in Turkey, farmers increased cotton yields from 1.7 tons to over 3 tons per hectare in three years. In Chambal, Rajasthan (India), farmers increased paddy yields from about 2.1 tons to 3 tons per hectare in two years. Combined irrigated and nonirrigated wheat yield in Chalmal, Madhya Pradesh (India), rose from 1.3 tons to nearly 2 tons per hectare after one season and have since risen higher.

Murphy and Marchant (1988) agreed with Benor (1987) that the T&V approach was in effect in at least 40 countries throughout the world in 1986. They stated that changes in production levels resulting from extension activities could not be measured in most situations that depended on natural rainfall with a few year's time. They

suggested that adoption rates be used as the key indicator of extension effectiveness. Benor and Harrison (1977) confirmed that it was reasonably certain that a professional agricultural extension service, developed on the T&V principles in each of those diverse mentioned areas, was the major force behind these changes. The literature suggested that since isolation of the factors responsible for changes in agricultural production is always difficult, both indicators are important to be considered when precise evaluation is required. The adoption rates of recommendations are needed because they provide immediate feedback directly linked to a program's performance. At the same time, changes in production levels provide additional evidence about the effectiveness of the evaluated extension program. A positive association is expected between the adoption rates of recommended practices and the increase of production levels.

Minia was the first governorate in Egypt that implemented the T&V approach to extension. It functioned from 1985 to 1991 as a pilot program to improve the existing system. This program, called "Comprehensive Agricultural Development", was financed by the International Fund for Agricultural Development (IFAD). As is the case in most developing countries, no evaluation had been conducted to assess the program effectiveness. Philips (1980) and Byrn (1969) suggested that at the end of any well-planned and operated program, some judgment must be arrived at as to the overall success of the activity. Later, if circumstances and resources permit, there should also be some assessment of the extent to which the training has been put to use.

Purpose and Objectives

The purpose of the study was to ascertain the effectiveness of the training and visit program

in crop production. The study was designed to address the following null hypotheses, which were tested at the .05 level:

- Ho1 There is no relationship between CFs' attitudes and the increase of their production of corn and Fava beans.
- Ho2 There is no relationship between the increase of the CFs' productivity of corn and Fava beans and their scores of implementing the recommended practices.
- Ho3 There is no significant difference in the production of corn and Fava beans between the CFs and the FFs.
- Ho4 There is no significant difference between the CFs and the FFs in recommended practices for corn and Fava bean cultivation.

Procedures

The sample for this study consisted of 90 contact farmers (CFs) and 40 follower farmers (FFs). The sampled CFs were randomly selected from the list of CFs in each of the three of nine purposely selected administrative regions (i.e. Samaloat, Abo Corcas, Mallawy) in the Minia governorate. The sampled FFs were randomly selected from the lists of land possession in three villages. Each of these villages was randomly selected from the list of villages in each selected administrative region. The three administrative regions were selected to represent the governorate geographically with the consideration of having corn and Fava beans as the primary crops.

In order to meet the objectives, a specially designed questionnaire was used to collect the data from both groups of farmers. A personal interview was conducted with each randomly selected respondent.

The questionnaire consisted of three sections. The first section was prepared for collecting biographical data. The second was designed to collect information from the CFs about their attitudes toward the program and about the

extent to which the program followed the fundamental principles of the T&V system. The third was used for collecting the required data concerning the productivity of both crops before and after the program, the scores for implementing the recommended practices, and the adoption rate of all recommended practices.

A pilot study was conducted with 10 CFs and 10 FFs who were not included in this study. Based upon the information supplied by the pilot study, the final questionnaire was prepared with an accompanying checklist of ideal responses concerning the recommended practices for growing both crops.

The collected responses concerning the CFs' attitudes, were quantitatively treated as follows: 3, 2, or 1 points were assigned for the possible responses of agree, somewhat agree, and disagree on each positive attitude statement and 1, 2, or 3 points were assigned for the same possible responses on each negative attitude statement. Eighteen mixed positive and negative statements were used to measure the CFs' attitudes toward the program. Validity was established using a panel of seven Egyptian agricultural extension professors and specialists. The total score for respondents ranged between 18 and 54 points. This range was divided into five levels to represent the levels of CFs' attitudes as follows: strongly positive attitude (46-54), positive attitude (37-45), neutral attitude (36), negative attitude (27-35), strongly negative attitude (18-26).

