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**AN EVALUATION OF THE  
USAID EXTENSION SATURATION PROJECT  
IN UGANDA**



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**Report IP-54  
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# CHAPTER

# 1

# INTRODUCTION

The consultant was asked by USAID/Uganda to evaluate the effects of the Extension Saturation Project (ESP) in Uganda. Specifically the scope of the evaluation was to include:

1. Tabular form for the survey data so that the data are amenable to comparison and tests of significance.
2. A report on evaluation findings. A preliminary report will be submitted before the contractor departs Uganda.
3. An analysis of input-output data to assist in the interpretation of changes occurring as a result of the ESP.
4. Measured changes in the organization and program implementation of the Agricultural Extension Service as a result of ESP.

Through post contract correspondence and conversation with Mr. Rex Ottley and Mr. Leonard Brooks of USAID/Uganda, it was agreed that objective 3 could not be fulfilled because accurate aggregate production data are not available.

Program evaluations are usually made relative to the program objectives, which proved to be difficult in this case as various USAID/Uganda documents stated different objectives. The project appraisal report dated September 16, 1971, gave the purpose of the project as: "To establish an effective Agricultural Extension Service which will increase production." The USAID PROP states: "The goal of the expanded project is to make agricultural knowledge available to at least one member of every family in every saturation community with the ultimate objective of producing more and better food, and improved local diet and ultimately increasing exports to food deficient areas of the world." The objectives of the project according to project agreement 617-11-110-012 dated March 29, 1968, were:

1. Increased production.
2. Broadened demonstration of intensive application of extension methods.
3. Further staff training.
4. Promotion of social and institutional change.

Each extension advisor had a different list of project objectives in the 1969 annual reports, but there was uniformity of objectives in the 1970 and 1971 annual reports. The accepted objectives were those listed in the USAID project appraisal report dated June 3, 1970, and prepared by Harold Dusenberry. These were:

1. Increased efficiency of the majority of farmers in the ESP units.
2. Increased yields and overall productivity of the farmers.
3. Changes in the attitude of the people toward progressive farming and the relieving of social pressures which hold back progress.
4. Improvement of the staff efficiency by involving them in an effective extension program.
5. Gaining information and finding the most effective type of extension program to use in Uganda.

This evaluation report will be based on these last five objectives because they were the objectives accepted by the four USAID extension advisors and the objectives by which they evaluated the ESP's in the last two annual reports.

The evaluation of this project has been done only on the aggregate level due to time limitation. There is much more information and analysis which could be reaped from the questionnaires — especially in the analysis of regional differences in extension methods and farmers' responses to these methods.

# CHAPTER 2

## BACKGROUND INFORMATION

The Extension Saturation Project (ESP) was started in 1966 by Mr. Harold Dusenberry, USAID Extension Methods Specialist in Uganda. The objective of the project was to "saturate one community in each of 16 districts with all of the extension education the community could readily absorb."<sup>1</sup> The project was an experiment to find a more effective approach to extension programming and organization. According to plan, the Assistant Agricultural Officers (AAO's) and Agricultural Assistants (AA's) assigned to these communities would spend a greater proportion of their time and effort in the ESP areas than in the other communities of their assigned work areas. In addition, program planning would receive greater emphasis in the ESP areas. The program of work would differ from the non-ESP areas in the following respects:

1. Greater number of result demonstrations.
2. Increased emphasis on organized activities of men, women, and youth.
3. Greater farmer participation in District Farm Institute (DFI) courses.
4. Increased number of educational meetings, method demonstrations, and farm tours.
5. Initiation of simple farm management instruction.
6. The reporting and keeping of monthly records of extension activities.
7. Progress evaluations.

The pilot phase of the project continued for two years and was judged to be successful by officials of the Ministry of Agriculture and USAID. The decision

<sup>1</sup>H. L. Dusenberry, "A Preliminary Report on the Saturation Project Results of 1967."

was made in March of 1968 to expand the number of ESP areas from 16 to 100 and to post a USAID Extension Advisor in each of the four regions of Uganda. TOAID A. 290, which explained the expanded project, states:

*These saturation projects will continue to be evaluated and serve as a guide for the best use of agricultural staff in the future and the best procedures for extension program development.*

The four regional USAID advisors arrived on the following dates:

Mr. John Bulls, Eastern Region, September 15, 1968

Mr. Lloyd Trawick, Western Region, September 22, 1968

Mr. Tom Reynolds, Buganda Region, December 28, 1968

Mr. George Vigil, Northern Region, January 18, 1969.

## **Purpose and Method of Initial Evaluation and Baseline Survey**

The type, method, and timing of the ESP evaluation was discussed by USAID officials, Ministry of Agriculture officials, and staff members of the Department of Rural Economy of Makerere University with the decision that the evaluation would consist of two stages. The first would include an evaluation of ESP in the 16 initial ESP areas and a baseline survey of Uganda's agriculture.<sup>2</sup> The second stage would be a follow-up survey in three years with the same questionnaire and interviews of the same farmers. The objective of the survey was to collect information on farm and farmer characteristics, farm production, production techniques, consumption patterns, extension contacts, and farmer attitudes.

In May 1969, USAID/Uganda signed a contract with Dr. Gordon Wilson of Nairobi, Kenya, whereby he would be responsible for the baseline survey. He was assisted by Mr. Timothy Ahutah, who was in charge of coding, card punching, and data processing. Mr. D. K. Kazungu, who assisted Dr. Wilson, was the field supervisor for the data collection. Dr. Wilson left East Africa before the work was completed so the tabulation of sample characteristics and cross-relationships was done by Dr. Ralph Nelson, Professor of Rural Economics, Makerere University.

<sup>2</sup>The following reports were published from the first stage of the evaluation:

*D. K. Kazungu "A Simple Evaluation of the Community Saturation Projects in Bukedi." Ministry of Agriculture, Entebbe, Undated.*

*R. E. Nelson "A Baseline Survey of Uganda Agriculture," USAID/Uganda, 1969.*

*D. J. Vail "A History of Agricultural Innovation and Development in Teso District, Uganda." Maxwell School of Citizenship and Public Affairs, Syracuse University, 1971.*

*D. J. Vail "The Public Sector as a Stimulus of Innovation Adoption in African Small-holder Agriculture – A Case Study of Teso District, Uganda." Ph. D. Dissertation, Yale University, 1971.*

*E. R. Watts "Extension Saturation Project Report – Staff Evaluation." Department of Rural Economy, Makerere University, 1970.*

## Baseline Survey Methodology

The sample was based on the various agricultural systems in Uganda. There are seven agricultural systems which are:

System	Areas	Main Crops
Teso	Teso and N. Bukedi	millet, cotton
Buganda	Buganda, S. Busoga, E. Toro, C. Bunyoro	plantain, robusta, coffee and cotton
Transitional	S. Bukedi, N. Busoga, N. Buganda, E. N. and W. Bunyoro and northern tip of Toro	plantain, millet and cotton
Lango-Acholi	Lango and Acholi	millet, pigeon peas, sorghums, cotton and simsim
West Nile	West Nile and Madi	cassava, coffee, tobacco, rice
Montane	Bugisu, Sebei, Kigezi, W. Ankile and W. Toro	plantain and Arabic coffee
Pastoral	Karamoja, E. Ankole, and S. W. Buganda	

Originally the survey had been designed so that each ESP would be matched with a control within the same agricultural system. However, after some discussions the agreement was made to match two ESP's with one control.

The decision was made also to sample two ESP's and one control area within each agricultural system if conditions within the agricultural systems were similar and four ESP's and two controls if conditions were varied. The groupings of two ESP's for each control were to form the basis of comparisons among agricultural systems and also comparisons of ESP's within each agricultural system and between the ESP's and the controls.

Revisions of the original design resulted in a reduction of the total number of parishes to be surveyed. Twenty ESP's and ten controls were to be surveyed (Table next page).

### (a) Criteria for selecting ESP's and Controls

- (1) Size - The ESP's and control areas should have approximately the same number of people and preferably between 300 to 400 households. Also, the ESP's and controls should have included a whole parish and not a community or part of a parish or parts of more than one parish.
- (2) Ethnic Homogeneity - Every attempt was made to select ESP's and controls so that each grouping of three had a similar ethnic composition.

<b>Agricultural System</b>	<b>Number of ESP's</b>	<b>Number of Controls</b>
Teso	2	1
Buganda	4	2
Transitional	5*	2
Lango-Acholi	2	1
West Nile	2	1
Montane	5+	3
<b>TOTAL</b>	<b>20</b>	<b>10</b>

\*In one instance three ESP's had one control.

+One ESP was matched with a control.

(3) Social Economic Factors - Every attempt was made to select each grouping of ESP's and controls so that there was a similarity of the following social economic factors:

- Primary and secondary schools
- Access roads
- Markets and trading centers
- Distance from district headquarters
- Crop potential
- Altitude
- Similar marketing system and problems
- Proximity to water.

Once these criteria had been agreed upon the sampling process began. Maps were used to identify possible areas for survey. Once these had been selected they were visited to see whether they conformed to the criteria. These visits were extremely useful because in many cases the maps depicted different pictures of the parishes than those which actually existed. In such cases new and more suitable parishes were selected. Diversity between and within parishes forced compromises over criteria. For example, population densities varied so much between parishes that the 300 to 400 households criteria were virtually abandoned. In parishes where the land was fertile, population densities were much higher than the 400 households, while in the less fertile areas the densities were generally low. Also in one instance three ESP's were matched with one control and in Bugisu District one ESP was matched with one control. Eventually the following ESP's and controls were selected as shown in the table on the next page.

Once these parishes had been selected, sampling of respondents started within each one. The household was the basis for the sampling. In each ESP and control area the Agricultural Assistant and the interviewer compiled a list of all heads of household. The household list was preferred to the taxpayer list because the latter was biased against non-taxpayers. The list of heads of households was compiled with the help of the chiefs in the area. Because of limited resources,

<b>Agricultural System</b>	<b>District</b>	<b>ESP's</b>	<b>Controls</b>
Teso	Teso	Madoc Adacari	Aukot
Buganda	Busoga	Kigunga Kasole	Bupadhengo
	Masaka	Kyotera Bulawula	Kikungwe
Transitional	Bukedi Mubende	Busibira Madudu Nakasongola	Kiyuni
	Bunyoro	Butema Bulindi	Kyeramya
Lango-Acholi	Acholi Lango	Paicho Okwangde	Omito
West Nile	West Nile	Ezuku Paminya	Ockoko
Montane	Bugisu	Bumirisa	Bimalimbwa
	Kigezi	Myakaina Nyakabingo	Mabungo

between 60 and 70 respondents were interviewed from each parish. Random sampling methods were employed in selecting the respondents. A number between 1 and 9 was randomly selected for each parish. This was the starting number for selecting respondents. Then the total population for each parish was divided by the sample size to get an interval. The interval was the number of people counted from the starting number obtained randomly to the next respondent. For example, if the interval was six, then every sixth person from the original number was included in the sample. In the table on the next page are the numbers of respondents for each parish included in the study.

### **(b) Procedures for Data Collection**

The Commissioner of Agriculture directed the Agricultural Assistant or Field Assistant in the survey parishes to work directly with the interviewers during the field work period. He also directed the Assistant Agricultural officer in charge of the Saturation Projects in each district to spend about 50 percent of his time supervising the staff in the survey areas during the period of the field work.

To get maximum involvement of all officers concerned, meetings were held at all Regional Headquarters. Those who attended were the Regional Agricultural Officers, District Agricultural Officers, Assistant Agricultural Officers in charge of ESP's, and USAID Extension Advisors. At these meetings the objectives of

ESP's	Sample Size	Control	Sample Size
Madoc	60	Aukot	71
Adacari	69		
Kigunga	74		
Kasolo	66	Bupadhengo	70
Kyotera	60	Kikungure	60
Bulawula	69		
Busibira	60		
Madudu	60		
Nakasongola	70	Kiyuni	60
Butema	65		
Bulindi	65	Kyeramya	65
Paicho	65		
Okwangole	63	Omito	63
Ezuku	70		
Paminya	65	Ochoko	60
Bumirisa	60		
Nyakaina	63	Bumalimum	68
Nyakalimgo	60	Mabungo	60
<b>TOTALS*</b>	<b>1,164</b>		<b>577</b>

\*Because the questionnaires from Bulindi and half of Ezuku were not included, the total number of respondents from the ESP's was reduced to 1,064.

the survey were explained. The meetings were also used to review the questionnaires and obtain suggestions and comments.

At these meetings the AAO's/ESP were requested to recruit possible interviewers in their areas. The candidates were sent to regional headquarters for interview selection and training. The training of interviewers was done by Dr. Wilson in the Eastern Region and by Mr. Kazungu in the other regions.

