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THE TRAINING AND VISIT AGRICULTURAL EXTENSION SYSTEM IN THE TIHAMA PLAIN REGION OF YEMEN: PERCEPTIONS OF CONTACT FARMERS AND EXTENSION WORKERS

By

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ABSTRACT

THE TRAINING AND VISIT AGRICULTURAL EXTENSION SYSTEM IN THE TIHAMA PLAIN REGION OF YEMEN: PERCEPTIONS OF CONTACT FARMERS AND EXTENSION WORKERS

By

Tarek K. M. Aghbari

The main objective of this study was to determine the effectiveness of the Training and Visit System through the perceptions of contact farmers and extension workers/personnel.

The descriptive method of research, using the survey research method technique was utilized in this study. The survey instrument, consisting of 20 statements related to the training aspect of the T & V system, were prepared following a review of literature and with the assistance of the doctoral committee. The data obtained were processed through computer facilities in the Department of Agricultural and Extension Education at Michigan State University. Statistical procedures used for analyzing data were mean distribution, analysis of variance (F-value), and T-test. Significance was established a priori at .05. Post hoc reliability tests using Cronbach's alpha resulted in coefficients of .72 for the visit aspect and .65 for the training aspect ratings.

Information derived from the study revealed that contact farmers were generally satisfied with the technical content of the extension program. The technical content was perceived as informative, helpful, timely, relevant, and suitable

for their needs. Regarding the extension teaching methods utilized by extension workers, contact farmers perceived them satisfactory in terms of clarity, understanding and diversity. With respect to extension workers' visits, almost all respondents rated the items relatively lower pertaining to extension workers for scheduled visits. Almost all of the contact farmers felt that they were performing well as contact farmers. In general, contact farmers with higher educational levels differed significantly in their perceptions with respect to some of the statements.

Extension workers were satisfied with the technical content of the training sessions under the T & V System. Extension workers in the study areas, regardless of age, educational attainment, and employment status, agreed that the subject matter delivery by specialists was satisfactory in terms of communication, provision of samples and/or materials for demonstrations, and applicability. Extension workers were satisfied with their visits to contact farmers. In general, respondents agreed that their visit schedules were set in advance to each visit command area, they spent sufficient time with contact farmers during most of their visits, they communicated contact farmers' problems and concerns to subject-matter specialists, and visited all of their contact farmers regularly every two weeks.

Statistically significant differences in contact farmers and extension workers' perceptions were observed for the frequency of use of individual, group extension methods and materials, and media, for the appropriate level of technology/subject-matter transfer emphasized by the extension service, and for the overall performance of the T & V System. There tended to be a weak linkage between the extension service and the other related agricultural development institutions and agencies.

DEDICATION

To my parents, whose love, support, and constant prayer helped me greatly in my achievement.

To my wife, "Um Hany" whose endless support, patience, and prayer reflected in this project.

To our children, Hany, Osan, and Afnaan whose smiles and childish looks gave me the strength to achieve my goals.

And to the unity of land and people to the unified Yemen.

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All praise and thanks be to Allah, Lord of the World for His providence and divine direction throughout my life. To all those who have contributed to make the study possible directly or indirectly, let me here express my thanks and gratitude.

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A special thanks to my brothers, friends, and colleagues at Michigan State University and elsewhere for their friendship and support.

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CHAPTER ONE

INTRODUCTION

Background

Agriculture is the most important production sector in the domestic economy of Yemen. In 1985-1986, agriculture contributed about 45 percent of the gross domestic product (GDP), employed over 70 percent of the labor force, and accounted for nearly 80 percent of the export earnings. Although the relative importance of agriculture has been declining over time, it has been increasing in the last five years. The share of agriculture in the GDP declined from 50 percent to 35 percent in 1980 due to the rapid expansion in industry, construction, transport, government services, and trade (Central Planning Organization, 1985-86).

Crop production is heavily concentrated in food grains (i.e., sorghum, millet, wheat and barley). Historically, 95 percent of all crop acreage was planted with these cereals. In recent years, diversification of cropping practices has reduced this to about 85 percent of all crop land (World Bank, 1979). Despite this predominance of grain, the different ecological zones of the country permit the growing of a wide range of crops. In the Highlands, temperate zone crops like potatoes, grapes and deciduous fruits are grown successfully. Various legumes such as beans and pulses are also extensively grown. In the sub-tropical climate and relatively ample rainfall of the Southern Uplands, sorghum, millet, maize, barley and wheat are principal crops. A large variety of fruits and vegetables are also grown in this area. In the

Tihama Plain, with its tropical climate (warm winters, hot summers, high humidity and scant rainfall), millet is the staple crop. With irrigation, the area is well adapted to the growing of cotton, tobacco, and sesame. Melons, green and dry edible beans, tomatoes, and onions are also grown in this area (World Bank, 1979).

Meaningful shifts in the diversity of crop production emerged during 1985-86 as shown in Table 1.1, and some of these shifts were unfavorable. Food grain output and cultivated areas continue to fluctuate as most of these crops are grown under natural rain-fed conditions, and rainfall is erratic. Sharp declines have taken place in cotton production over the past five seasons because of the more advantageous prices of millet and maize. Other factors, especially fast rising labor costs, have also contributed to a drastic fall in seed cotton production from 27,000 tons in 1974-75 to 4,100 tons in 1985-86 (Central Planning Organization, 1985-86).

Foodstuffs comprised the second largest category of commodity imports; about 50 percent per year for 1980-85. This upsurge in import demand reflects rapidly rising incomes, especially for the urban population; the full convertibility of Yemen currency (Rail); the absence of import restrictions; increases in the population; and rising prices internationally.

Changes in food consumption and production in Yemen have primarily been the result of market forces rather than deliberate government policies. Fast rising consumers' incomes in urban areas have stimulated the import trade and created new domestic markets for farmers. These changes have not only affected agricultural production, but also the economic development of the country as a whole. After centuries of subsistence farming utilizing traditional cultivation

Table 1.1: Area and Production of Main Agricultural Crops in Five Years, 1975/76 - 1979/80
(Area: 1,000 hectares; Production: 1,000 tons)

	1975/76		1976/77		1977/78		1978/79		1979/80		1980/81	
Crops	Area	Prod	Area	Prod	Area	Prod	Area	Prod	Area	Prod	Area	Prod
Cereal												
Sorghum & Millet	1060	785	782	613	644	585	683	627	673	623	681	636
Maize	24	35	30	44	31	43	31	46	31	48	31	49
Wheat	60	62	65	61	60	45	66	63	62	63	63	65
Legumes, Vegetables												
Legumes	76	76	72	82	76	77	74	79	72	80	75	84
Green vegetables	20	183	22.2	210	23.6	226	26.9	230	26.4	254	27.2	261
Potatoes	6.8	71	8.6	76	9.3	100	9.5	116	10.6	--	10.6	127
Fruits, tree crops												
Fruits	12.3	65	13.9	72	13.9	77	13.9	73	14.2	76	14.5	77
Grapes	8.8	40	10.0	42	10.2	47	10.2	49	--	--	11.5	55
Dates	--	--	--	--	--	--	--	--	--	--	1250	6.3
Coffee	7.7	3	7.7	3.9	7.7	3.9	7.7	3.6	7.7	3.5	7.7	3.6
Industrial Crops												
Cotton	15.0	13.5	6.3	5.3	4.7	3.9	5.6	4.8	3.0	2.8	5.3	5.0
Tobacco	4.6	5.6	5.3	6.4	5.6	4.6	5.6	6.4	6.1	7.0	6.1	7.0
Sesame	9.7	5.5	10.2	6.4	10.2	6.3	10.2	6.3	10.1	6.0	10.2	6.0

Source: Central Planning Organization, Statistical Yearbook, Sana'a, 1987.