In relation to the extent to which the CFs implemented the recommended practices, every respondent was given 3, 2, or 1 points according to his/her response to each recommended practice for each crop. The total score for each respondent was calculated to represent his/her level of implementing the recommended practices.

The data were analyzed using frequency distributions and percentages to describe characteristics and adoption rates of the samples of contact and follower farmers. Hypothesis 1 was checked for the relationship between CFs' attitudes and the increase of their production of both crops by calculating a Pearson-Product Moment

Correlation Coefficient. The same technique was used to test H_02 for relationships between CFs' productivity of crops and their scores for implementing the recommended practices. A t-test was used to test hypotheses 3 and 4 for differences between the two groups of farmers in relation to their production and their scores of implementing the recommended practices for both crops.

Results

Data were collected from 90 contact farmers (CF) and 40 follower farmers (FF). The contact farmers reported the following:

A majority (81%) of the CFs knew that they were selected for that role from the beginning of the program. Bearing in mind that no additional selection or replacement was made, there was undue delay in informing 19 percent of the CFs about their role.

Most of the CFs were well informed about their role and tasks. The visiting extension workers (VEWs) were the primary source of knowledge about their role.

All the CFs were willing to accept their role expecting to get sound recommendations of improved practices.

More than 92 percent of the CFs confirmed that the regular visits were conducted in a recommended location.

Almost 12 percent of the sampled CFs stated that there was not a fixed time for the regular visit by the VEW. This presents an undesirable deviation from fundamental principles of the T&V approach and could contribute to the fact that 5.6 percent of the CFs were careless about waiting for the visit.

All CFs agreed to receive a regular supply of information and instruction about recommended practices. Almost 91 percent of the CFs implemented the recommended practices on at least part of their land after persuasion, while the remaining 9 percent did so immediately. Most (92%) of the CFs helped the VEWs in contacting the FFs during the regular visits. A majority (70%) of the CFs received the regular visit every week, another 18 percent every two weeks, and the

remaining 12 percent very month.

All contact farmers had positive attitudes toward the program, with 70 percent of them holding strongly positive attitudes. These positive attitudes were reflected in increased levels of production of both corn and Fava beans for this group.

Results in Table 1 revealed that there were significant correlations at the 0.05 level between attitudes and the increase of production of corn ($r=.25$) and Fava beans ($r=.36$) for the contact farmers. H_01 was rejected.

Table 1. The Relationship Between Attitudes and Production for Contact Farmers

Item	r
Attitudes and increase in corn production	0.25*
Attitudes and increase in Fava bean production	0.36*
Increase in productivity of corn and implementing recommended practices	0.54*
Increase in productivity of Fava beans and implementing recommended practices	0.58*

*Significant at the 0.05 level.

Results in Table 1 also showed that there were significant correlations at the 0.05 level between the contact farmers' scores of implementing the recommended practices and increases in the productivity of both crops. H_02 was rejected. There was a strong association between the increase in productivity and the scores for implementing recommended practices for corn ($r=.54$) and Fava bean ($r=.58$).

The results of the t-test in Table 2 showed that there were no significant differences between the two groups of farmers in relation to their scores of implementing the recommended practices for cultivating the crops. There were no significant differences between the groups of farmers in relation to their productivity of corn and Fava beans. H_03 and H_04 were not rejected.