At the first meeting the purpose of the survey was explained and the candidates were told what was expected of them. They were then interviewed and two candidates were picked for each parish. After some training in how to complete the questionnaire the candidates were asked to return to their home and interview their friends and return with the completed questionnaires. The better candidates in filling out the questionnaire were selected, and they under-

went intensive training on how to approach respondents, how to record the information obtained, and on how to conduct themselves while carrying out the survey. At these training sessions AAO's/ESP and USAID extension advisers were present.

After training, the district AAO's/ESP introduced the interviewers to the Agricultural Assistants or Field Assistants in charge of the survey parishes. For the first week the interviewers were required to become familiar with their survey areas, drawing sketch maps and recording some social-economic characteristics of the areas, and making full lists of all heads of homesteads. They then reported back to the field director for the selection of the samples. Once the samples were selected the interviewers went back and started recording. Because of the length of the questionnaire, each interviewer was not expected to interview more than three respondents a day. Each interviewer was expected to finish his parish in four weeks and submit 50 percent of his work after two weeks. If the work of the interviewer could have been checked at the end of the day for the first week errors could have been eliminated. The most common mistakes were in coding and this was corrected without going back to the farmer. In some cases where the questionnaire data were incomplete or inconsistent, the farmer was re-interviewed.

The fielding of the survey was staggered to facilitate efficient supervision. According to the plan, ESP's would be surveyed first and then the controls. The arrangement was that the two interviewers who worked in the ESP's would pair up to work in the matching control.

## **Experience**

In most cases the Agricultural Assistants and Field Assistants were very cooperative. In the few cases where they did not wish to cooperate fully, the interviewer contacted the District Agricultural Officer and this resulted in greater cooperation.

An effort was made by officers of the Department of Agriculture to translate the questionnaire into the local languages, but they did not complete the job in time to meet the schedule. The questionnaire was in English and each interviewer verbally translated it during the interview. Written translation of the questionnaire would have been better, as there would have been greater consistency of word meanings.

The interviewers were expected to draw maps of their survey area and show the location of each homestead to facilitate locating the same farmer on the follow-up survey. Most of the interviewers were not sufficiently competent to make maps, so they were of little value in the second survey.

Most farmers in Uganda do not know the acreage of their farm. According to plan, the Agricultural Assistants would measure the size of the farmers' holdings. The time limit made this impossible, so estimates were recorded.

Basically the same methodology was used in the follow-up survey as the initial baseline survey. The lists of heads of household compiled in 1969 were

used to locate those respondents who participated in the baseline survey. As expected some of these respondents could not be found. The most prevalent reasons for this were death and emigration. The numbers of respondents who could not be found varied from parish to parish, ranging between 4 percent and 15 percent. Replacements were made so that there would be the same number of respondents in each parish as in the baseline survey.

The missing respondent was checked on the original list of all heads of households compiled in 1969, and his number noted. Then we moved downwards half the interval to the next respondent. For example, if the original interval between the missing respondent and the next respondent on the list was five, we moved down and picked the third person below the missing respondent. If for any reason this person also was not available then we moved alternately downwards and upwards until we got a respondent. This method was preferred because it ensured that the new respondent lived in the neighborhood of the missing respondent.

The training of the interviewers was also slightly different from that used in the baseline. This time the selected interviewers were kept in resident training for three days. This approach revealed that when the interviewers stayed together they helped each other to understand the questionnaire. Probably due to better training there were fewer cases of poor quality work than in the baseline survey.

There were hopes that the same interviewers could be used as those in the baseline but this proved impossible except in one case. Most of the data were collected in three months as compared to six months for the first survey.

# CHAPTER 3

## THE ECONOMY OF UGANDA

Uganda is located astride the Equator and has an area of about 91,000 square miles. The land surface is approximately 75,000 square miles and more than 80 percent of the land surface is between 3,000 and 5,000 feet elevation. This elevation results in a temperate climate for most of the country.

The economy of Uganda is based primarily on agriculture and is basically a subsistence economy. Approximately 90 percent of the people are employed in agriculture.\* It is estimated that 42 percent of the gross domestic product (GDP) is subsistence agriculture and 35 percent of the monetary economy of GDP comes from agriculture. The land of Uganda is primarily farmed by small holders. The 1970 baseline survey of Uganda agriculture showed that 86 percent of the farmers cultivated less than 10 acres and 60 percent cultivated less than five acres.<sup>3</sup> This same survey showed that the average farmer had a total household income of about Shs. 735/-. This did not include food produced for home consumption. The average farm expenditure per family was approximately Shs. 62/- while 46 percent of the respondents reported no farm expenditures.

Most of the land used for agriculture is operated under traditional tenure systems which vary widely in accordance with the customary arrangement of the particular ethnic group. Security of tenure, however, is reported as the rule under the traditional system and the 1963-64 Census of Agriculture indicated that about 97 percent of the farmers had their land under owner-like possession.

Farm operations are carried out primarily with hand tools which require relatively large labor inputs per acre. The baseline survey indicated that 69

\*Unless otherwise stated the statistics used in this chapter come from Plan III, Uganda's Third Five-Year Development Plan 1971-72-1975-76.

<sup>3</sup>Nelson, *op. cit.*

percent of the farmers had only a gembe and/or a panga as farm implements. Fifteen percent of the farmers reported having a plough or harrow. It could be deduced that oxen are used as draft power for these implements. A government sponsored tractor-hire service has been available at a subsidized rate in many areas. A review of this program was undertaken in 1968 and as a result the purchase of new tractors was discontinued. The review indicated that the service was costing the government a substantial amount and there was little conclusive evidence that tractor use alone had generally increased the output of any agricultural product. The entire agricultural mechanization program, including the tractor-hire service, will be reviewed during the third plan period.

During the second five-year plan period (1966 through 1970) the annual growth of the monetary agricultural economy was 4.5 percent and the subsistence economy expanded at an estimated annual rate of 3.5 percent. There was an estimated 3.2 percent annual natural increase in population during the 1959-1969 period and the present increase is estimated to be about 3.3 percent. The annual average increase in per capita agricultural production is, therefore, less than one percent.

Merchandise exports give a good picture of the exportable surplus of products and also of the dominant role that agriculture plays in the acquisition of foreign exchange (see Table 1).

**Table 1. Uganda's Merchandise Exports, 1970.**

Product	Value (Shs. Million)	Percent of Total	Value of Expected Annual Growth Rate 1967-69 -1976 (Percentage)
Coffee	1014.4	57.0	2.8
Raw cotton	351.0	17.6	4.1
Copper	165.5	8.3	1.0
Tea	95.0	4.7	12.5
Cotton fabrics	55.9	3.0	-0.3
Animal feeds	49.9	2.5	4.5
Hides & skins	27.4	1.4	4.3
Tobacco	18.8	0.9	9.1
Sugar	18.2	0.9	5.6
Other agricultural products	114.3	5.7	
Other manufactured products	89.1	5.0	6.0
Total merchandise exports*	1999.5	100	

\*The adjustment made for re-exports, valuation, and timing are not included in this table.

Table 1 indicates that 75 percent of foreign exchange came from the exportation of coffee and cotton and 86.7 percent of merchandise exports are primary and processed agricultural products. According to plan, this percentage will increase during the third five-year plan. Major increases are expected in tea and tobacco exports and annual increases of over four percent are planned in sugar, animal feeds, hides and skins, and cotton. The economic development of Uganda will be dependent, to a large degree, on the production of surplus and exportable agricultural products. This was recognized by the government planners, and during the third five-year development plan the rural sector will be given greater emphasis than in previous plans. The main Plan III goals for the agricultural sector are:

1. The maintenance of self-sufficiency in the major food products, the achievement of self sufficiency in maize, onions, potatoes, rice, timber, and sawn wood by the end of the plan period, and a considerable reduction in the dependence on wheat and milk imports.
2. A sustained increase in agricultural production averaging 4.9 percent per annum for marketed output.
3. The expansion of agricultural exports at the maximum feasible rate. Despite the expected decline in average export prices due primarily to the behavior of coffee prices, total receipts from agricultural export sales will rise to 4.5 percent from the 1967-68 base.<sup>4</sup>

In order to achieve the goals listed above, the allocation of resources to agriculture has not been restricted but rather will be determined by the ability of the agricultural sector to effectively utilize the resources.

<sup>4</sup>Nelson, *op. cit.* p. 160.

### **Historical Development of the Department**

The Agricultural Extension Services in Uganda are carried out by the Department of Agriculture which is an integral part of the Ministry of Agriculture, Forestry and Co-operatives. The history of the Extension Services really is the history of the Department of Agriculture.

Uganda was not opened to Western influence until the 1860's when adventurous travellers Sudras, Speke, Grant, Samuel Baber, and Lugard from Britain penetrated the heart of Africa to solve the mystery of the river Nile, develop trade, and sow the seeds of Christianity. In 1894 Uganda was declared a British protectorate.

Attempts to start a Department of Agriculture began in 1898 when the colonial government in conjunction with the British Botanical Society established the Uganda Botanical Garden at Entebbe ". . .for the better examination and development of the agricultural resources of the Protectorate".<sup>5</sup> At these gardens various crops were introduced and tried. In essence this was the first Agricultural Experiment Station in the country. In 1900 a Botanical, Forestry and Scientific Department was set up to introduce plants of value to the protectorate.<sup>6</sup>

The Department of Agriculture was formally established in 1908. These historical facts help to explain why Agriculture and Forestry have always been in the same Ministry while livestock farming is administered by another Ministry called Animal Resources and Veterinary Services.

<sup>5</sup>J. D. Jameson, *Agriculture in Uganda*. Oxford University Press. 2nd Edition, 1970. p. 2.

<sup>6</sup>J. D. Jameson, *op. cit.*

The main preoccupation of the Department was to develop cash crops which would form a source of cash income for the indigenous people as well as source of taxation for the government. Specific objectives were:<sup>7</sup>

1. To ensure basic food supplies of the country.
2. To conserve natural resources for posterity through soil conservation methods and farming systems that do not deplete the soil fertility.
3. To improve the quality of export crops.
4. To blend the whole into a sound system of Agriculture which is within the means of the farmers to maintain.

These objectives have not changed much in general. This can be noted from the 1971 policy statement of the Department. It re-outlined its objectives as:<sup>8</sup>

1. To ensure that the farmers produce sufficient food for themselves and for the consuming public of a type and quality to meet their dietetic needs.
2. To seek new knowledge by means of coordinated research designed to improve land usage and the yields and quality of both crops and livestock.
3. To ensure that the land is properly used and the soil adequately conserved.
4. To encourage the maximum production of suitable economic crops for export or for local use while fulfilling policy aims 1 and 3.
5. To introduce improved farming systems which, where suitable, the integration of stock and crops were to their mutual advantages and
6. To disseminate proven agricultural knowledge by all means available but particularly through agricultural teaching institutions and the activities of the Department field staff.

Lack of a major change in objectives of the Department can be explained by the fact that the problems that faced the department at its inception have not been solved. There is still low output per farm, lack of inputs for the majority of farmers, and the adoption of innovations advocated by the Department has been less than satisfactory.

The Chief Officer of the Department of Agriculture is the Commissioner. There is a Deputy Commissioner and five Assistant Commissioners. The Assistant Commissioners are in charge of agricultural education, special projects, extension, mechanization, and research. Uganda is divided into four regions and each region has a Regional Agricultural Officer (RAO) who is in charge of all the Department of Agriculture officers in that region. The regions are divided into 20 districts and each has a District Agricultural Officer (DAO) in charge. A typical district will have a DAO, an Assistant Agricultural Officer in charge of ESP (AAO-ESP), an AAO in charge of Young Farmers, a principal of the District Farm Institute (DFI), an AAO for mechanization, an AAO for data collection,

<sup>7</sup>J. D. Jameson, *op. cit.* p. 3.

<sup>8</sup>Department of Agriculture: Policy Statement of Dept. of Agriculture, 29 June, 1971. pp. 1-2.

and an AAO-agricultural credit. There may be other AAO's as specialists in certain crops.

Each district is further divided into counties, and each county is headed by an Assistant Agricultural Officer, with Agricultural Assistants (AA) and Field Assistants (FA) manning the sub-counties. The latter are in day-to-day contact with the farmer. Within the department RAO's, DAO's, AAO's/counties, AAO's/ESP, AAO's, YFU, and AA's plus Field Assistants are classified as belonging to the extension section. Table 2 shows the educational qualifications and basic salaries of the Extension Officers.