Table 1.1: (Continued)

Crops	1981/82 Area	1981/82 Prod	1982/83 Area	1982/83 Prod	1983/84 Area	1983/84 Prod	1984/85 Area	1984/85 Prod	1985/86 Area	1985/86 Prod	1986/87 Area	1986/87 Prod
Cereal												
Sorghum & Millet	697	635	689	580.5	689	268	694.5	267.9	690	281	690	491
Maize	34	53.2	36.3	59.2	36.3	30.5	34.0	38.0	38	43.1	41	49.2
Wheat	66	69.6	61.4	67.4	61.4	34.2	58.0	37.3	58	63.4	65	85
Legumes, Vegetables												
Legumes	74	79.6	69.5	75.3	69.5	39.5	22.5	38.0	25	44.2	27	46.8
Green vegetables	29.4	291.4	30.5	305.4	33.6	325.8	18	346.5	19	370.5	22	432.3
Potatoes	11.5	138	12.5	149.5	12.2	163.2	8	194.7	8	195.7	8.5	208.3
Fruits, tree crops												
Fruits	14.5	80.7	15.0	84.6	15.0	84.6	15.6	88.3	15.5	92	16	104
Grapes	12.5	64.3	13.1	67.9	13.7	71.7	14.0	81.6	14.0	80.5	14.5	103
Dates	1250	6.1	1250	6.1	1250	6.1	1808	13.4	1808	13.4	1808	13.4
Coffee	7.7	3.6	7.7	3.3	7.1	3.0	16.2	4.2	16.2	4.1	16.4	4.1
Industrial Crops												
Cotton	5.3	5.0	7.4	6.5	7.4	6.5	5.6	3.7	5.6	4.0	5.6	4.2
Tobacco	6.1	6.3	6.4	6.7	6.4	5.7	2.8	4.3	2.0	4.5	2.9	4.5
Sesame	9.9	5.2	10.1	5.5	10.1	4.3	10.0	3.3	9.5	4.0	9.5	4.8

Source: Central Planning Organization, Statistical Yearbook, Sana'a, 1987.

techniques, farmers are now faced with new markets, labor shortages, high and fast rising wages, fast growing urban demands, and new technology. These changes have created a need for agricultural development in all areas of agriculture. This development process requires a flexible response from farmers, agribusiness managers, and government.

Agricultural Development

Formal development planning in Yemen is relatively recent. In 1973, for the first time in history, a Three-Year Development Program was prepared. The Three-Year Development Program represented a first attempt at pursuing the government's objectives in a coordinated manner. It included the government's general objectives of development together with a list of planned public sector projects. Broad objectives were: (a) an annual growth rate of five percent in agriculture; (b) self-sufficiency in cereals, vegetables and oil seeds; and (c) improvement of nutrition and income of small farmers (World Bank, 1979). The share allocated to the agriculture sector in the total program was only 14 percent of the budget, an amount not commensurate with the demands put on agriculture.

The first Five-Year Development Plan (1977-1981), built on the experience of the Three-Year Development Program, was an improvement. It included a number of policy goals and a more elaborate investment program. The broad objectives were to: (a) work toward self-sufficiency in food productions within economic limits; (b) provide raw materials for agro-industries; (c) reduce the widening trade deficit in agricultural commodities; (d) improve the quality of agricultural products; (e) provide special support to small farmers; and (f) create

equitable and stable land tenure. The second Five-Year Development Plan (1981-85) and the third Five-Year Development Plan (1985-89) placed emphasis on the same policy and objectives in the agricultural sector (Central Planning Organization, 1977, 1986).

The priorities in developing the agricultural sector were to: (a) achieve higher rates of growth; and (b) self-sufficiency in food production. Emphasis was placed on the modern sector of agriculture by concentrating on irrigation schemes, farm mechanization, and intensive livestock and poultry production. The traditional sector received very little emphasis.

Agricultural production was expected to grow at an annual rate of 4.9 percent and value added in agriculture was expected to grow at a 5.5 percent rate as opposed to an 8.2 percent growth rate for the overall economy. The actual growth rate of the agricultural sector over the three-year period from 1976 to 1979 was only three percent (Food and Agriculture Organization, 1981). This slow rate of growth was attributed to a number of interrelated factors, the most important being high wages and scarce labor. Demand for labor in neighboring oil exporting countries had caused a sharp increase in emigration from Yemen, and growing urban economies drew labor from rural areas.

The inadequacy of the current development program is illustrated by the gap between the growth rate of the agricultural sector and the growth rate of food demand. Between 1969 and 1979, per capita consumption of cereals averaged 430 grams per day and varied between 355 and 533 grams (Food and Agriculture

Organization, 1981). The total cereal requirement for the country in 1990 has been estimated to be 1,456,000 tons.[1]

Even if production were to increase by five percent per year, as provided for in the development plan, imports of over 100,000 tons per year would still be required in 1990 to maintain the present level of consumption. With no production increase, imports would exceed 500,000 tons in 1990 (Food and Agriculture Organization, 1981).

Because of the growing gap between imports and exports, Yemen's trade deficit exceeded $700 million in 1985-86. This amount represented a nine-fold increase from 1971-72. Concern about the rapid drain of foreign currencies from the country, and the possible failure of exchange rate fluctuations to slow that flow, have led to a desire for greater domestic production. Current development plans do not appear to be sufficient.

Observations indicate that if there is no tangible progress in agricultural production, Yemen's trade deficit will continue to increase, and the gap between domestic production and consumption requirements will increase rapidly and sharply. This situation requires that development objectives of the future be aimed toward achieving higher rates of growth, gaining self-sufficiency in food production, and reducing the trade deficit in agricultural commodities.

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[1]The future cereal requirements for the country were calculated on the assumptions that consumptions would stabilize at 450 grams per person per year and that population growth would continue at 2.8 percent per year.

Government Agricultural Extension Programs in Yemen

The government's agricultural development programs are generally designed to modernize the skills of farmers and provide them with institutional and technical support. Emphasis is given to agricultural credit, research, and agricultural extension which should: (1) help farmers improve resource utilization; (2) improve farmers' socioeconomic conditions; and (3) ultimately increase agricultural production.

Extension service is relatively new to most rural people of Yemen. After the 1962 revolution the Ministry of Agriculture established, but the government undertook few if any, extension education activities. Government outreach was principally concentrated on providing farmers with technical services and supplies rather than "extension education" per se. When the Ministry of Agriculture and Fisheries was reorganized in the early 1970, the Extension Department was given clear objectives, status, and recognition. Since that period, the Ministry, including the Department of Extension, has grown in size and operation to cover most of the regions of the country. The Ministry is now represented in 11 Agriculture Provinces and by over 15 offices throughout the country.

Agricultural services and extension are also provided through other agricultural development projects in different regions such as The Tihama Development Authority (TDA) in the Eastern (coastal) District and The Southern Upland Rural Development Project (SURDP) in the Southern region.

Agricultural extension began in the early 1970s with the execution of two large multi-donor rural development projects in the coastal and upland regions. The extension service component of the Southern Uplands Rural Development Project

(SURDP) and the Tihama Development Association (TDA) has made some progress in reaching farmers with some extension services.