The results in Table 2 revealed that there were significant differences (prob <:t: .01) in CFs' productivity of corn and Fava beans ($t=14.4$)

Table 2. T-tests for Differences Between Contact Farmers (CF) and Follower Farmers (FF)

Item		Mean	SD	Standard error	t-value
Implementing recommended practices for corn	CFs	109.3	7.09	0.75	1.69
	FFs	105.8	12.09	1.91	
Implementing recommended practices for Fava beans	CFs	58.5	3.60	0.38	1.61
	FFs	56.9	5.98	0.95	
Corn production	CFs	17.8	2.41	0.25	0.56
	FFs	17.5	3.30	0.52	
Fava bean production	CFs	11.8	2.09	0.22	0.67
	FFs	11.5	2.42	0.38	
CFs' productivity of corn	Before	10.8	1.64	0.17	22.97*
	After	17.8	2.41	0.25	
CFs' productivity of Fava beans	Before	7.6	1.89	0.20	14.38*
	After	11.8	2.09	0.22	
FFs' productivity of corn	Before	11.0	1.75	0.28	11.09*
	After	17.5	3.30	0.52	
FFs' productivity of Fava beans	Before	7.8	1.91	0.30	9.16*
	After	11.8	2.02	0.32	

before and after conducting the T&V program. There were significant differences in the FFs' productivity of corn (t=11.1) and Fava beans (t=9.2) before and after the program. These results provided convincing evidence about the effectiveness of the program.

As revealed in Table 3, more than 90 percent of the CFs adopted 8 out of 12 recommended practices for cultivating corn. Only one practice, applying weed pesticides, was adopted by a lower percentage (36%). The same practice was adopted by a similar percentage (37%) of the FFs. The means of the two sets of adoption rates were tested and no significant differences were found (t=0.91; Prob >: 0.37).

Table 3 reveals that a high percentage (93% to 98%) of the CFs adopted all the recommended practices except applying weed pesticides which was adopted by 46 percent. The same practice was adopted by 43 percent of the FFs, while the remaining six practices were adopted by high percentages (82% to 95%). The means of these two sets of adoption rates were tested and no significant difference was found (t=0.44; Prob:::

0.67).

Conclusions

The following conclusions were derived from the findings of this study:

The training and visit (T&V) extension program can achieve many positive outcomes when the principles of the approach are adopted, particularly in informing the contact farmers (CFs) about their role, gaining their willingness to participate, and conducting regular visits.

Positive attitudes among the CFs, toward the T&V program will result in increased productivity of crops.

The T&V program is effective in increasing productivity of crops by both groups of farmers.

Discussion

There were some mistakes and/or problems, identified in conducting the program, which could be summarized as follows:

Table 3. Adoption Rates for the Recommended Practices for Corn and Fava Beans Among Contact and Follower Farmers

Practices	CFs%	FFs%
<u>Corn</u>		
Time of sowing seeds	93.3	87.5
Applying the recommended variety	94.4	85.0
Land preparation and sowing	94.2	89.0
Weeding	92.8	80.0
Applying weed pesticides	36.4	37.0
Reducing the growing plants	97.8	91.3
Irrigation	95.6	87.5
Fertilizer application	92.6	86.3
Cutting the top part of the plant and reducing the number of its leaves	64.4	67.5
Growing summer green crop of fodder	85.9	65.8
Insect control	83.3	78.5
Disease control	92.2	92.5
Average	85.2	79.0
<u>Fava beans</u>		
Time of sowing seeds	95.6	95.0
Land preparation and sowing	94.7	90.0
Weeding	92.8	92.5
Applying weed pesticides	46.4	42.5
Fertilizer application	95.6	88.5
Irrigation	97.8	95.0
Insect and disease control	92.6	81.7
Average	87.9	83.6

In addition to the undesirable delay in informing 19 percent of the CFs about their role, no specific criteria were followed in selecting them except for age, which was not a recommended criteria.

In addition to the mentioned deviation from the T&V approach of weekly visits, a considerable percentage of the CFs informally complained that most instruction they received was theoretical. This could explain why the program failed to persuade most farmers to adopt chemical weed control. The results of the adoption rates indicated that the program was successful in persuading farmers to adopt the recommended practices except for applying weed pesticides. This particular practice was likely rejected because most Egyptian farmers do not believe that weeds have a harmful impact on the production which merits chemical control or they fail to realize the effect of chemical weed control process demonstrations believing that

the resulting decrease in weeds was due to other factors.

Generally, the T&V approach has proved to be effective in the Egyptian agricultural system. The circumstances and problems were similar to the problems for which this approach was designed. The T&V approach for extension services is recommended to be used in other Egyptian governorates.

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