**Table 2. Educational Qualifications and Salaries of Extension Officers.**

Rank	Qualifications	Basic Salary Uganda Shs./Month
Regional Agricultural Officer	University Degree in Agriculture	3,200.00
Agricultural Officer - District and Other	University Degree or Diploma in Agr. with a lot of experience	1,330.00
Assistant Agricultural Officers	Diploma in Agriculture	1,145.00
Agricultural Assistant	Certificate in Agriculture	457.00
Field Assistant	No formal training in Agriculture	278.00

### **Functions of the Extension Service**

Prior to independence the extension service performed two main functions of enforcing by-laws relating to agriculture and teaching farmers to adopt new methods. To perform these functions the Department largely depended on the local chiefs. Rose and Williams observe that:

*The objective of the extension service has been to win the confidence of chiefs at all levels as a first step in obtaining their support in attempts to persuade the people to adopt better methods of farming.*<sup>9</sup>

The fact that extension workers were closely associated with the chiefs and were also law enforcement officers made their teaching function difficult. The farmers saw them as agents of government and the majority of farmers did not

<sup>9</sup>W. Rose and Williams: "History of Extension" in J. D. Jameson (ed.), *op. cit.* p. 4.

want to see extension workers visiting them for fear of being reported to the government for contravening any of the agricultural by-laws.

After independence, in 1962, measures were taken to redress this. Extension workers stopped functioning as law enforcement officers and instead of working through the chiefs they were encouraged to develop local leaders from amongst the farmers. Development and use of local leaders (popularly called volunteer leaders) has been most noticeable in the YFU and ESP Programs. For example, for the Young Farmers program alone the number of volunteer leaders grew from 105 in 1966 to 2,448 in 1969.<sup>10</sup>

## **Methods**

The Uganda Extension Service, like many other extension services in the developing countries, is limited in the number of methods it can employ in teaching its clients. The limiting factors are mainly the low levels of literacy and inadequate distribution of communication media such as radios, television sets, telephones, and newspapers. The Nelson report shows that 23 percent of the respondents have never listened to a radio, 74 percent have never watched T.V., and 66 percent have never read a newspaper. As a result extension workers are limited mainly to interpersonal communication methods. There is a ratio of one extension worker to every 1,800 farmers.<sup>11</sup> It is against this background that specific methods used by the Uganda Extension Service can be discussed.

### **Interpersonal Methods**

Visits to farmers are still an important approach to reaching the Uganda farmers. According to the Nelson report, 54 percent of the farmers had been visited by an AA during the previous year. However, this demands a lot of time and resources for traveling are very limited. Agents are therefore unable to reach all of their clients.

### **Group Methods**

#### **(a) Meetings**

Most extension workers use meetings to reach their farmers. These are usually held at some public places in the community. Recently Community Development Centers and Co-operatives Centers have assumed great significance as meeting places.

<sup>10</sup>Department of Agriculture: Young Farmers of Uganda Programme, Annual Report, 1969.

<sup>11</sup>Plan III, *op. cit.*

### **(b) Achievement Days and/or Field Days**

These are usually held once a year and are used to show the results of general agricultural activities over the period. Achievement days are most popular with Young Farmers. In the baseline survey 16 percent of the farmers reported having attended a field day in the previous 12 months.<sup>12</sup>

### **(c) Result and Method Demonstrations**

These have been used for a long time but have gained more popularity recently, especially in the Extension Saturation Projects. According to the baseline survey, 24 percent of the farmers had seen a result demonstration and 32 percent had attended a method demonstration in the previous year.<sup>13</sup>

### **(d) District Farm Institute Courses**

In each district there is a District Farm Institute for the express purpose of educating farmers in that area. Groups of farmers are taken to these institutes in turns for periods roughly from a few days to two weeks. The courses either augment the educational activities already covered in the farmers' places of residence or increase the farmers' awareness to new methods of farming. Seven percent of the farmers had attended a course at a DFI during the previous 12 months according to the baseline survey.<sup>14</sup>

Farm tours are usually organized by the AAO or the AA. These are generally walking tours to those farmers who have result or method demonstrations on their farms or to farmers who have adopted, successfully, recommended practices.<sup>15</sup>

## **Mass Media**

### **(a) Print Media**

It has been observed that low levels of literacy limit the extent to which this method can be utilized. Despite this handicap the Uganda Extension Service has tried to exploit this method when possible. The Department of Agriculture operates a Visual Aid Center at its headquarters which is used for printing visual aids and agricultural newsletters. At the headquarters of each region there is an Information Officer whose main activity is to print various farming publications to distribute to farmers who can read. These publications are printed in various vernacular languages. Extension workers are constantly encouraged to contribute to these publications for the benefit of their clientele.

### **(b) Radio**

The use of the radio for agricultural teaching purposes has recently assumed more importance. In 1971 the President of Uganda mandated that the time

<sup>12</sup> *Nelson, op. cit.*, p. 40

<sup>13</sup> *Ibid.*, p. 40

<sup>14</sup> *Ibid.*, p. 41

<sup>15</sup> *Ibid.*, p. 40

allocated to agricultural programs be increased. Today seven hours per week are allocated to agricultural programs on the government owned Radio Uganda. Programs are broadcast in 19 languages and they are localized as much as possible so that they may be as relevant as possible.

## **Staff Training**

We have already indicated that one of the functions of the Department is to train its personnel. This is achieved through formal and informal training. Formal training is undertaken in agricultural colleges while informal training largely takes the form of induction and in-service training. The following are the main centers where Uganda's extension personnel are trained:

### **(a) Makerere University, Kampala**

The Faculty of Agriculture offers a three years' course leading to a B.Sc. Agriculture. Students are given a general course in Soil Science, Crop and Animal Science, Agricultural Engineering, Rural Economy, and Extension. The graduates are recruited into the Department as Agricultural Officers. The majority of District Agricultural Officers hold a B.Sc. degree in Agriculture. It should be pointed out that the University is an independent institution. It carries out its own research and designs its curriculum, although, of course, taking into account the interests of the Department.

### **(b) Overseas Universities**

Many Ugandans go overseas to complete their first degrees or to do some postgraduate work leading to higher degrees. Since independence many Ugandans have been sponsored by USAID to various agricultural courses in the U.S.A. Many of the specialized extension staff members have had their training in the U.S.A. universities.

### **(c) Bukalasa and Arapai Agricultural Colleges**

These two colleges are run by the Department of Agriculture. Recently another college specializing in Agricultural Engineering has been built at Busitema. Bukalasa and Arapai provide most of the extension personnel.

During the Second Five-Year Development Plan emphasis was placed on producing diplomates. These were young men and women who, after completing 11 years of school, went to these agricultural colleges for three years training in general agriculture and who, on successful completion of the course, were awarded diplomas. They were recruited as Assistant Agricultural Officers and posted in various sections of the department. Today, however, it has been realized that this is an expensive cadre of personnel. Although they were supposed to work with farmers the majority find themselves in supervisory positions. Quite a few have gone for further studies and have climbed in administrative posts such as District Agricultural Officers and others. The emphasis today is, therefore, to produce two-year graduates who are awarded certificates at the completion of their courses and are recruited as Agricultural Assistants and whose pay is about a third as much as the diplomates receive. These are posted in sub-counties and are in direct contact with the farmers.

#### **(d) Induction and In-service Training**

It is customary for the department to provide induction training for the majority of its recruits. In-service training, however, varies with the specific needs of various sections of the department. In general, this training is held at District Farm Institutes. There has been an appreciable growth in the number of in-service training courses in the last five years, especially for officers in youth programs and extension saturation projects and for field assistants who generally join the department without training.

#### **Proposed Changes**

The government has already announced proposed changes to the department. Some of these have already been put into effect but others are to wait until a national re-organization of the administration is effected. The major changes have been the creation of more deputies to the Commissioner, the transformation of the Extension Section into a Production Section and the creation of a section responsible for making inputs available to the farmers. These changes are expected to improve the functioning of the department.

# CHAPTER 5

## BASIC REQUIREMENTS OF AN EFFECTIVE EXTENSION SERVICE

### Macro Requirements

The basic function of an agricultural extension service is to change people, through education, so that a country can move from a traditional subsistence type of agriculture to a modern scientific market-oriented agriculture. Plan III recognizes the need for this change:

*Another unsatisfactory aspect of the structure of Uganda's economy is the fact that a very substantial proportion of total production activity takes place in the non-monetised subsistence sector. This sector has up to now, performed the important function of supplying the bulk of the country's food requirements. By definition, however, subsistence production is limited to the direct consumption requirements of the producer and it does not, therefore, lend itself readily to techniques aimed at promoting productivity. . . Considering the many inimical implications of a large subsistence sector for economic growth and material welfare generally, it is an objective of Uganda's development effort to continually expand the range of market production and monetary exchange until the subsistence sector is finally reduced to very minor proportion.<sup>16</sup>*

Changing people so that they give up generations of traditions and accept different practices and behavioral patterns is a complex and difficult process. The most important man in this change process is the farmer who is the ultimate decision maker as to whether new varieties of crops will be grown, new crop and/or livestock practices will be adopted, farm records will be kept, etc. Also

<sup>16</sup>*op. cit.*, p. 2.

important is the entire cadre of extension staff who, often, must learn new technical knowledge as well as effective methods of transferring this knowledge to the farmers. The politicians and civil servants in the central government must also be informed of the importance of this task so they will support a program of agricultural change and allocate resources to bring about this change.

But the farmer is the crucial person in the whole process, so let us look at the conditions which are necessary before farm level changes can be expected to occur. Elements of change which appear to be important in modernizing agriculture are (1) markets for farm products, (2) production incentives, (3) production credit, (4) local availability of supplies and equipment, and (5) agricultural research. The effectiveness of an agricultural extension service is directly related to the existence in quantity and quality of these necessary conditions for farmer change.

### **Markets for Farm Products**

Agricultural development increases the production of farm products. Plan III envisions a 4.9 percent annual increase in marketable agricultural products. There must be an effective demand for these products—someone who wants the products and can afford to pay for them. There must be a market place where the farmer can bring his produce and make exchange for cash or a promise to pay, and there must be a market system which includes transportation, middlemen, processors, exporters, etc. The Government of Uganda recognizes this, as in Plan II it states:

*...perhaps the most important single factor affecting the prospects for expanding total production in Uganda is the availability of markets (p. 6). A careful examination of all possibilities reveals that we must continue to rely on export-oriented production as a main impetus for growth, and export promotion, therefore, constitutes a key element in the development strategy.<sup>17</sup>*

### **Production Incentives**

Most farmers are heads of families and are businessmen. The farmer's first responsibility is the welfare of his family. For subsistence farmers this means food and protection against the forces of nature. When a farmer first grows and sells cash crops, he usually continues producing sufficient food crops to feed his family. Only when he has gained confidence in the level and dependability of the market, with its price system, will he begin to discontinue to grow all of his own food.

As a businessman, the farmer decides if his rewards from the market are sufficient to cover the cost of production plus the labor efforts of him and his family. Studies indicate that peasant farmers do respond to the level and dependability of prices and if a country wants agricultural development the prices and net profits available to farmers must be favorable. Plan III recognizes this, as it states:

<sup>17</sup>*op. cit.*, p.7.

*The success of the programmes to expand crop and animal output is significantly affected by the prices which farmers receive for their produce. Generally the higher the price the greater the stimulus to output.*<sup>18</sup>

The Government has also followed a program of subsidizing such items as fertilizer, insecticides, spray pumps, and fencing materials at rates ranging from one-third to one-half of the market price.

### **Production Credit**

The rule is simple: to produce more the farmer must spend more. He must spend on fertilizer, improved seeds, herbicides, insecticides, oxen, etc. And he must incur the expenditures before the product is sold. Some farmers have savings which they could use for production purposes. Table 90 of the Nelson report shows that about 42 percent of the farmers had saved some money during the previous year. About one-half of these, however, had saved less than Shs. 100/- (14 U.S. dollars). Plan III recognizes this need for credit and includes the provision of increased credit for rural production as part of its plan for increased production. The Government has established a new bank, the Uganda Development Bank, to handle short-term agricultural credit and medium- and long-term credit to the agricultural, industrial, and commercial enterprises. Short-term production credit for smallholders will continue to be handled through the cooperative credit scheme. Cooperative credit scheme loans have been increasing through the years. They experienced a particularly large increase in 1971 as shown by the following figures:<sup>19</sup>

<b>Year</b>	<b>Amount of Loans (dollars)</b>
1968	1,365,857
1969	1,424,910
1970	1,594,006
1971	2,811,171

### **Local Availability of Supplies and Equipment**

The knowledge about new technology, the desire to utilize it, and the cash or credit to finance it are of no value unless the farmer can buy the seeds, herbicides, etc. at a local cooperative society or duka. The government and/or the private sector must make agricultural inputs available to many local points in sufficient quantity to meet the needs of a developing agriculture. Plan III promises that the Government will develop and propagate new and improved current farm inputs such as insecticides, herbicides, fertilizer, and improved seeds.<sup>20</sup> The plan does not include policies or provisions for making these inputs available at local points to the farmer. Most of the responsibility for supplying

<sup>18</sup> *op. cit.*, p. 166.

<sup>19</sup> D. C. Frederickson, "Spring Review of Small Farmer Credit." The Cooperative Credit Scheme, Uganda. 1972.