The Mission of Extension

Considering the short period of time since Yemen established agricultural extension service and the lack of prior experience of both the extension workers/agents and the farmers, the extension mission has been partly and explicitly identified. Generally speaking, however, the extension service seems to have adopted an educational mission similar to that assumed by extension agencies in neighboring countries (Egypt, Jordan, and Sudan). The General Director of Extension and Agriculture Services described the mission of extension in Yemen in the following (objectives) statement:

> "To create whatever changes are needed in the perception of the farmers to attain the following objectives:
>
> 1. The development of the agricultural sector and the contribution to the development of rural society.
> 2. The introduction of recommended new agricultural crops to provide the consumption needs and improve economic conditions of the whole society.
> 3. The utilization of available economic resources.
> 4. To provide farmers with knowledge and skills through demonstration, training, and helping them help themselves and encourage them to adopt new agricultural innovations." (Ministry of Agriculture and Fisheries)

The Extension Function

The mission of extension in Yemen as outlined previously seems compatible with the basic philosophies of extension and its educational function. In practice, however, the process is rather different. Program planning represents a serious weakness in the Yemen Extension Service. Programs are geared mainly toward the introduction of new varieties of crops and the provision of some services. The procedure then goes as follows:

1. A new variety of crop is proven by the Ministry officials to be applicable to the local conditions.
2. Extension workers are given orientation to the crop's requirements.
3. A publicity program is initiated through mass media or group meetings with farmers.
4. The local extension workers select demonstration plots on certain farms.
5. Farmers are invited to observe the demonstrations.
6. At the end of the demonstration the extension workers who are involved in the demonstration prepare a descriptive report of the demonstration process. (MOAF)

From the above description, one can conclude that the program's process is designed as a one-way, top-down direction. Instead of emerging from the actual problems and needs of farmers, programs in fact are predetermined by higher officials and implemented by local extension workers. Farmers are seldom, if ever,

consulted or included in the planning stage. They are expected to accept whatever is offered regardless of their actual interests, needs, and aspirations.

The Organization of Extension

In 1978 the Ministry of Agriculture and Fisheries in the City of Sana'a (the capital of the country) was reorganized to include ten General Departments, each one headed by a general manager (see Figure 1.1):

1. The General Department for Statistics and Planning.
2. The General Department for Agricultural Affairs.
3. The General Department for Plant Protection.
4. The General Department for Irrigation.
5. The General Department for Agricultural Extension and Training.
6. The General Department for Rural Development.
7. The General Department for Livestock.
8. The General Department for Fisheries.
9. The General Department for Marketing and Storage.
10. The General Department for Administrative and Financial Affairs.

Each of these departments is represented in the ministry's offices at the provincial and regional level. The government of Yemen sought assistance from United Nations Development Program and Food and Agriculture Organization for promoting agricultural development in Tihama through the development of effective extension services (Food and Agriculture Organization, 1988).

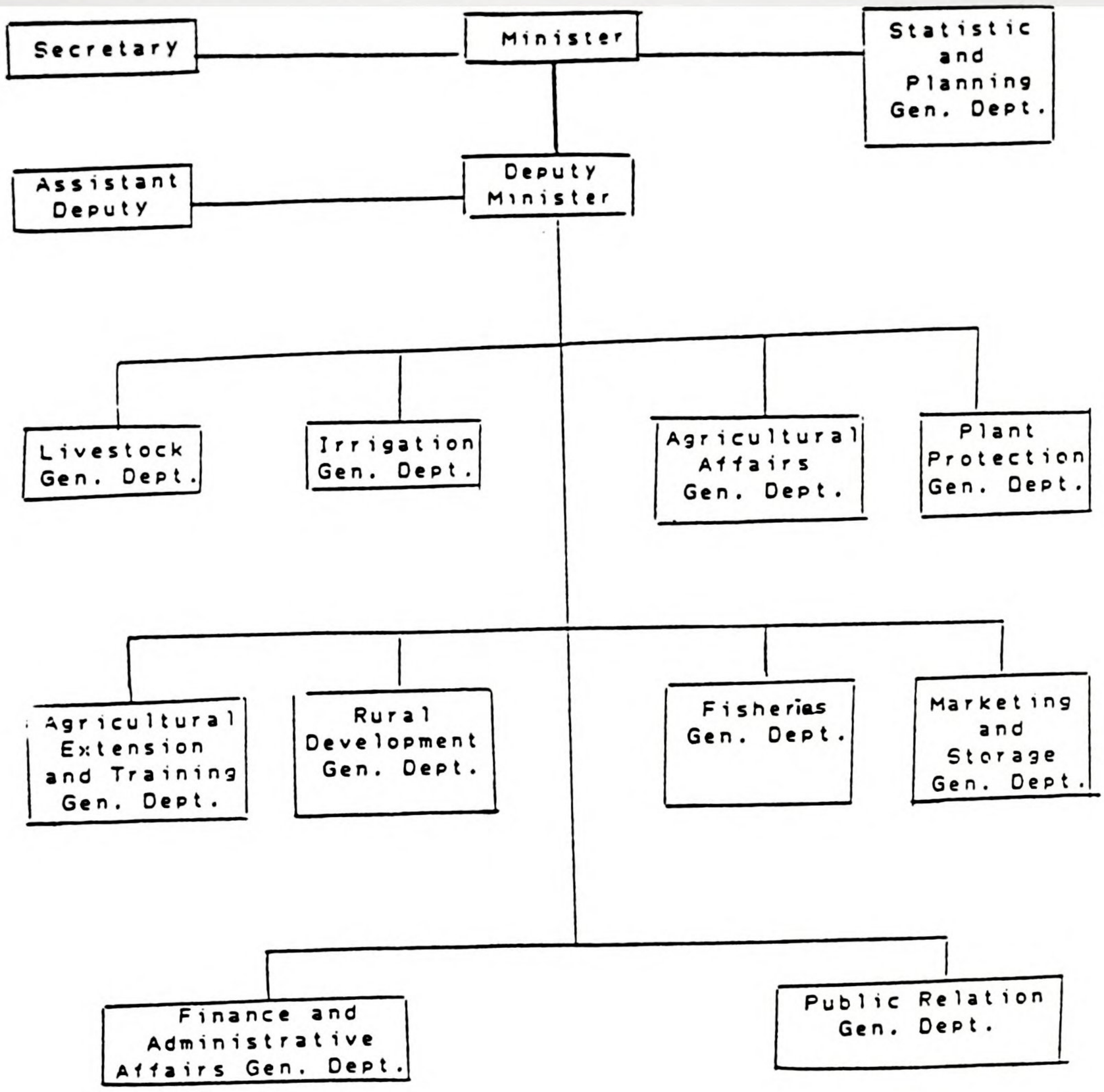
The target area for project activities was a broad band that parallels the Red Sea coast and is about 50 kilometers wide and 450 kilometers long. Assistance was

provided through a series of United Nations Development Program projects, i.e., YEM/77/003, 'Agricultural Extension and Seed Introduction in Tihama Region', YEM/82/001, 'Tihama Agriculture Extension Service', and YEM/84/002, 'Tihama Integrated Agricultural Extension Services'.

As was stated in the Food and Agriculture Organization 1988 report, the project objectives of project YEM/82/001 were a continuation of those of project YEM/77/003; the main emphasis was on training, supervision, and the provision of technical support for national extension personnel at all levels. The objectives of project YEM/84/002 were divided to include:

Development Objectives. The project was designed to assist the government in achieving development objectives in three broad areas by:

1. establishing an organized extension system within the Tihama region in coordination with TDA;
2. training national staff in extension and agricultural production methodology; and
3. transferring technology to farmers by demonstration, field visits and production of extension material, as well as by the training of farmers and rural women in the adoption of improved agricultural, livestock and home management practices.