<sup>20</sup> *op. cit.*, p. 161.

production inputs to the farmer will fall on the cooperative societies which are supplied by the Uganda Cooperative Central Union Ltd. Their sales volume has been increasing but it is not possible to determine if this is due to increased purchases by the farmer or that the cooperative societies are getting a larger share of the market. Their sales volume for selected items has been as follows:<sup>21</sup>

Item	YEAR		
	1969-1970	1970-1971	1971-1972
	Shs.	Shs.	Shs.
Fertilizer & chemicals	3,009,354	4,938,414	9,415,341
Insecticides and spray pumps	917,516	471,912*	1,437,977
Hoes, wire, and misc. hardware	20,654	60,893	2,035,700

\*The low volume was due to importation delays of these products.

### Agricultural Research

The content of agricultural extension is knowledge. The extension agent must have knowledge about crop varieties and how they respond to soil conditions, length of day, rainfall patterns, fertilizer, diseases, insects, etc. In the early days of technical assistance programs it was assumed that much of the farm technology\* of the agriculturally developed countries could be transferred to the lesser developed countries. All that would be needed would be an extension service which was knowledgeable about western technology and which would teach this technology to the farmers. This was quickly proven to be an inaccurate assumption. No country has achieved substantial agricultural development without effective and efficient agricultural experiment stations. It is also necessary to have field trials throughout the country and collect accurate information on rainfall and crop responses under local conditions. USAID/Uganda recognized the need for a more effective agricultural research effort in Uganda and sponsored a team of U.S. consultants to study and make recommendations on the subject.<sup>22</sup> Ugandan officials also recognize the key role of research in agricultural change. Plan III states:

*Research is the foundation stone upon which rural development efforts ultimately depend. Research on improved varieties, fertilizers, pesticides, and disease control is essential. New production techniques must be field tested to determine their economic viability as farmers cannot be expected*

<sup>21</sup> Correspondence with Mr. Harold Manthei, Agricultural Cooperative Development, International Technical Adviser to the Uganda Cooperative Central Union Ltd.

\*Farm Technology includes the inputs, practices, and management of Agriculture.

<sup>22</sup> Ferguson, Baver, Scott and Wayt, *Agricultural Research in Uganda - A Survey Evaluation and Recommendations*. The Ohio State University, Columbus, Ohio. 1971.

*to change their agricultural practices unless they anticipate a significant benefit from the change. Research results which are economically promising must then be made available to the farmers through the extension services, whose success therefore depends on a strong and continuous research effort.*<sup>23</sup>

No attempt will be made in this study to evaluate the adequacy of these five necessary elements of change within Uganda. The purpose of their inclusion was to point out their interrelatedness to an agricultural extension service and to stress the fact that an extension service cannot be effective unless each of these elements of change are present in an economy.

## **Micro Requirements**

The last section emphasized the complexity of bringing about changes from a traditional subsistence type agriculture to a modern scientific market-oriented agriculture and the dependence of an effective extension service on other conditions for change. This section will cover some of the requirements necessary within an agricultural extension service for the fulfillment of its role in agricultural development. In the opinion of the authors the major requirements are:

1. An orientation toward agricultural development
2. An orientation toward planning, program development, and program evaluation
3. A staff development commitment
4. Close liaison with research institutions and staff
5. Staff incentives for effective performance, and
6. A cadre of subject matter specialists.

## **An Orientation Toward Agricultural Development**

In most less developed countries the central and field staff of the agricultural extension service have various non-agricultural development functions to perform. These may include regulatory functions, political functions, tax collection, data collection, and administration. These additional functions distract from the primary objective of agricultural development and may cause a complete neglect as agricultural development is less tangible, more difficult, and more amenable to postponement than the other functions. In some countries the extension agents are called agricultural development officers in order to emphasize the primacy of the developmental objective. In 1968, the Faculty of Agriculture of Makerere recommended to the President's Cabinet that "a study be made of the organizational and functional aspects of the extension service. This study should cover such topics as reorganization for a development approach rather than an administrative approach."<sup>24</sup>

<sup>23</sup>*op. cit.*, p. 172.

<sup>24</sup>"Report to the Cabinet." Faculty of Agriculture, Makerere University, May, 1968.

It is not sufficient that the sole responsibility of the extension staff be agricultural development; this goal should be re-enforced and supported by a system of reporting, promoting, and budgeting. It is also desirable that the education and training program give the student an understanding of the process of agricultural development.

### **An Orientation Toward Planning**

Planning is, basically, a design for the allocation of resources within a particular sphere of activity. Less developed countries always have a limited amount of resources relative to the magnitude of the need. This calls for tough decisions on such things as scale of operation, opportunity areas for development, methods of communicating to the farmer, number of field staff vs. supporting administrative and specialists staff, and intra-budget allocations, etc. A long-term extension service plan should be made within the context of a long-term plan for agricultural development.

An effective extension service also needs annual work plans which contain targets and strategies for the coming year. Each extension staff member should develop an annual plan of work to guide him in his daily activity and by which his performance can be evaluated.

### **A Staff Development Commitment**

One of the misconceptions of many less developed countries is that a holder of a diploma or degree has finally arrived and is adequately prepared to perform his assigned function. Certificate, diploma, and degree training is only the beginning of an educational process which should be life long. W. Arthur Lewis writes that "the quickest way to increase productivity in the less developed countries is to train adults who are already on the job."<sup>25</sup> Lewis goes on to say that this field is almost wholly neglected and that this type of education must be carried out by the various ministries. In the case of agricultural extension, the responsibility would be in the Ministry of Agriculture.

In-service training of extension staff needs to include both subject matter knowledge and extension methodology. Jon Morris makes the interesting observation that tropical agriculture is much more complex than temperate zone agriculture. There are more diseases, more species of insects, and a greater variability of natural factors.<sup>26</sup> It is necessary, therefore, for the extension staff and farmers to have greater knowledge for decision making than their counterparts in the temperate zone.

The less developed a country is the more important is practical field training for the extension staff. Most of the agricultural students have not been exposed to modern agriculture before their agricultural education and it is not possible in a certificate, diploma, or degree program to give sufficient amount of practical

<sup>25</sup>W. Arthur Lewis: "Education and Economic Development." *Getting Agriculture Moving*, Vol. I, *Selected Readings*, The Agricultural Development Council, Inc., New York, p. 371.

<sup>26</sup>J. R. Morris: "Farmer Training as a Strategy for Rural Development." Rural Development Research paper No. 28, Faculty of Agriculture, Makerere University College.

training. It is necessary, therefore, that practical training and additional exposure to modern technical agriculture be a part of the in-service training program.

There is also a great need for supervisory skills in the extension service. The middle management level of extension needs training in planning, programming, budgeting, and personnel management.

### **Close Liaison With Research Institutions and Staff**

Research and extension have a symbiotic relationship which often is not recognized and, more often, not practiced. The primary responsibility of the agricultural researcher is to serve the agricultural development needs of his country. The research results, therefore, should be of benefit to the farmer, and the extension service is the main pipeline for carrying them to the farmer. The extension staff are, therefore, dependent on the research institutions for up-to-date and relevant research findings. The research staff are, however, dependent upon the extension staff for knowledge about production and marketing problems. The identification of problems and priorities for research efforts cannot be made in a vacuum. They must be made on the basis of the problems which confront the farmers, and the field staff of the extension service are best equipped to provide this necessary feedback. New varieties, cropping pattern, etc., which are developed at central research stations often must be tested under local field conditions. This can be done by the extension staff through result demonstration and field trials. The extension staff needs to be trained, however, in simple statistical design methods and data collection so that the results can be analyzed.

### **Staff Incentives for Effective Performance**

Farmers generally respond to economic incentives in making production decisions. Less attention is given to a reward system for extension personnel – a reward system which will channel their efforts toward meeting the objectives of the agricultural extension service. Salary increases and promotions should be based on a merit system which would include performance standards and staff evaluation. Along this line the Faculty of Agriculture's Report to the Cabinet recommended that a wider range of salaries be established within the Ministry of Agriculture so that greater salary increases could be made, based on meritorious performance. The extension service should also have a career ladder whereby field staff, through further education and good field performance, can be promoted to higher echelons of civil service. Without such a ladder, each level of civil service becomes a dead end street.

### **A Cadre of Subject Matter Specialists**

Most of the teaching activities of extension education are carried out by the field staff. However, it is not possible for all field staff to be knowledgeable about the multitudinous and complex problems facing a developing agriculture. It is, therefore, desirable to have subject matter specialists at different levels of the extension service. These specialists can provide many functions such as giving advice directly to the farmers, back-stopping the field staff through in-service training sessions, the translation of technical research findings into language

more easily understood by field staff and farmers, and supervising field tests and result demonstrations. These subject matter specialists become the liaison officers between the research staff and the extension staff and provide the necessary two-way flow of information between these two bodies.

# CHAPTER 6

## EVALUATION OF ESP'S CONTRIBUTION TO IMPROVING THE BASIC REQUIREMENTS OF AN EFFECTIVE AGRICULTURAL EXTENSION SERVICE IN UGANDA

Six basic requirements of an effective agricultural extension service were discussed in Chapter 5. While the stated objectives of ESP do not necessarily coincide with these basic requirements, the contribution which the ESP has made toward meeting these requirements may be worth evaluation.

### **An Orientation Toward Agricultural Development**

The basic thrust of the ESP is to allocate more staff and other resources toward agricultural development. The five objectives of ESP are all consistent with this goal. The GOU allocated the following staff to his program:

- one extension supervisor for each region\*
- one AAO-ESP for each district
- one-half AA for each ESP.

Discussions with the AID extension advisors and perusal of the annual reports indicate that, in many cases, the time spent by Ugandan staff on ESP's was less than the planned allocation. This was due to other assignments which took priority over ESP work. The extension supervisors have been given additional assignments so, after the AID advisors depart, there will probably not be as much leadership and supervision for the ESP's.

During the AID participation in this project, AID allocated about Shs. 1000 (\$143) to each ESP for demonstration supplies. This allocation has been included in the present budget of the Ministry of Agriculture.

\*These men received Master of Extension degrees in the U.S. and will replace the AID extension adviser in each region.

The in-service training program conducted under the impetus of ESP also stressed agricultural development as the primary responsibility of the extension service. Specific subjects taught include:

1. Philosophy and objectives of ESP
2. Extension methods and approaches for increased production
3. Farm management for greater profits
4. Methods and result demonstration as tools for greater production
5. Supervision and leadership
6. How to plan and follow through on farm visits and field days.

AID extension advisors also developed and utilized a performance point system which stressed farmer contact and made it easier to supervise and evaluate the performance of field staff. The point allocation was as follows:

Activity	Points
<b>Meetings</b>	
Number held in ESP	10 per meeting
Attendance	1 per person
<b>Method Demonstration</b>	
Number	10 per demonstration
Attendance	2 per person
<b>Tours</b>	
Number	10 per tour
Attendance	2 per person
<b>Farmers contacted</b>	
Number	5 per person
<b>Local Leaders</b>	
Number	10 per leader
<b>Result demonstration</b>	
Number started	10 per demonstration
Number completed	20 per demonstration
<b>District Farm Institute</b>	
Attendance	10 per person
<b>Organized groups</b>	
Number	20 per group
Members	2 per member

A reasonable work load consisted of 1,200 points per month per extension worker. Discussions with the AID extension advisors indicated that they would like to change the point system to reflect only current activity. The number of local leaders and number of organized groups may not reflect activity during the reporting period.

In the opinion of the authors, the ESP has brought about an increased orientation toward agricultural development within the Ministry of Agriculture of Uganda.

## **An Orientation Toward Planning, Program Development, and Program Evaluation**

Planning achieves impact by setting long-term (usually five years) and short-term (usually one year) objectives. Also set are identifiable methods and time periods to achieve these objectives, and the measurement of performance, in both quantitative and qualitative terms.

The ESP established five objectives to be attained during the five years of USAID participation in the program and the annual reports evaluated, qualitatively, the progress of the program relative to these objectives.\*

The 1970 baseline survey and 1972 follow-up survey should provide the data necessary to quantitatively evaluate the impact of the program.

USAID advisors, through the ESP, emphasized the concept of program planning to the Ugandan Agriculture Extension Service. Mr. Tom Reynolds writes in his end-of-tour report that:

*All ESP staff were involved in planning and implementing written program of work employing from 6-10 proven extension methods. Staff working in ESP are required to submit written monthly reports on their project activities.*

Discussions with the other AID extension advisors indicate that this statement accurately represents the situation in Uganda.

The importance and methodology of program planning was stressed in the in-service training courses. For example, the Extension training course for senior staff held at the Tororo District Farm Institute, October 14-24, 1970, had two days of training on program planning and developing local leadership for program planning. The other three areas had similar training courses.

A budget is the financial instrument through which plan objectives are achieved. A budget thus represents the resource allocation decision of the national government and the agricultural extension service. AID advisors John Bull and Lloyd Trawick mentioned in their end-of-tour reports that there were insufficient funds allocated to transportation and this limited the farmer contact and supervisory activity of field staff. The AID extension advisors also felt that spur-of-the moment decisions by the Ministry of Agriculture and the Government of Uganda disrupted the implementation of extension plans and acted to discourage planning.

The authors conclude that the ESP had definitely contributed to increased program planning and evaluation within the Agricultural Extension Service of Uganda. The result should be a more effective extension service.

\*The only quantifiable goals given in the USAID documents were the number of ESP'S to be established and the number of participants to be trained. It is believed that the planning of the project should have included a greater quantification of objectives and sub-objectives.

## **Close Liaison with Research Institutions and Staff**

The cooperation and exchange of ideas between research and extension staff in the Ministry of Agriculture is minimal. In Uganda most of the extension personnel are educated at Bukalasa and Arapai Agricultural Colleges and the research personnel are educated at Makerere University College, so personal acquaintance does not provide an initial basis for cooperation and dialogue.

Conversations with AID extension advisors indicate that the ESP has resulted in greater interaction between research and extension. Both AID and Ugandan extension staff have organized tours for farmers and extension staff to visit the Government Research Stations at Kawanda and Serere and the Kabanyolo Research Farm of the Faculty of Agriculture. The Kabanyolo Farm has had an annual open day since 1968 and about 2,500 farmers and extension personnel have attended each year.\* In 1971, all extension personnel were invited to an advance preview of the research activities at Kabanyolo so they would encourage farmers to attend. The annual report of the AID extension advisors does not include data on the number of visits or number of farmers visiting the research station.

The Ministry of Agriculture established a position of Research-Extension Liaison Officer who is located at the Kawanda Research Station.

The staff of the ESP's completed 1,712 result demonstrations in 1971. This is a potentially very valuable source of local data for research staff. There is a need for greater input into the planning of these result demonstrations by research staff so that the data are more reliable and can be used for statistical analysis.

## **Continuing Education Commitment**

In the opinion of the AID Extension Advisors, staff training, on an in-service basis, has been the most successful aspect of the ESP. This includes training courses held at District Farm Institute for 1-10 days and informal on-the-job training connected with planning and implementing demonstration, tours, meetings, and general supervisory activity.

In-service training programs differed by regions. At the beginning it generally included all RAO's, all DAO's and the AAO's, AA's and FA from the ESP areas. The initial training period was two weeks. Subsequently, periodic training sessions were held for all extension staff and gombololo chiefs. The training included subject matter in agricultural production, program planning, extension teaching methods, program implementation, evaluation and supervision, farm management, extension philosophy, record keeping, extension reporting, and leadership principles. Initially most of the training was conducted by AID Extension Advisors but subsequently greater use was made of research staff, other extension staff, diploma college staff, and Makerere Faculty of Agriculture staff.

\*Kabanyolo Open Day was not held in 1972 due to a special political situation.

Surprisingly, training received little attention in the annual reports and end-of-tour reports, considering the important role that all of the AID Extension Advisors attach to it. Some of the reports do not contain data on length of training subjects taught or number of staff trained. The AID advisors report confidence that the increased amount of increased training will continue but do not indicate how much additional training has been added or how it has become institutionalized into the Agricultural Extension Service of Uganda.

USAID trained 11 Ugandans in the United States specifically for ESP activity; eight received two years of graduate work and three received one year of extension education. Since the inception of USAID assistance to Uganda's Agricultural Extension Service, 87 Ugandan participants have received training in the United States.

### **Incentive for Good Performance**

USAID Extension Advisors feel that the performance point system described earlier provides the basis for staff supervision and evaluation. It may also provide an incentive, as the staff can direct their efforts toward specific job tasks and receive a psychological reward from the successful attainment of those tasks. The Uganda Agricultural Extension Service does not have a salary incentive system which rewards staff for good performance. A diploma graduate from an agricultural college will enter the service as an AAO, receive periodical salary increase based on seniority rather than merit, and probably will continue as an AAO until retirement. Very limited opportunities have been available through USAID and Makerere whereby a diploma holder can get a B.S. Degree in agriculture. Those who study in the United States can usually complete their degree in about two years, while those who study at Makerere must complete the normal three-year curriculum. Upon return to the Agricultural Extension Service, the degree holder is promoted to the next rung on the ladder which is an Agricultural Officer. The USAID extension advisors recognized this shortcoming and Lloyd Trawick's end-of-tour report stated that the "lack of staff incentives limited the success of the programs."

### **Cadre of Subject Matter Specialists**

The end-of-tour report of John Bull states that: "The idea of subject matter specialists apparently has not been accepted by the Ministry." This statement is basically true, although there are specialists in ox cultivation, tobacco, and credit. These specialists are generally certificate or diploma graduates and are not a liaison between the extension and research services, nor can they be used for in-service training for other extension staff.

There is no evidence that the ESP has had any influence in creating a more favorable attitude for specialists.

# **Statistical Evaluation of the Extension Saturation Project**

# **CHAPTER 7**

The five objectives of ESP which will be evaluated are:

1. Increased efficiency of the majority of the farmers in the ESP units.
2. Increased yields and overall productivity of the farmers.
3. Changes in the attitudes of the people toward progressive farming and relief of social pressures which hold back progress.
4. Improvement of staff efficiency by involving them in an effective extension program.
5. Gaining information and finding the most effective type of extension program to use in Uganda.

## **Objective 1**

### **Increased Efficiency of the Majority of the Farmers in the ESP Units.**

An economist thinks of efficiency as an increase in output per unit of input. For example, a better variety of cotton may increase cotton production without causing an increase in the amount of labor, land, capital, or management which go into the production process. If it does, the new variety of cotton has increased the efficiency of cotton production. The data is not available from this study or from other sources to measure directly any increase in efficiency in production. Instead, one must assume that exposure to extension education and the adoption of recommended practices will result in greater efficiency. With this assumption, the effect can be measured of the ESP on increased exposure to extension education and greater adoption of recommended practices.

Farmers were asked if they had heard of the Extension Saturation Project. Eighty-six percent of the farmers in the ESP area had heard of ESP while only 45 percent of the farmers in the central area had heard of ESP (Table 3).

**Table 3. Respondents' Knowledge of Extension Saturation Project, Post-test.**

Knowledge of ESP	ESP's		Control		Total	
	No	%	No	%	No	%
Yes	917	85.8	253	44.6	1170	71.5
No	149	13.9	302	53.3	451	27.6
Refused to answer	3	.3	13	2.1	16	.9
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

The data show that the farmers in the ESP area have participated in more extension activities than the farmers in the control areas. The activities which showed the largest increase in participation were result and method demonstration, agricultural and animal demonstrations, farm tours, and agricultural extension courses (Tables 4 and 5).

**Table 4. Number of Farmers or Members of Household Who Have Participated in Extension Activities During Past Twelve Months, Post-test.**

Type of Activity	ESP's		Control		Total	
	No	%	No	%	No	%
None	325	30.4	239	42.1	564	34.4
Result demon.	346	32.4	65	11.4	411	25.1
Method demon.	480	44.9	102	18.0	582	35.6
Farmers field day	231	21.6	98	17.3	329	20.1
Agricultural demon.	263	24.6	85	15.0	348	21.2
Animal demon.	189	17.7	42	7.4	231	14.1
Farm tour/visit	217	20.3	79	13.9	296	18.1
Mobile cinema	269	25.2	137	24.1	406	24.8
Attended exhibits/ received pamphlets	127	11.9	109	19.2	236	14.4
Other	25	2.3	1	.2	26	1.6
<b>TOTALS</b>	<b>2472</b>		<b>957</b>		<b>3429</b>	

**Table 5. Course Participation by Farmer or Members of Household During the Past Twelve Months, Post-test.**

Type of Course	ESP's		Control		Total	
	No	%	No	%	No	%
None	666	61.7	373	65.7	1039	63.5
D.F.I. (once)	131	12.2	54	9.5	185	11.3
D.F.I. (twice)	40	3.7	7	1.2	47	2.9
D.F.I. (thrice)	17	1.6	2	.4	19	1.2
Farm management course 12 lectures	12	1.1	5	.9	17	1.0
C.D. village activity	212	19.8	144	25.4	356	21.7
Vet. animal husbandry course	42	3.9	31	5.4	73	4.4
Rural dev. centre course	67	6.3	70	12.3	137	8.4
Agric. extension course	138	12.9	25	4.4	163	10.0
Other	4	.4	8	1.4	12	.7
<b>TOTALS</b>	<b>1069</b>		<b>568</b>		<b>1637</b>	

There was very little difference in the percentage of farms visited by government officials during the past year. In the ESP area, 17.4 percent of the respondents reported no visits and in the control areas 21.5 percent reported no visits by government officials. If the visits by agricultural assistants and agricultural officers are combined, about 76 percent of the farmers in both the ESP and control areas reported visits by these officials (Table 6). This would indicate that the increased emphasis within the ESP area was not on farm visits but rather in group meetings such as demonstrations, farm tours, etc.

Only about one-half of the farmers reported seeking information from government officials (Table 7). The data indicate that the farmers in the control area are more prone to seek information from the local chiefs and sub-chiefs while the ESP farmers are more prone to go to the government officials for information.

**Table 6. Number of Farms Visited by Government Officials During the Past Twelve Months, Post-test.**

Government Official	ESP's		Control		Total	
	No	%	No	%	No	%
None	186	17.4	122	21.5	308	18.8
Chief-Sub Chief	488	45.6	357	62.8	845	51.6
Agricultural Assistant	626	58.6	360	63.4	986	60.2
Agricultural Officer	188	17.6	72	12.7	260	15.9
Vet. Officers/ Assistant	168	15.7	59	10.4	227	13.9
Co-operative Offices	71	4.3	18	3.2	89	5.4
D.C./A.D.C.	19	1.8	11	1.9	30	1.8
S.C./A.S.C.	2	.2	2	.4	4	.2
C.D. Officer	48	4.5	3	.5	51	3.1
Marketing Offices	15	1.4	14	2.5	29	1.8
Other	44	4.1	7	1.2	51	3.1

**Table 7. Number of Farmers or Members of Household Who Have Sought Information from Government Officials During the Past 12 Months, Post-test.**

Government Official	ESP's		Control		Total	
	No	%	No	%	No	%
None	534	50.0	255	44.9	789	48.2
Chief/Sub-Chief	266	24.9	244	43.0	510	31.2
Agricultural Assistant	371	34.7	194	34.2	565	34.5
Agricultural Offices	117	10.9	43	7.6	160	9.8
Vet. Officer/Assistant	145	13.6	44	7.7	189	11.5
Co-operative Offices	41	3.8	14	2.5	55	3.4
D.C./A.D.C.	6	.6	5	.9	11	.7
S.G./A.S.G.	1	.1	—	—	1	.1
C.D. Offices	36	3.4	9	1.6	45	2.7
Marketing Offices	3	.3	16	1.0	19	1.2
Other	15	1.4	2	.4	17	1.0
<b>TOTALS</b>	<b>1069</b>		<b>568</b>		<b>1637</b>	

Tables 8, 9, 10, and 11 show that the extension services is relied on more heavily by ESP farmers for information on planting time, seeds, fertilizers and insecticides, market prices, and livestock.