• Based on the last structural amendments (FOAF) 1978, Sana'a

Figure 1.1: The Organization Structure of the Ministry of Agriculture and Fisheries in Yemen Arab Republic

Immediate Objectives. The immediate objective included three areas:

1. Organizational establishment.
2. Manpower development.
3. System operation.

More specifically, the main objectives of the TDA regarding the implementation of the T & V System to the three extension branches/districts are:

1. The adoption of T & V System of agricultural extension throughout the TDA Extension Branches as a new extension approach.
2. Strengthening the relationship between research and extension and the adoptive research activities.
3. Improving the training of agricultural extension agents/personnel to increase their performance.

The Organization Structure of The Tihama Agricultural Extension Service is shown in Figure 1.2.

The term "Training and Visit" is applied to the system of extension which has been introduced under The Tihama Development Authority (TDA) in Yemen by the Food and Agriculture Organization and the World Bank, because of the stress it places on the regular training of staff (agents) and programmed visits to farmers. The training and visit (T & V) system of agricultural extension facilitates systematic extension planning in all levels of farming localities.

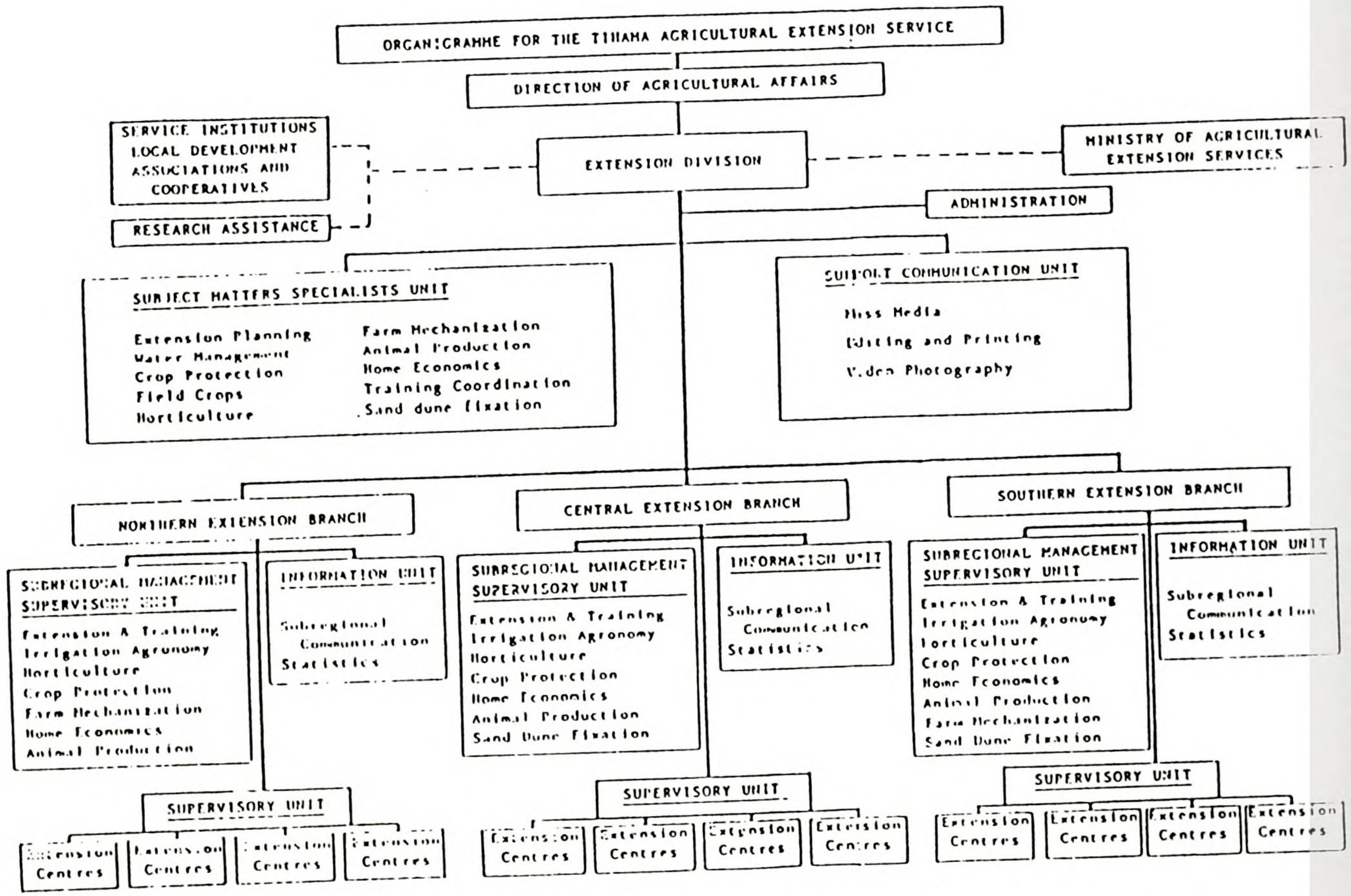


Figure 1.2: Organizational Structure of the Tihama Agricultural Extension Service

The T & V system of agricultural extension is an attempt to reform and improve upon the effectiveness of conventional agricultural extension and research, particularly since the early 1970's. Largely under World Bank sponsorship, there has been wide adoption to the training and visit (T & V) extension system including management and close two-way linkage between farmer, extension worker, and research. The T & V system has been adapted and implemented in some 40 countries in Asia, Africa, Europe, South America.

Hayward (1987) stated that the essence of T & V is its adherence to fundamental management principles as they would apply to any geographically scattered operations which aim to change the behavior of many technologically isolated individuals using poorly educated staff. These fundamental principles involve identifying the customer, preparing appropriate messages, focusing exclusively on the advisory function at the field level, adopting a single line of schedules, systematic training and continuous links with research.

Therefore, this system has overcome many of the major weaknesses which commonly exist in most extension organizations in developing countries. The strength of the T & V system lies in a comprehensive system of important tasks in extension work.

Under the T & V system, schedules of work, duties, and responsibilities of extension personnel are clearly specified and closely supervised at all levels (Benor and Harrison, 1977).

Seepersad and Henderson (1984) listed essential characteristics of the T & V system:

1. The village extension workers (VEWs) are assigned purely educational responsibilities.
2. The total number of farm families to be visited by each VEW is clearly defined.
3. At each level in the extension organization, the span of control allows close guidance and supervision of the level below.
4. Extension programs concentrate on the most important crops and improving farming practices which have the greatest potential for increasing yields, and which generally involve large cash inputs.
5. Specific recommendations for improving farming practices are carried to selected contact farmers.
6. The contact farmers are visited every fortnight at a set date and time.

Yemen's extension service is decentralized. Within the new strategy (the national agricultural/rural development program) the services have been recognized and are based on extension planning areas, rural and agricultural development projects at different regions and provinces. At the Ministry of Agriculture level, the Director of Agricultural Extension and Training General Department administrates the extension service. The country is divided into more than eight agricultural/rural development divisions.

The policy of extension and training in Yemen is geared towards meeting the needs and aspirations of the smallholders farmers who are the main producers of basic foodcrops in the country. In order to meet this requirement, it is the Agricultural Extension and Training General Department's responsibility to plan and

develop a satisfactory and workable delivery system aimed at the generation and continuation transfer of agricultural technology to the majority of smallholders (Ministry of Agriculture and Fisheries, 1978).