**Table 8. Respondents' Source of Information on Time to Plant Certain Crops, Post-test.**

Source	ESP's		Control		Total	
	No	%	No	%	No	%
No source	97	9.1	98	17.3	195	11.9
Friends/ neighbors	82	7.7	44	7.7	126	7.7
Local Chief-direct	53	4.9	38	6.7	91	5.6
Local Chief-Baraza	17	1.6	15	2.6	32	2.0
Extension Service	702	65.6	275	48.4	977	59.7
School teachers	—		—		—	
Local co-ops	45	4.2	31	5.5	76	4.6
Radio	42	3.9	51	9.0	93	5.7
Newspaper	3	.3	13	2.3	16	1.0
D.F.I.	7	.7	—		7	.4
Other	1	.1	1	.2	2	.1
No answer	20	1.9	2	.3	22	1.3
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

**Table 9. Respondents' Main Source of Information on Seeds, Fertilizers, and Insecticides, Post-test.**

Source	ESP's		Control		Total	
	No	%	No	%	No	%
No Source	69	6.5	64	11.3	133	8.1
Friends/neighbors	62	5.8	64	11.3	126	7.7
Local Chief-direct	50	4.7	17	3	67	4.1
Local Chief-Baraza	5	.5	4	.7	9	.5
Extension Service	790	73.9	299	52.6	1089	66.5
School teachers	1	.1	—		1	.1
Local Co-op	25	2.3	56	9.8	81	4.9
Radio	40	3.7	53	9.3	93	5.7
Newspaper	1	.1	8	1.4	9	.6
D.F.I.	7	.6	1	.2	8	.5
Other	2	.2	—		2	.2
No answer	17	1.6	2	.4	19	1.2
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

**Table 10. Respondents' Main Source of Information on Market Price, Post-test.**

Source	ESP's		Control		Total	
	No	%	No	%	No	%
No Source	84	7.8	18	3.2	102	6.2
Friends/neighbors	155	14.5	79	14.	234	14.3
Local Chiefs-direct	38	3.5	35	6.2	73	4.5
Local Chiefs-Baraza	8	.7	15	2.6	23	1.4
Extension Service	247	23.1	53	9.3	300	18.3
School teachers	—		—		—	
Local co-ops	279	26.1	183	32.2	462	28.2
Radio	213	20.0	163	28.7	376	23.0
Newspaper	18	1.7	20	3.5	38	2.3
D.F.I.	6	.6	—		6	.4
Other	3	.3	—		3	.2
No answer	18	1.7	2	.3	20	1.2
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

**Table 11. Respondents' Main Source of Information on Livestock, Post-test.**

Source	ESP's		Control		Total	
	No	%	No	%	No	%
No source	296	27.7	234	41.3	530	32.4
Friends/neighbors	65	6.1	44	7.7	109	6.6
Local Chief-direct	90	8.4	22	3.9	112	6.8
Local Chief-Baraza	38	3.5	13	2.3	51	3.1
Extension Service	230	21.5	87	15.3	317	19.4
School teacher	2	.2	—		2	.1
Local co-ops	15	1.4	9	1.6	24	1.4
Radio	127	11.9	82	14.4	209	12.8
Newspapers	6	.6	7	1.2	13	.8
D.F.I.	32	3	—		32	2
Other	146	13.6	66	11.6	212	13
No answer	22	2.1	4	.7	26	1.6
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

All of the contacts with the Agricultural Extension Service were aggregated into a grand total extension score. There was already a statistically significant difference in the grand total extension score means, at the one percent level, in the pre-test. This means that there was only one chance out of one hundred that the difference in the means of the two samples was due to chance.\* The score mean for the ESP area was 13.31 in the pre-test compared with a mean of 10.01 for the control areas. This tells us that, on the average, the farmers in the ESP had 3.30 more contacts with the Extension Service than the non-ESP farmers, during the preceding 12 months. The average ESP farmer contacts with the Extension Service increased from 13.31 in the pre-test to 15.35 in the post-test which was statistically significant at the one percent level. During the same period the score mean of the control farmer increased from 10.01 to 13.38, which was also statistically significant at the one percent level.

The study included a number of measurements of the adoption of improved practices. Farmers who raised coffee and bananas were asked what production practices they followed which were recommended by the Agricultural Extension Services. Table 12 shows the distribution of coffee scores in the pre-test. If we use the midpoints of each category as an average within the category and use 35 points as the average coffee score of those farmers reporting over 30 points, the mean coffee score for the ESP farmer was 13.23 and for the control farmer the mean was 14.0. The mean score for all farmers was 13.5.

**Table 12. Total Coffee Score, Pre-test.**

Score	ESP's	Control	Total
	No	No	No
0	—	—	—
1 - 3	3	1	4
4 - 6	20	7	27
7 - 9	63	17	80
10 - 13	134	87	221
14 - 16	120	74	194
17 - 19	24	12	36
20 - 30	35	19	54
31 +	1	3	4
<b>TOTALS</b>	<b>400</b>	<b>220</b>	<b>620</b>
<b>Mean</b>	<b>13.23</b>	<b>14.0</b>	<b>13.5</b>

\*The pre-test was taken about 12 months after the ESP was begun.

Table 13 shows the distribution of coffee scores in the post test. Using the same method of calculation as in the pre-test the coffee score mean of the ESP coffee growers was 15.6, for the control coffee growers it was 14.5, and the overall mean was 15.2. The mean coffee score for ESP coffee growers had risen from 13.23 to 15.6 which was significant at the one percent level. The mean coffee score of the control coffee growers had risen from 14.0 to 14.5 which was not significant.

**Table 13. Total Coffee Score, Post-test.**

Score	ESP's	Control	Total
	No	No	No
0	1	—	1
1 - 3	2	1	3
4 - 6	8	4	12
7 - 9	40	28	68
10 - 13	140	69	209
14 - 16	91	78	169
17 - 19	27	36	63
20 - 30	82	25	107
31 +	12	—	13
<b>TOTALS</b>	<b>403</b>	<b>241</b>	<b>644</b>
<b>Mean</b>	<b>15.6</b>	<b>14.5</b>	<b>15.2</b>

The distribution of banana scores in the pre-test is shown in Table 14 and in the post-test in Table 15. The midpoint of each category was used as an average for that category and 15 points was used as an average for those farmers reporting a score of over 13.

**Table 14. Total Banana Score, Pre-test.**

Score	ESP's	Control	Total
	No	No	No
0	—	—	—
1 - 2	5	3	8
3 - 4	8	5	13
5 - 6	32	10	42
7 - 8	24	24	48
9 - 10	11	6	17
11 - 12	9	9	18
13 +	4	17	21
<b>TOTALS</b>	<b>93</b>	<b>74</b>	<b>167</b>
Mean	7.10	9.08	7.98

**Table 15. Total Banana Score, Post-test.**

Score	ESP's	Control	Total
	No	No	No
0	1	5	6
1 - 2	4	7	11
3 - 4	14	25	39
5 - 6	31	14	45
7 - 8	76	10	86
9 - 10	46	13	59
11 - 12	22	1	23
13 +	10	—	10
<b>TOTALS</b>	<b>204</b>	<b>75</b>	<b>279</b>
Mean	8.01	5.15	7.24

The mean banana score for the ESP banana growers increased from 7.10 to 8.01, which was significant at the five percent level, while the mean banana score for the control group decreased from 9.08 to 5.15—a significant decrease at the one percent level. The data also show an increase of 111 banana growers in the ESP areas while the number in the control area remained relatively constant.

All farmers were asked questions about their crop rotation practices. Tables 16 and 17 show the rotation score for the pre- and post-test.

**Table 16. Rotation Score, Pre-test.**

Score	ESP's	Control	Total
	No	No	No
0	170	90	260
1	240	136	376
2	263	129	392
3	114	82	196
4	158	52	210
5	17	1	18
6	102	84	187
No answer	0	3	3
<b>TOTALS</b>	<b>1064</b>	<b>574</b>	<b>1641</b>
Mean	2.29	2.38	2.32

**Table 17. Rotation Score, Post-test.**

Score	ESP's	Control	Total
	No	No	No
0	59	161	220
1	215	88	303
2	261	121	382
3	157	93	250
4	198	79	277
5	30	8	38
6	133	12	145
No answer	16	6	22
<b>TOTALS</b>	<b>1069</b>	<b>568</b>	<b>1637</b>
Mean	2.80	1.85	2.47

The mean rotation score of the ESP farmers increased from 2.29 in the pre-test to 2.80 in the post-test, which was significant at the one percent level. The mean rotation score of the control farmers decreased from 2.32 to 1.85 during the same period, which was significant at the one percent level.

Tables 18 and 19 show the types of farm implements on farms in the pre-test and post-test. It indicates that there has been an increase in farm implements, but the greatest increase has been in the non-ESP areas. In the pre-test, 71 percent of the control farmers reported none of the named implements; this had decreased to 47 percent in the post-test. Using the t test, the increase in the number of implements among the control farmers was significant at the one percent level, while there was no significant change among the ESP farmer.

**Table 18. Farm Implements on the Farm, Pre-test.**

Implement	ESP's		Control		Total	
	No	%	No	%	No	%
Spade, shovel, fork	71	7	45	8	116	7
Plough, harrow	154	14	90	16	244	15
Cultivator, weeder	39	4	10	2	449	3
Maize huller, groundnut sheller	—	—	1	—	1	—
Planter	6	1	1	—	7	—
Wheelbarrow	24	2	6	1	30	2
Insecticide spray pump	149	14	23	4	172	10
Hand, ox cart	29	3	—	—	29	2
Truck, tractor	2	—	—	—	2	—
Pulper	23	2	23	4	46	3
None of these	720	68	412	71	1132	69

**Table 19. Farm Implements on the Farm, Post-test.**

Implement	ESP's		Control		Total	
	No	%	No	%	No	%
Spades, shovel, jack	223	20.9	207	36.4	430	26.3
Plough, harrow	130	12.2	82	14.4	212	13.0
Cultivation, weeder	30	2.8	3	.5	33	2.0
Maize huller, groundnut sheller	7	.6	2	.4	9	.5
Planter	9	.8	2	.4	11	.7
Wheelbarrow	51	4.8	42	7.4	93	5.7
Insecticide spray pump	77	7.2	70	12.3	147	9.0
Hand, ox cart	12	1.1	6	1.0	18	1.1
Truck, trailer	1	.1	1	.2	2	.1
None of these	668	62.5	269	47.4	937	57.2
Number of respondents	1069		568		1637	

The farmers were asked how much money they spent during the previous twelve months in agricultural production inputs such as fertilizers, herbicides, improved seeds, etc. The pre-test and post-test results are shown in Tables 20 and 21.

T test analysis showed that there was no significant increase in farm expenditure for inputs by the ESP farmer but the increased expenditure by the non-ESP farmers was significant at the one percent level.

There was no significant change in the number of plough oxen on farms of either the ESP or the control farmers between the pre- and post-test or any significant different between the two groups.

**Table 20. Total Farm Expenditures, Pre-test.**

Expenditures (Shs)	ESP's		Control		Total	
	No	%	No	%	No	%
None	441	41	320	55	761	46
1 - 50	238	22	110	19	348	21
51 - 100	131	12	48	8	179	11
101 - 200	132	12	43	8	165	10
Over 200	132	13	56	10	188	12
<b>TOTALS</b>	<b>1064</b>	<b>100</b>	<b>577</b>	<b>100</b>	<b>1641</b>	<b>100</b>

**Table 21. Total Farm Expenditures, Post-test.**

Expenditures (Shs)	ESP's		Control		Total	
	No	%	No	%	No	%
None	404	37.8	237	41.7	641	39.1
1 - 50	242	22.6	111	19.5	353	21.6
51 - 100	122	11.4	65	11.4	187	11.4
101 - 200	105	9.8	63	11.1	168	10.3
Over 200	170	15.9	90	15.9	260	15.9
No answer	26	2.5	2	.4	28	1.7
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>16371</b>	<b>100</b>
Average*	shs79		shs78			

\*Using shs. 300 as the average for those farmers reporting over shs. 200 expenditures.

## Objective 2

### Increased Yields and Overall Productivity of the Farmers.

The farmers were asked to list their main crops and how many pounds, bags, debies, etc. of each crop were harvested. The crop value was calculated by multiplying the production by the market price. The value of all crops produced was aggregated and coded into value ranges as follows:

	Code
Shs. 100/ - or less	1
Shs. 101/ - 200	2
Shs. 201/ - 400	3

	Code
Shs. 401/ - 600	4
Shs. 601/ - 800	5
Shs. 801/ - 1000	6
Shs. 1001/ - 1500	7
Shs. 1501/ - 2000	8
Over Shs. 2000/	9

The actual value was not recorded on the questionnaire so the t tests had to be made from the code rather than from the actual value. The coded value scores were as follows:

**Table 22. Grand Total Average Value Score.**

Group	Pre-test	Post-test	Significance Level
ESP	3.65	3.59	Not significant
Control	3.13	4.10	1 percent

The change in the value score of the ESP farmers was not significant but for the control farmers the increase was significant at the one percent level.

A separate grand total value analysis was done for the coffee farmers. This increase in value of production was significant, at the one percent level, for both groups of farmers (Table 23). The difference in the value score between the ESP and control farmers in the post-test was significant at the one percent level.

**Table 23. Grand Total Average Value Score, Coffee Farmers.**

Group	Pre-test	Post-test	Significance Level
ESP	3.26	4.06	1 percent
Control	3.50	4.68	1 percent

The farmers were asked what their total household income was during the past twelve months (Table 24).

**Table 24. Total Household Income During the Past Twelve Months, Post-test.**

Income (Shs)	ESP's		Control		Total	
	No	%	No	%	No	%
Less than 200	198	18.5	101	17.8	299	18.3
201 - 300	121	11.2	45	7.9	166	10.2
301 - 500	134	12.5	91	16.1	225	15.6
501 - 1000	256	23.9	150	26.4	406	24.8
1001 - 1500	117	10.9	53	9.3	170	10.4
1501 - 2000	83	7.8	33	5.8	116	7.1
2001 - 2500	34	3.2	28	4.9	62	3.8
2501 - 3000	18	1.7	7	1.2	25	1.5
Over 3000	44	4.1	29	5.1	73	4.5
No answer	64	6.0	31	5.5	95	5.8
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

Household income was coded as follows:

	Code
None	0
Less than Shs. 200/	1
Shs. 201/ - 300/	2
Shs. 301/ - 500/	3
Shs. 501/ - 1000/	4
Shs. 1001/ - 1500/	5
Shs. 1501/ - 2000/	6
Shs. 2001/ - 2500/	7
Shs. 2501/ - 3000/	8
Over Shs. 3000/	9

Again the actual income was not recorded on the computer cards, so the tests had to be made from the coded income scores which were as follows:

**Table 25. Coded Average Income Scores.**

<b>Group</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>Significance Level</b>
ESP	3.55	3.60	Not significant
Control	2.95	3.70	1 percent

The change in income scores of the ESP farmers was not significant but for non-ESP farmers the increase was significant at the one percent level. The income scores for coffee farmers is shown in Table 26. The increase in the income scores was significant at the one percent level for both groups of coffee growers.

**Table 26. Coded Income Scores for Coffee Growers.**

<b>Group</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>Significance Level</b>
ESP	3.26	3.98	1 percent
Control	3.04	4.18	1 percent

The respondents' perception of a change in their standard of living should also indicate changes in income and productivity. The farmers were asked whether their standard of living had changed over the past two years and the answers were coded as follows:

	<b>Code</b>
Greatly improved	5
Somewhat improved	4
Remained about the same	3
Became somewhat worse	2
Became markedly worse	1
Don't know	0

The distribution of responses for the pre-test and post-test is shown in Tables 27 and 28.

**Table 27. Respondents' Views on Changes in Standard of Living over the Past Two Years, Pre-test.**

Changes in Standard of Living	ESP's		Control		Total	
	No.	%	No.	%	No.	%
Greatly improved	130	12	74	13	204	12
Somewhat improved	386	36	131	23	517	32
About the same	193	18	148	26	341	21
Somewhat worse	223	21	153	26	376	23
Markedly worse	125	12	62	11	187	11
Don't know	7	1	9	1	16	1
<b>TOTALS</b>	<b>1064</b>	<b>100</b>	<b>577</b>	<b>100</b>	<b>1641</b>	<b>100</b>

**Table 28. Respondents' Views on Changes in Standard of Living Over the Past-Two Years, Post-test.**

Changes in Standard of Living	ESP's		Control		Total	
	No	%	No	%	No	%
Greatly improved	253	23.6	111	19.5	364	22.2
Somewhat improved	332	31.1	179	31.5	511	31.2
About the same	193	18.1	150	26.4	343	21
Somewhat worse	253	23.7	91	16	344	21
Markedly worse	26	2.4	30	5.3	56	3.4
No answer	12	1.1	7	1.2	19	1.2
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

The coded values are shown in Tables 29 and 30. They show that the perceived increase in the standard of living of the ESP farmers is significant at the five percent level and that of the control farmers is significant at the one percent level. For coffee farmers, the perceived increase in standard of living is significant at the one percent level for both groups.

**Table 29. Coded Average Standard of Living Score.**

Group	Pre-test	Post-test	Significance Level
ESP	3.37	3.51	5 percent
Control	2.97	3.44	1 percent

**Table 30. Coded Average Standard of Living Score, Coffee Farmers.**

Group	Pre-test	Post-test	Significance Level
ESP	2.87	3.28	1 percent
Control	2.67	3.62	1 percent

Standards of living are usually measured in terms of material possessions so one could expect a perceived increase in the standard of living to be reflected in an increase of household possessions. Tables 31 and 32 show the pre- and post-test possessions of selected household goods. The only significant increases in possessions have been in radios and lamps.

**Table 31. Household Possessions, Pre-test.**

Household Item	ESP's		Control		Total	
	No	%	No	%	No	%
Radio	259	24	156	27	415	25
Television	7	1	2	—	9	1
Kerosene, pressure lamp	546	51	298	52	844	51
Clock	117	11	65	11	182	11
Wrist watch	144	14	82	14	226	14
Handmill	41	4	22	4	63	4
Bicycle	630	59	315	55	845	58
Sewing machine	37	3	16	3	53	3
Scooter, motorcycle, car	12	1	4	1	16	1
None of these	193	19	117	20	310	19

**Table 32. Household Possessions, Post-test.**

Household Items	ESP's		Control		Total	
	No	%	No	%	No	%
Radio	347	32.5	211	37.1	558	34.1
TV	15	1.4	10	1.8	25	1.5
Kerosene, pressure lamps	664	62.1	309	54.4	973	59.4
Clock	115	10.8	63	11.1	178	10.9
Wrist watch	138	12.9	82	14.4	220	13.3
Handmill	41	3.8	7	1.2	48	2.9
Bicycle	603	56.4	346	60.9	949	58.0
Sewing machine	35	3.3	18	3.2	53	3.2
Scooter, motorcycle, car	13	1.2	13	2.3	26	1.6
None of these	200	18.7	112	19.7	312	19.0
Number of respondents	1069		568		1637	

### **Objective 3**

#### **Changes in the Attitudes of the People Toward Progressive Farming and Relief of Social Pressures Which Hold Back Progress.**

One of the objectives of an Agricultural Extension Service is to develop a more positive attitude among farmers toward modern practices and progressive farming. Tables 33 and 34 show the pre-test and post-test farmer attitudes toward recommended practices.

Seventy-four percent of the ESP farmers in the pre-test thought that there had been improvements in attitudes toward recommended practices, while 84 percent of the ESP farmers held this view in the post-test. Among the non-ESP farmers the percentage rose from 58 to 75 percent. Both of these increases are significant at the one percent level.

The farmers were asked a series of questions relative to their views on adopting new methods of farming. Their responses are shown in Tables 35, 36, 37, 38, and 39. The answers to these four questions were aggregated into an attitude toward extension scores. The aggregate score for the pre- and post-test is shown in Table 40 and shows that a more positive attitude toward extension was exhibited by both the ESP and control groups and the increase for both groups was significant at the one percent level.

**Table 33. Respondents' Views on Attitudes of the People Toward Recommended Practices and Progressive Farming During the Past Two Years, Pre-test.**

Attitude	ESP's		Control		Total	
	No	%	No	%	No	%
Great improvement	267	25	127	22	394	24
Some improvement	519	49	210	36	729	45
Little or no change	129	12	85	15	214	13
Somewhat more reluctance to change	10	1	33	6	43	3
Decidedly more reluctance to change	9	1	12	2	21	1
Don't know	126	12	109	19	235	14
Refused to answer	4	—	1	—	5	—
<b>TOTALS</b>	<b>1064</b>	<b>100</b>	<b>577</b>	<b>100</b>	<b>1641</b>	<b>100</b>

**Table 34. Respondents' Views on Attitudes of the People Toward Recommended Practices and Progressive Farming During the Past Two Years, Post-test.**

Attitude	ESP's		Control		Total	
	No	%	No	%	No	%
Great improvement	384	35.9	120	21.2	504	30.8
Some improvement	517	48.4	307	54.1	824	50.5
Little or no change	56	5.2	60	10.6	116	7.1
Somewhat more reluctance to change	16	1.5	11	1.9	17	1.6
Decidedly more reluctance to change	5	.5	2	.4	7	.4
Don't know	89	8.3	65	11.5	154	9.4
Refused to answer	2	.2	3	.3	5	.2
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

**Table 35. Respondents' Views on How Neighbors React to Adoption of Recommended Methods of Farming, Post-test.**

Views	ESP's		Control		Total	
	No	%	No	%	No	%
Strongly approve	534	50	302	53.1	836	51.0
Approve somewhat	374	35	164	28.9	538	32.9
Neutral	45	4.2	54	9.5	99	6.1
Disapprove somewhat	32	3	9	1.6	41	2.5
Disapprove strongly	4	.4	1	.2	5	.3
No answer	80	7.4	38	6.7	118	7.2
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

**Table 36. Respondents' Views on Difficulty of Using New Method, Post-test.**

Views	ESP's		Control		Total	
	No	%	No	%	No	%
Much more difficult	88	8.13	19	3.3	107	6.5
Somewhat difficult	236	22.1	97	17.1	333	20.4
About the same	26	2.4	105	18.5	131	8
Less difficult	340	31.8	131	23.1	471	28.8
Much less difficult	304	28.4	163	28.7	467	28.5
No answers	75	7.0	53	9.3	128	7.8
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

**Table 37. Respondents' Views on Cost of Adopting Modern Methods of Farming, Post-test.**

Views	ESP's		Control		Total	
	No	%	No	%	No	%
Cost much more	309	28.9	116	20.4	425	26.0
Costs somewhat more	325	30.4	178	31.3	503	30.7
Costs about the same	56	5.2	39	6.9	95	5.8
Costs somewhat less	92	8.6	42	7.4	134	8.2
Costs much less	93	8.7	134	23.6	227	13.8
No answer	194	18.2	159	10.4	253	15.5
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

**Table 38. Respondents' Views on How Much Time "New Methods" Farmers Have to do Other Things, Post-test**

Views	ESP's		Control		Total	
	No	%	No	%	No	%
Much more time	336	31.4	133	23.4	469	28.7
Somewhat more time	213	20	100	17.6	313	19.1
About the same	61	5.7	87	15.3	148	9
Somewhat less time	198	18.5	87	15.3	285	17.4
Much less time	171	16	100	17.6	271	16.6
No answer	90	8.4	61	10.8	151	9.2
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

**Table 39. Respondents' Views on Whether the Adoption of New Methods is Worth the Effort in Time and Money Spent, Post-test.**

Views	ESP's		Control		Total	
	No	%	No	%	No	%
Much more in return	620	58	295	51.9	915	55.9
Somewhat more in return	334	31.3	171	30.1	505	30.9
About the same	17	1.6	47	8.3	64	3.9
Somewhat less in return	19	1.8	11	1.9	30	1.8
Much less in return	9	.9	1	.2	10	.6
No answer	70	6.6	43	7.6	113	6.9
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

**Table 40. Attitudes Toward Extension Score.**

Group	Pre-test	Post-test	Significance Level
ESP	15.78	17.37	1 percent
Control	12.36	16.98	1 percent

The farmers report satisfaction with the extension services in their parish and ESP farmers are more satisfied (90 percent) than non-ESP farmers (79 percent).

**Table 41. Respondents' Views on Their Satisfaction with the Extension Service in their Parish, Post-test.**

Views	ESP's		Control		Total	
	No	%	No	%	No	%
Very satisfied	541	50.6	226	39.8	767	46.8
Somewhat satisfied	418	39.1	224	39.4	642	39.2
Neither satisfied nor dissatisfied	39	3.6	69	12.1	108	6.6
Somewhat dissatisfied	12	1.1	14	2.5	26	1.6
Very dissatisfied	7	.6	3	.5	10	.6
Don't know	50	4.7	30	5.3	80	4.9
Refused to answer	3	.3	2	.4	5	.3
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

The farmers were also asked to compare the extension service in their parishes relative to other parishes (Table 42). Again the ESP farmers reported greater satisfaction than the non-ESP farmers.

**Table 42. Respondents' Views on Satisfaction with Extension Service in Their Parish Compared to Other Parishes, Post-test.**

Views	ESP's		Control		Total	
	No	%	No	%	No	%
Very satisfied	327	30.6	151	26.6	478	29.2
Somewhat satisfied	428	40.0	214	37.7	642	39.2
Neither satisfied nor dissatisfied	89	8.3	52	9.1	141	8.6
Somewhat dissatisfied	25	2.3	14	2.5	39	2.4
Very dissatisfied	18	1.7	3	.5	21	1.3
Don't know	179	16.8	130	22.9	309	18.9
Refused to answer	3	.3	4	.7	7	.4
<b>TOTALS</b>	<b>1069</b>	<b>100</b>	<b>568</b>	<b>100</b>	<b>1637</b>	<b>100</b>

The response to a question on perceived changes in standard of living, changing attitudes toward recommended practices, and satisfaction with the extension service were aggregated into a satisfaction score. The increased satisfaction with the Agricultural Extension Service of both the ESP and Control group was significant at the one percent level (Table 43).

**Table 43. Satisfaction Score.**

<b>Group</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>Significant Level</b>
ESP	16.70	19.25	1 percent
Control	13.99	17.36	1 percent

The satisfaction score of coffee farmers was also calculated (Table 44). Again, the increase in satisfaction with the Agricultural Extension Service, for both groups, was significant at the one percent level but it is interesting to note that in the pre-test the satisfaction score of the non-ESP farmers was lower than the ESP farmers but in the post-test it was higher. In fact, in the pre-test there was no significant difference between the satisfaction scores of the two groups but in the post-test the difference between the ESP and the control group was significant at the one percent level.

**Table 44. Satisfaction Score of Coffee Farmers.**

<b>Group</b>	<b>Pre-test</b>	<b>Post-test</b>	<b>Significant Level</b>
ESP	15.17	18.38	1 percent
Control	14.81	19.58	1 percent

## **Objective 4**

### **Improvement of the Staff Efficiency by Involving Them in an Effective Extension Program.**

Annual reports, end of tour reports, and conversations with the USAID Extension Advisors indicate that this is the area where the greatest progress has been made. After the initial orientation, all agricultural extension staff attended the in-service training courses. In addition, the ESP staff received on-the-job training in how to conduct meetings, how to set up method and result demonstrations and other "how to's." The USAID Extension Advisors all felt that staff efficiency had increased and staff morale had improved as a result of ESP. This is a qualitative judgment but its importance should not be minimized.