It was in 1985 that the TDA official policy guide was produced by the TDA officials, which directed that the training and visit approach of agricultural extension should be introduced by all TDA branches. The guide further elaborated on the systematic manner in which the entire chain of transfer of technology to the farmers should be carried out. The systematic approach called for:

> (a) each TDA branch divides into circles, each circle is managed by an extension supervisory, i.e., the circle(s) supervisor must ensure that he arranges for directing and supervising the extension worker at a number of certain centers (4-5 centers), so that he is satisfied that the messages have been delivered effectively.
>
> (b) contact farmers are selected farmers at the extension centers levels. In each extension center, farmers are invited through the leadership of the contact farmers to attend the demonstration on predetermined date and time during the month (two weeks). The dates and time must be agreeable with contact farmers and their fellow representatives.
>
> (c) the extension worker to visit contact farmers regularly once every two weeks to train farmers at agreed demonstration site.
>
> (d) the circle extension supervisor to practically review the technical messages and the work plan with the extension workers once every two weeks to ensure that everyone is prepared to his contact farmers with necessary skills. This emphasizes that the training sessions must be conducted by extension workers.
>
> (e) subject matter specialists to continually review technical material in their subject fields and to ensure that messages are made available to circle supervisors before the day he conducts training of extension workers. The SMS is also required to train extension workers once every fortnight on predetermined data time.

This approach to extension, widely known as the "Training and Visit System," provided for orderliness in the work of the extension workers in ensuring that

everything being normal, he would be committed to training contact farmers at the fixed place and time, or he would be at a training session at the extension center according to his work plan. Participation of other farmers in the neighboring areas and soliciting attendance o the field assistants is straightforward. Objective training programs can be drawn up with the aim of ensuring that technical information and skills are being transferred correctly from subject-matter specialists through the extension circle supervisor and extension workers to contact farmers. Benor and Baxter (1984) stated that:

> The training and visit (T & V) system of agricultural extension aims at building up a professional extension service that is capable of assisting farmers in raising production and increasing incomes and of providing appropriate support for agricultural development. Consideration variation in the system exists within and between countries, reflecting particular agriecological conditions, socioeconomic environment, and administrative structures. To be successful, the training and visit system must be adapted to fit local conditions. Certain features of the system, however, cannot be changed significantly without adversely affecting its operation. These features include professionalism, a single line of command, concentration of effort, time bound work, field and farmer orientation, regular and continuous training and close linkages with research. (p. 8).

Statement of the Problem

Agricultural development has been an important component of Yemen's development plans. Governmental support for agricultural development started in the early 1970s with the establishment of a number of agricultural/rural development projects with substantial assistance from multilateral and bilateral aid agencies. Fifteen agricultural/rural development projects are now operational, covering eight out of 11 provinces or districts of Yemen (World Bank, 1979). The Agricultural Extension Service has been a major component of all of these projects.

The government has realized that agricultural extension education could play an important role in increasing agricultural production and farm income by providing an effective and vital link between the agricultural research stations and the farm community. Since agricultural extension service/activities first began in the early 1970s with the establishment of the Tihama Development Authority (TDA) and the Southern Uplands Rural Development Project (SURDP) in the coastal and southern uplands respectively, different extension approaches and strategies have been tried.

The Food and Agriculture Organization and World Bank reports (Food and Agriculture Organization, 1980-81) have indicated that the extension service in Yemen has not been that effective over the past years. These reports have emphasized that not only the lack of resources has been behind the fair performance of extension service in the country, but also the inappropriate developmental training programs and operations. These international organizations (Food and Agriculture Organization and World Bank) suggested that the solution for the extension problems depends partly on innovations in agricultural extension.

The Government of Yemen Arab Republic adopted the T & V System of agricultural extension in the Tihama Plain region in 1984. The T & V System has been operating in the Tihama region for the past 5-6 years through the assistance of the United Nations Development Program and Food and Agriculture Organization (Food and Agriculture Organization, 1988). Although few reports have been written, usually by the donor agencies for funding purposes about the general impact of such approaches, there has been little or no evaluation of the

impact or an assessment of the farmers' and extension workers' perceptions toward the T & V System of agricultural extension as a delivery system in the Tihama Plain in Yemen.

Problems and needs of farmers as well as extension workers serve as the basis of extension educational programs. Agriculturalists in one region have had little information on the successes, effectiveness, and problems facing the T & V System operating in similar environments. Moreover, in the absence of such studies and information, planners and policy makers continue to adopt strategies and approaches which may not meet farmers' and extension workers' educational needs.

Objectives of the Study

The purpose of this study is to determine the effectiveness of the T & V system through the perceptions of contact farmers and extension workers/personnel as follows:

1. To determine the contact farmers' satisfaction with the materials (content) and extension information dissemination methods with a particular focus on:
   a. Technical content
   b. Extension worker delivery
   c. Technology transfer by extension workers
2. To assess the perceptions of contact farmers regarding the quality of visits made by the extension workers.
3. To determine the extension workers' satisfaction with the training programs of the T & V System with a particular focus on:

a. Technical content.

b. Subject matter specialist delivery (mode of instruction, time, etc.).

c. Technology transfer from extension workers to contact farmers.

d. Resources to facilitate the work of the extension worker.

4. To ascertain the extension teaching methods utilized by the extension workers.

5. To examine the relationship between selected socio-economic characteristics (such as age, marital status, gender, education, etc.) of the extension workers and the contact farmers and their perceptions toward the performance of the T & V System.

6. To study the nature of linkages established by the T & V System with research and other supported services and institutions, such as the College of Agriculture at Sana'a University, input supply, credit, and marketing.

7. To formulate a set of recommendations based on the study's findings for policy makers (i.e., Ministry of Agriculture and Fisheries [MOAF], TDA, and the College of Agriculture at Sana'a University) to be considered in improving effectiveness of the T & V System as a means of technology transfer in the Tihama Plain region and other regions in Yemen.

Importance of the Study

The Tihama Development Authority (TDA) is a pilot agricultural development project in Yemen. The project reflects the government's strategies to gradually develop the Tihama Valleys (seven main valleys). This kind of analysis is essential and important for the existing agricultural extension service, and in improving the extension service in the Tihama region and Yemen as well.

Limitations of the Study

The limitations of the study are as follows:

1. One of the main limitations of this study is the fact that the research is limited to the extension workers and contact farmers in the Tihama Plain region, which is only one of the 11 provinces in the country.
2. Another limitation is that the research population is not the only appropriate one for such a study.
3. The instrument used in measuring the perception and views of the study's participants will not cover all possible areas of interest. Hence, it is possible that significant perceptions exist in other areas than those that will be covered in this study.
4. Findings and discussions generated by the study's data are exclusive to the identified population at a specific point in time.
5. Because of the lack of appropriate infrastructure and the cost associated, the study will included some villages the TDA project area.

Definition of Terms

Agricultural Extension Officer: An officer who reviews and assists in the organizational aspect of the Village Extension Worker and provides technical support to him or her, in order to see that production recommendations are effectively taught to farmers.

Agricultural Extension Service: Refers to the General Directorate of Extension and Agricultural Services at the Ministry of Agriculture and Fisheries in Yemen and all its divisions throughout the country. It also includes the extension services provided by other agencies and projects such as the Tihama Development Authority project in the Tihama Plain region.

Agricultural Extension Workers: Refers to individuals who are employed by the Ministry of Agriculture and Fisheries and the Tihama Development Authority to work in the field of agricultural extension with farmers.

Contact Farmers: Refers to the selected small number of farmers whom the extension workers visited on each fortnight.