The USAID Extension Advisors established a performance point system which was described in Chapter 6. It was their judgment that 1200 points per

month per ESP was a reasonable amount of effort required to saturate each ESP with educational activities and also a reasonable work load for the staff.

There was an increase in the average performance points earned per month in all of the four regions (Table 45). The overall average increased from 565 in 1969 to 685 in 1970 and 821 in 1971. This represents an increase in extension activity in the ESP areas and also an increase in work effort and/or efficiency of the field staff.

**Table 45. Average Performance Points Per Month by Areas, 1969-1971.**

Area	1969	1970	1971
Buganda	460	580	930
Northern	524	718	730
Western	559	837	1010
Eastern	756	628	702
National Average	565	685	821

If 1200 performance points per month is a fair standard of performance, then, on the average, the field staff is performing at about 70 percent of full effort.

Adequate and proper supervision should also improve staff efficiency and performance. USAID, under the expanded project, was committed to send five Ugandans to the United States for M.S. degrees in agricultural extension. One was to be posted at the national level and four were to be posted at the regional level. USAID has fulfilled this commitment and the men have been posted as planned. USAID has sent 87 Ugandan participants to the United States for training in agricultural extension since 1964. Eleven of these have been trained specifically for the ESP program.

In the opinion of the authors, there is qualitative and quantitative evidence that the efficiency of the Agricultural Extension Service of Uganda has increased as a result of the ESP program. Also, efficiency of field staff could be improved by continuing improvement in program planning, setting of quantifiable goals of achievement, and supervision of field work.

## **Objective 5**

### **Gaining Information and Finding the Most Effective Type of Program to Use in Uganda.**

Lots of information was gathered during the ESP program and evaluation but little of it helps us to find the most effective type of extension programs to use in Uganda. The age and years of education of the farmers were expected to

relate to attitudes toward extension, adaption of practices, income, etc.; also, there would be a greater payoff from the extension service's concentration on certain groups of farmers. But the difference between age and years of education groups are not great. The relationship between age and attitude toward extension is shown in Table 46. Using the mid point of the attitude scale as the mean, the younger farmers have a slightly higher mean.

The relationship between years of education and the attitude toward extension is shown in Table 47. Farmers with 3-6 years of education have a slightly higher score but again the difference is not great enough to merit a concentration of extension effort on this group.

Cross tabulations between age and the total extension score (aggregate participation in extension activities) show that farmers in the 35-46 age group have the higher score (Table 48). Again, the mid point of the range was used as a mean and 45 was used as a mean for those scores over 40.

Using the same technique, it was found that the greatest participation in extension activities was by farmers with 7 - 8 years of education. (Table 49).

There was very little difference between age and the total practice scores as shown in Table 50. The average score for those farmers reporting ages over 25 was calculated as 28.

Surprisingly, the years of education had little effect on the aggregate practices score (Table 51).

Education did affect farmers' exposure to mass media such as radio, newspapers, periodicals, TV, etc., but, for some unknown reason, the highest mean score was for those farmers with 5-6 years of education—there was a drop-off with additional education (Table 52). This is the same education group which had the highest aggregate practice scores.

The point system developed by the USAID advisors seemingly increased the work effort of the field staff and/or concentrated their efforts more on agricultural development tasks. The field staff point average increased from 565 in 1969 to 821 in 1971. The point system could also serve as a standard of measurement for the performance of individual staff members. It is believed that an adequate and alert middle level supervisory staff would be able to judge if the reported points reflected field effort. The point system also makes it possible for field staff to measure themselves against past performance and against their peers.

Farmers in the ESP areas, on the average, attended more result and method demonstrations, farm tours, and extension group meetings than in the control area but there was no significant difference in the number of visits by government officials to the farmers of the two groups. Also, ESP farmers had, on the average, higher recommended practice scores which indicate that demonstrations, farm tours, and group meetings are effective methods of getting farmers to adopt new practices.

The data indicates that the ESP has resulted in greater adoption of selected recommended practices but this has not resulted in increased productivity and income. This leads one to question the validity of the recommended practices. Recommended practices should be field tested so that it is known that they will increase productivity under farmer managed conditions.

**Table 46. Relationships Between Age and Attitude Toward Extension, Post ESP.**

Age	Attitudes Toward Extension Score										Total	Mean
	0 - 5		6 - 10		11 - 15		16 - 20		21 - 25			
	No	%	No	%	No	%	No	%	No	%		
25 & Under	0	—	0	—	4	16.0	13	52.0	8	32.0	25	18.8
26 - 35	2	1.2	7	4.0	40	23.1	72	41.6	52	30.1	173	17.8
36 - 45	5	1.8	13	4.6	78	27.6	119	42.2	67	23.8	282	17.1
46 - 65	9	3.0	9	3.0	70	23.3	119	39.5	94	31.2	301	17.7
Over 65	4	4.3	4	4.3	31	33.7	34	37.0	19	20.7	92	16.3

**Table 47. Relationship Between Years of Education and Attitude Toward Extension, Post-ESP.**

Years of Education	Attitudes Toward Extension										Total	Mean
	0 - 5		6 - 10		11 - 15		16 - 20		21 - 25			
	No	%	No	%	No	%	No	%	No	%		
None	15	4.6	11	3.4	89	27.4	125	38.5	85	26.1	325	16.9
1 - 2	2	1.6	7	5.7	30	24.4	43	35.0	41	33.3	123	17.6
3 - 4	2	.7	11	3.9	63	22.5	116	41.5	88	31.4	280	18.0
5 - 6	1	1.1	3	3.1	22	22.9	41	42.7	29	30.2	96	17.9
7 - 8	0	—	0	—	20	30.8	33	50.8	12	18.4	65	17.4
9 & Over	0	—	1	14.3	2	28.6	4	57.1	0	—	7	15.1

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**Table 48. Relationship Between Age and Total Extension Score, Post ESP.**

Age	Total Extension Score										Total	Mean
	0 - 10		11 - 20		21 - 30		31 - 40		Over 45			
	No	%	No	%	No	%	No	%	No	%		
25 & Under	15	62.5	4	16.7	3	12.5	2	8.3	0	0	24	11.7
26 - 35	64	38.3	49	29.3	39	23.4	12	7.2	3	1.8	167	15.5
36 - 45	92	33.2	84	30.3	72	26.0	22	8.0	7	2.5	277	16.6
46 - 65	138	46.2	77	25.7	64	21.4	13	4.4	7	2.3	299	14.1
Over 65	52	51.5	25	24.8	17	16.8	5	4.9	2	2.0	101	13.1

**Table 49. Relationship Between Years of Education and Total Extension Score, Post ESP.**

Years of Education	Total Extension Score										Total	Mean
	0 - 10		11 - 20		21 - 30		31 - 40		41 & Over			
	No	%	No	%	No	%	No	%	No	%		
0	160	49.1	79	24.2	60	18.4	19	5.8	8	2.5	326	13.8
1 - 2	41	34.7	39	33.1	23	19.5	12	10.2	3	2.5	118	16.4
3 - 4	123	42.9	76	26.5	71	24.7	12	4.2	5	1.7	287	14.5
5 - 6	35	37.2	28	29.8	21	22.4	5	5.3	5	5.3	94	16.2
7 - 8	16	25.4	17	27.0	20	31.7	7	11.1	3	4.8	63	19.3
9 & Over	3	37.5	3	37.5	1	12.5	0	—	1	12.5	8	16.2

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**Table 50. Relationship Between Age and Aggregate Practices Score, Post ESP.**

Age	Aggregate Practice Score										Total	Mean		
	0 - 5		6 - 10		11 - 15		16 - 20		21 - 25				Over 25	
	No	%	No	%	No	%	No	%	No	%			No	%
25 & Under	8	32.0	11	44.0	2	8.0	3	12.0	1	4.0	0	—	25	8.6
26 - 35	44	25.4	67	38.7	38	22.0	16	9.3	4	2.3	4	2.3	173	9.6
36 - 45	70	24.5	115	40.4	53	18.6	27	9.5	14	4.9	6	2.1	285	9.8
46 - 65	89	29.2	108	35.4	60	19.7	27	8.8	7	2.3	14	4.6	305	9.7
Over 65	32	31.1	39	37.9	23	22.2	5	4.9	4	3.9	0	—	103	8.6

**Table 51. Relationship Between Years of Education and Aggregate Practices, Post ESP.**

Years of Education	Aggregate Practice Score												Total	Mean
	0 - 5		6 - 10		11 - 15		16 - 20		21 - 25		Over 25			
	No	%	No	%	No	%	No	%	No	%	No	%		
0	99	30.1	145	44.1	59	17.9	17	5.2	5	1.5	4	1.2	329	8.38
1 - 2	30	24.4	47	38.2	28	22.8	13	10.6	4	3.2	1	.8	123	9.6
3 - 4	77	27.4	95	33.8	57	20.3	30	10.7	12	4.3	10	3.5	281	10.1
5 - 6	23	23.2	32	32.3	21	21.2	13	13.1	5	5.1	5	5.1	99	10.8
7 - 8	14	21.5	25	38.5	13	20.0	6	9.2	5	7.7	2	3.1	65	10.5
9 & Over	5	62.5	1	12.5	0	—	0	—	0	—	2	25.0	8	9.1
<b>TOTALS</b>	<b>248</b>		<b>345</b>		<b>178</b>		<b>79</b>		<b>31</b>		<b>24</b>		<b>905</b>	

**Table 52. Relationship Between Years of Education and Mass Media Score, Post ESP.**

Education	Mass Media Score										Total	Mean
	0 - 3		4 - 6		7 - 9		10 - 12		13 & Over			
	No	%	No	%	No	%	No	%	No	%		
0	199	61.4	116	35.8	3	.9	5	1.6	1	.3	324	3.3
1 - 2	48	36.4	59	44.7	18	13.6	6	4.5	1	.8	132	4.7
3 - 4	53	19.6	111	39.5	79	28.1	30	10.7	6	2.1	281	6.1
5 - 6	8	8.3	32	33.3	28	29.2	18	18.8	10	10.4	96	9.9
7 - 8	4	6.2	8	12.3	20	30.8	27	41.5	6	9.2	65	9.1
9 & Over	1	12.5	2	25.0	2	25.0	3	37.5	0	—	8	7.6

# CHAPTER 8

## Summary

This is a difficult study to summarize because some of the data are inconsistent and contradictory, and the data on productivity and income runs are contrary to the observations and opinions of the USAID advisors who had close contact with the field staff and farmers for four years.

It is clear that in the post-test the ESP farmers had greater knowledge of and more participation in the Agricultural Extension Service than non-ESP farmers. ESP farmers had an average extension contact score which was 15 percent higher than in the control groups. In the ESP areas, the farmers relied more heavily on extension field staff for information in planting time, seeds, fertilizers, insecticides, and market prices. But this difference existed at the time of the pre-test and the aggregate total extension score increased for both groups during the test period, at the one percent significance level. The pre-test was taken one year after the ESP was started so the data show that the impact of ESP on extension participation occurred during the first year.

Measurement of the adoption of recommended practices for growing coffee and bananas and crop rotation shows that the ESP was effective in getting farmers to adopt these practices. The coffee rotation score on adoption of recommended practices increased at the one percent significance level and banana score at the five percent level for the ESP farmers while the non-ESP farmers showed no significant increase.

The data on increased income and purchase of farm inputs do not follow the expectations which arise from the adoption of recommended practices. The non-ESP farmers reported an increase, significant at the one percent level, in the ownership of farm implements and farm expenditures. There was no significant change reported by ESP farmers in those two categories. The non-ESP farmers reported an increase in total value of crops and total household income which

was significant at the one percent level and again the ESP farmer reported no significant change in these same items. For coffee growers, both groups reported an increase in income from coffee and total household income which was significant at the one percent level. When the farmers were asked if their standard of living had risen during the past twelve months, the ESP farmers reported an increase significant at the five percent level while the non-ESP farmers reported an increase significant at the one percent level.

The analysis shows that both the ESP and control farmers have developed a more positive attitude toward extension between the pre- and post-test periods. There is no indication that the ESP was more successful than the usual extension activities in accelerating the change toward positive attitudes. ESP farmers, however, reported greater satisfaction with the Agricultural Extension Service than non-ESP farmers.

It is believed that, as a result of the ESP, the Agricultural Extension Service has increased its emphasis on agricultural development. The performance point system, in-service training programs, and USAID participant training programs have contributed to this changed emphasis. The ESP has probably resulted in more and better program planning and program evaluation.

This study indicates that the ESP has resulted in improved attitudes toward change and an increased confidence in Uganda's Agricultural Extension Service. This has resulted in a greater adoption of recommended farm practices but has not yet resulted in increased productivity and income. This may be because three years is too short a time period for knowledge to be translated into productivity or it may be that the recommended farm practices have not been tested under farmer managed conditions and, when adopted, do not increase yields.