Education: Farmers are divided into three categories depending upon their level of education: (a) literate, those who can read and write; (b) semi-literate, those who can read only; (c) illiterate, those who cannot read nor write.

In-Service Training: Refers to that form of training received by extension workers during their employment or career by the Extension Service.

Linkage: Establishing a proper back-and-forth communication among researchers, extension workers, and farmers. This includes continual feedback of

informational needs of the farmers to the researchers, at least in the applied research levels.

Perceptions: "Any act or process of knowing objectives, facts or truth, whether by sense of experience or by thoughts -- awareness" (Gove, 1976).

Size of Family Members: Average size of family is five persons per family: (a) high, above five; and (b) low, less than five.

Subject Matter Specialist (SMS): Refers to a specialist who provides technical training and guidance to extension workers. The SMS has an important role in the formulation of production recommendations, and is a focus of links between extension and research.

Training: Organized learning experience received by extension workers during their employment or career with the Extension Service.

Village Extension Worker: Is the only extension worker who teaches production recommendations to farmers.

Wadi: Another word for valley.

TDA: Tihama Development Authority.

Assumptions of the Study

The assumptions were as follows:

1. The existence of the Agricultural Extension Service in the Tihama region would benefit the farmers' socioeconomic conditions. In other words, the availability of the service would positively affect their rural life.

2. There exists in Yemen a need for competent and skilled agricultural extension workers, **and this need will be** more important in the future.
3. **The questionnaire used in this study/investigation** will contain a list of **related statements performed by extension workers in Tihama Plain, Yemen.**
4. **Respondents groups will answer all the questions frankly and correctly.** In other words, the data will be reliable.

CHAPTER TWO

REVIEW OF LITERATURE

Introduction

The purpose of this chapter is to provide a brief background of the conceptual framework of this study. The discussion here provides an overview of the agricultural extension concepts which relate to the training of extension workers. Discussion of the concepts and background information will cover the organizational and operational pattern of the training and visit (T & V) system of agricultural extension. In the final section of this chapter, an attempt is made to review some of the previous studies related to the dynamics of T & V system of agricultural extension in other countries.

The Concept of Agricultural Extension

The term "cooperative agricultural extension" was adopted as a national policy in the U.S as part of legislation in the form of the Federal Smith-Lever Act of 1914. Later on, other countries have followed in organizing their extension system. Now, after long years of experience supported by field research, extension education has

become one of the most recognized and respected professions; it is an important influence in overall development of human kind.

Wharton (1963) pointed out that extension education is one of the major avenues for formal developmental education of farmers. Mosher (1958) defined extension education "the essence of... extension is that it is an out-of-school educational process:

1. Working with rural people along those lines of their current interest and need which are closely related to gaining a livelihood, improving the physical level of living, and fostering community welfare;
2. Utilizing particular teaching techniques;
3. Conducting with the aid of certain supporting activities; and
4. Carried on within a distinctive spirit of cooperative and natural respect" (p. 92).

Leagon (1961), a prominent expert in the field of extension whose experience extends to beyond the boundaries of the United States, provided this definition, "Extension education is an applied science consisting of content derived from research, accumulated field experiences and relevant principles drawn from the behavioral science synthesized with useful technology into a body of philosophy, principles, content and methods focused on the problems of out-of-school education for adults and youth" (p. 197).

The Food and Agricultural Organization (Food and Agriculture Organization) of the United Nations provided a more explicit definition of the concepts in terms suited for guiding the growth of extension systems in underdeveloped countries.

According to the Food and Agriculture Organization (1982) agricultural extension is :

> An informal out-of-school educational service for training and influencing farmers (and their families) to adopt improved practices in crop and livestock production, management, conservation, and marketing. Concern is not only with teaching and securing adoption of a particular improved practice but with changing the outlook of the farmer to the point where he will be receptive to, and on his own initiative continuously seek, means of improving his farm business and home. (p. 80)

Other definitions of the term include at least one of the following phrases:

"Learning by doing"

"Helping people to help themselves"

"Changing attitudes, knowledge, and skills"

"A two way channel of communication"

Therefore, agricultural extension is purely a process of nonformal education that includes flexible educational instruments adoptable to different conditions. Extension renders possible direct contact to the mass of farmers even in remote areas. However, there is considerable dissatisfaction with the performance of extension services in developing countries. Blaknesburg (1982) pointed out that although external conditions of work differ considerably from region to region, a fairly uniform weakness seems to exist: inadequate number of personnel, extra duties delegated to the extension worker besides his advisory work, unsatisfactory performance of extension agents due to the lack of knowledge of technical matters and extension method, inadequate supervision of lower-level extension workers, poor coordination of extension and farmers with agricultural research, and wrong target group approach.

Sigman and Swanson (1984) investigated nine major areas/problems as related to the extension personnel in developing countries. They found that technical and extension training are ranked among the top of the problems.

Benor and Baxter (1984) indicated five points that should be accomplished by the VEW in his contact farmers' visits:

1. He should discuss the field situation -- the condition of standing crops, practices followed, pest and disease problems -- and farming activities the farmer has done and intends to do in the coming weeks.

2. He should ascertain the extent to which recommendations have been adopted, and find out whether problems have occurred in following recommendations. Any problem raised by the farmer should be answered in the field.

3. He should teach the contact farmer and his fellow farmers the specific recommendations for the current fortnight that are relevant to crops he grows, after having adjusted, if necessary, recommendations to fit the resources of the individual farmer. He may use some simple visual aids to explain recommended technology, but should also demonstrate the operations required for the recommendations, such as plant spacing, fertilizer application, or spraying.

4. He should attempt to convince all contact farmers -- and some other farmers as well -- to adopt the recommendations on at least a small part of their land. If practiced in a small area, risks are limited and each small area acts as a demonstration plot. If the practice is useful to farmers, it will be more widely adopted in subsequent seasons.

5. He should repeat the messages, summarizing the points of impact of each recommendation, and where possible give other advice on farming activities not covered by specific recommendations. He should also remind the farmers of the day of his next visit. (p. 54).

The VEW is expected to meet the farmers in groups. Each group of farmers has an identified farmer as the contact farmer. Explaining the role of contact farmer in the program. Realizing the role of the farmer group is the basic step for the extension worker's success. Maunder (1972) wrote:

> The attitude of individuals towards the change and the influence of this attitude of the various groups in the social structure is perhaps the most important element for consideration by extension workers. A knowledge of the social structure of the community, the values of each group class and methods of promoting group action are essential tools of the successful extension worker (p. 122).

The objective of meeting farmers in groups is to make it possible to share knowledge among themselves. In most cases, the VEW needs to know how to transfer technical knowledge from the people who know to the people who need to know.

The importance of social groups in pursuing adoption of innovations, was explained by Lionberger and Gwin (1982) as follows:

> Social groups are in a position to influence information, communication and the adoption of new ideas and practices. First, they provide channels of interpersonal communication through which information from outside sources such as a farm adviser can readily flow: also, they provide opportunities for farmers to talk matters over with those whom they intimately know and trust. By this means they can get information that they can't otherwise get and which is needed for deciding whether to accept or reject innovations. Also, fellow farmers with high credibility are important sources of persuasion in the adoption of new farm practices. (p. 75)

People tend to adopt new ideas when the peer group adopts them. After a majority in any group have adopted, there are strong pressures for others to do so. As stated by Lionberger and Gwin (1982), "social groups provide interpersonal channels for information and resources that change agents can use on behalf of farmers interested in learning new ideas and practices about farming" (p. 77).

During the VEW's contact farmer visits under the T & V system, he should meet the farmers in groups as much as possible. VEW's visits should also aim at the non-progressive farmers in the group. Benor and Baxter (1984) indicated that:

> The VEW should ensure that other farmers join the discussions in contact farmers' fields and that he visits the fields of as many other farmers as time permits. The contact farmers and other farmers he is able to reach directly should be encouraged to discuss the VEWs' recommendations with their neighbors and friends. (p. 16).

It is easier and more convenient to establish and keep up working contacts with large and progressive farmers, but more consideration has to be given to the small farmers. Blankenburg (1982) noted that, "Extension has often been blamed for a wrong target group approach, i.e., for working mainly with progressive farmers and not sufficiently with those who are mainly in need of assistance: the poor, the small, the less educated farmers" (p. 8).

Group action of the farmers from the same locality is more effective in dissemination of knowledge through farmer training. Describing the characteristics of clientele audience, Cole (1981) stated that:

> The lower the socio-economic status of a particular area, the higher the proportion of people who want adult educational activities located within their own neighborhood, because these people feel uncomfortable when they go out of their own familiar surroundings. This factor should be considered in selecting appropriate teaching methods for these clientele. (p. 29)

The need for including women in the extension program has been noted by Gills (1982), "The development of programs for women is a new frontier for agricultural extension. As with most frontiers, it offers tremendous opportunities to increase agricultural production and to improve the quality of life" (p. 13).

One objective of the VEW's visits to contact farmers and other farmers is to meet farmers frequently. The frequency of visits by extension workers to their farmers' groups directly influences the perceptions of extension workers'

effectiveness. Jallow (1981) in studying perceptions of clientele toward extension workers in the United States, concluded:

> Farmers who are members of their local cooperative extension service committees, attend meetings regularly and are visited frequently by the agricultural extension agent, are more positive in their perception of the extension agencies and the extension agent than are farmers who are non-members, attend few meetings and are seldom visited by the agricultural extension agent. Hence, involvement in extension service activities result in satisfied clientele. (p. 67)

Fortnightly farmer visits have made provision for the VEW to meet farmers' groups more frequently and to convey a relevant message to the farmers. The degree of acceptance of new ideas depends on the relevance of the message and its timeliness. According to Mannento (1980), "Acceptance or rejection of a new idea largely depends on how the information was relayed from its source to recipients. Accuracy, clarity and timeliness of information are major aspects determining adoption of new ideas" (p. 46).

It is essential that VEWs are provided up-to-date technological information so as to properly guide the farmers. Coverdale (1974) contended that:

> It is clear that the extension worker has a key role to play in any country's rural development program and, no matter what level we are considering, it is vital that his training should be meaningful, imaginative, broadly-based and with sufficient practical orientation to enable him to fully communicate with the villager whom he is being employed to help. (p. 25)

Training assists the extension agent to upgrade his knowledge, to identify problems, to gain more knowledge on new research findings, and to develop his own skills in decision-making and training. An educational need is a discrepancy or gap between a person's present level and the preferred level or required level of capabilities for effective performance. Caffarella in "Identifying Client's Needs,"

(1982) summarized that, "Identifying educational needs of potential participants is an important component in designing educational programs. A needs assessment is a systematic way of determining those educational needs" (p. 10).

Farmer visits provide the opportunity to identify the farmer's needs and to disseminate required information to the farmers through a reciprocal action of give and take between VEW and farmers. A special feature of an effective extension program should be frequent evaluation of the attitudes of its clientele. According to Kantner (1982):

> If extension wants to continue providing effective programs for its clientele, and change with the times, it must know the attitudes of clients about the information they receive, the effectiveness of agents who deliver the information, the appropriateness of the methods used and whether programs meet the need of clientele. (p. 8)

Changing the attitude and behavior of farmers is one of the most important tasks of an extension agent, because it affects adoption of innovations. Mannento (1980), in studying factors which hinder the adoption of innovations by farmers, concluded that, ". . . promise of material satisfaction alone may not compel farmers to adopt innovations. Culture traditions, group pressure, reaction of neighbors, self-esteem and personal satisfaction are among the social factors which influence individual farmers" (p. 43).

Regarding favorable effects of the extension agent's attitude towards the clientele, Ibrahim (1979) noted that, "The findings relative to the role of extension service indicate that extension service personnel do help farmers to help themselves, and that patience is essential in convincing farmers to adopt new technology" (p. 92).

In extension the effectiveness of sharing information with clientele depends mainly on the process of teaching. Cole, in "Selecting Extension Teaching Methods," (1981) stated that:

> People learn in different ways -- some by reading, some by listening, some by discussing, some by doing. Extension studies have shown that the more teaching methods used, the higher the percentage of people changing their practices. Thus using a variety of techniques will be the most effective approach in seeking to bring about behavioral changes. (p. 29).

The importance of visits to farmers justify making careful preparations and whatever aids are appropriate. Bender, et al. (1971), writing about getting adults to participate, commented, "Aids should be as the word denotes, aids to teaching. They should add something to the situation. They should utilize to a great degree, either singly or in composite, the sense of perception. In effect, aids should expedite the teaching-learning process and make teaching and learning easier" (p. 102).

An extension service cannot function for long unless there is an effective research program. The research activities should be conducted according to the problems identified at the farmer level. VEW's visits to farmers' groups help to identify farmers' research needs. The need for applied research was stressed by Blankenburg (1982) who stated:

> If an extension project is to cover all agricultural areas with high intensity, it needs messages for all crop and animal development tasks which are of major interest for the respective group of farmers. . . . Another essential point is that the establishment of closer links between research, extension and farmers. A better orientation of research toward the needs of practical agriculture cannot be achieved without the assistance of extension, which has to bring research officers in contact with farmers. (p. 13)

Under the T & V system, the well-trained extension worker must meet the contact farmers and their fellow farmers frequently with great skills and competence, recognizing that such groups are composed of a variety of individuals with various characteristics in diverse social and cultural settings.

Seepersad and Henderson (1984) pointed out the criteria and standards for evaluating the T & V system developed by Cernea and Tepping (1977) in the monitoring and evaluation process. They also listed the related questions that are included in the questionnaire(s) for monitoring and evaluation survey(s). Researchers traditionally are not well informed and best equipped to transfer their results into a form understandable to the farmers. Therefore, the role of extension agencies is to translate the information into culturally usable recommendations, adapted to the farmers' level of understanding and resources.

The number of farm families per field-level extension worker is set at a manageable level. A specific schedule of visits to farmers' fields is rigidly prescribed. Frequent in-service training of the field-level extension staff is an integral part of the system and this training enhances their confidence and makes them better able to communicate innovative practices with the farmers. Thus, the T & V System helps to assure frequent contact of village extension workers and farmers' groups, to increase knowledge and understanding of farmers in order to change their attitudes and opinions, and culminates in adoption of improved practices that result in increased production.

Visits of Extension Workers to Contact Farmers

Regular scheduled visits to farmers' fields by extension staff and regular scheduled training of the VEWs are an important feature of the training and visit system. Field visits are undertaken by all extension workers, including staff at divisional and segment levels, but the focus of extension activities in the field are the visits made by Village Extension Workers (VEWs) who contact each farmers' group once every fortnight. The VEW is being regularly trained to teach farmers improved agricultural practices. On these visits, the worker aims to advise and teach farmers and encourage them to adopt improved agricultural technology that is relevant to their resources and skills. Benor et al. (1984) suggested a fortnightly table within which the frequency of visits to farmers can be adapted to local situations as shown in Table 2.1.

Accordingly, this model is planned assuming the farmers in the extension agent's area are subdivided into eight groups. The VEW visits each group at a pre-fixed day and hour. He spends sufficient time with the group to discuss existing problems and to disseminate relevant technical information to be relayed to farmers during the next two weeks. In this way, he covers all farmers at a fortnightly interval. Two days in the fortnightly period are spent on training agents and two remaining days on extra activities. All extension services practicing T & V have adopted this fortnightly schedule with some variations or adjustments. In Yemen, it was decided to have four visit days per week in order to give the agents more time

Table 2.1. Typical Fortnightly Training and Visit Timetable for a Village Extension Worker

First Week							Second Week						
M	T	W	The	F	S	Su	M	T	W	The	F	S	Su
1	2	MTG AEO	3 VIS	4	EXT	H	5	6	TRA SMS	7	8	EXT VIS	H

Explanation:

1-8 = Visit to farmers' groups

MTG/AEO = Meeting of Agricultural Extension Officer with his Village Extension Workers.

EXT/VIS = Extra visits for checking from trials, holding field days, making up visits missed because of holidays or illness, and so on, and for doing reporting work.

TRA/SMS = Fortnightly training sessions (of AEO and VEW) conducted by Subject Matter Specialists.

H = Holiday (official).

Source: World Bank, *The Agricultural Extension: The Training and Visit System*, Washington, D.C., 1984.

Fortnightly Training Sessions

To keep the extension staff up-to-date on the latest know-how with regard to specific recommendations suited to changing farm conditions, there are fortnightly training sessions for VEWs. Fortnightly training is the chief means of continuously updating the professional skills of extension workers and of infusing them with confidence to meet farmers. Systematic training is another basic concept embodied in the T & V System of agricultural extension. The main idea behind the systematic training is to develop adequate professional knowledge and skill in extension workers about the specific farm recommendation to be made during the forthcoming fortnight. Natesan (1983) stated that training in the T & V System is not entirely a matter of training only to the extension staff. It was realized that, for the concept of the system, there was a need to create an awareness and understanding of the system not only in the minds of the extension staff but also among several others groups--research personnel, administrators, university teachers, local officials, mass media personnel, T & V administrators, service supporting extension, and particularly the farmers.

The main objective of the VEWs scheduled visit is to meet the farmers in groups in the field, to carry a relevant message for the next two weeks, and to review the adoption of previous recommendations. The importance of fixed and regular visits to farmers' group by VEW under the T & V System was summarized by Benor and Baxter (1984) who stated, "Visits are made, on the one hand, to advise and teach farmers recommendations on relevant agricultural technology and to encourage them to adopt these, and, on the other, to establish in extension and research an awareness of actual farmer conditions and needs" (p. 50).

On a visit, a VEW should teach production recommendations to as many farmers as possible, and certainly to all contact farmers, and attempt to convince them to adopt the recommendations on at least a small part of their land. This

study is designed to determine the contact farmers' and extension agents' perceptions regarding the training and visit components of the T & V System in rural Yemen.

The importance and useful role training extension workers has always been recognized. Two major problems face the extension service in Yemen as well as in many developing countries: the quantity and quality of its personnel or staff. The quality of the extension agent represents a serious problem. Sigman and Swanson (1984) indicated that pre- and in-service technical training are generally designed to develop the practical skills, knowledge, and expertise needed to carry out improved agricultural practices. Generally, the technical training focuses on one or more major areas of agricultural extension. Hayward (1987) stated that the scarcest extension resource is quality manpower; more extension projects fail for the lack of skilled manpower than for any other reason.

In theory, one usually expects extension agents to go through three forms of training: pre-service, induction, and in-service training. The in-service training is important and the emphasis is on the technical subject matter with much concern for communication skills or the subject of "extension education." Usually, the content of these in-service training sessions should be based on a systematic needs assessment of the extension agents.

Upon the implementation of the T & V System, a systematic program for regular office and frequent visits for farmers should be introduced or established. This system contributes to the total system, starting from the bottom subsystem at the farmers' groups level to the regional level at the top. A close and mutual interrelationship exists in reaching the final situation where each farmer gains

knowledge, develops skills, carries out changes, and influences other farmers in their effort to increase production and improve their socioeconomic conditions. Benor and Harrison (1977) described the fixed, scheduled visits of the VEW to farmers, under the T & V System, as follows, "VEW always visits a given group on the same day of the week, so the group always knows when he should be with them. In each visit he sees at least the contact farmers. All other farmers in the group are also invited to meet the VEW on this day, and any of them participate in visits in fields and in discussions" (p. 22).

Perceptions of Village Extension Workers About the Visits Schedules and Training Session

Samarasinghe (1985) summarized the findings of his study on the effectiveness of visits to farmers in Sri Lanka under the T & V System as follows:

> VEWs realize the importance of group approach to achieve their goals and they encourage farmers to develop group action among farmers.
>
> VEWs strongly believe that frequent and scheduled visits to farmers' groups help them to identify farmers' needs and field problems and to develop close relationships between farmers and VEW.
>
> VEWs with higher professional education consider themselves more competent in communicating with farmers than others.
>
> VEWs with fewer years working experience are more dissatisfied with their technical competence and knowledge than are those with more experience.
>
> Lack of mobility of VEWs is a problem which makes visits to farmers' groups more difficult. (p. 42)

Perceptions of Contact Farmers about the Visit of Extension Workers

Mpachika (1989), in a study of the effectiveness of the T & V System as perceived by contact farmers in Malawi, concluded that:

1. Scheduled frequent visits by extension agents to farmers' groups enhance the opportunity to develop close relationships between farmers and extension agents.
2. Farmers are not actively involved in deciding points to be stressed in the extension program.
3. Farmers are somewhat dissatisfied with the extension agents use of teaching aids, conducting of demonstrations, review of recommendations, and the follow-up of information throughout the entire production cycle.
4. Farmers appreciate the need for working in groups. They realize the importance of promoting group action among themselves to achieve their basic needs.
5. Farmers within upper age groups, those with farm size of less than four acres, and those having long farming experience, express the need to conduct group meetings in the field.
6. Most agricultural information received by farmers is through group meetings, field units, demonstrations, radio programs, and home visits.

Introduction of the T & V System in Yemen

The T & V System was introduced to Yemen in 1984 on a pilot scale in one district of the Hodeidah Province and adopted at the southern valleys of Tihama. Prior to the introduction of this system, the Agricultural Extension Department of the Tihama Development Authority (TDA) was applied in conventional extension approaches throughout the project's area in the Tihama region for a number of years. The Food and Agriculture Organization (1978) Report stated that five counterparts, three supervisors, and 34 male extension agents received on-the-job training in 1985-1986. In addition, seven counterparts and 52 extension workers and area supervisors received on-the-job training through weekly field visits by the project subject matter specialists to Rima/Zabid Wadis (Valleys) for technical assistance and/or through training refresher courses, which were organized by the project and attended by extension workers from projects under TDA.

In Yemen, with an average extension density of 1:500, every VEW has 25 farmers' groups, each composed of one contact farmer and about 20 follower (other) farmers. As visits are scheduled only eight days per fortnight, VEW has to meet eight farmers' groups on each visit day. In Yemen, Fridays are the official holiday (TDA, 1984).

CHAPTER THREE

STUDY DESIGN AND METHODOLOGY

The primary purpose of this study was to determine effectiveness of the T & V system through the perceptions of contact farmers and extension workers as a mean for improving conditions for farmers in the project area of the Tihama Development Authority in Hodeidah Province of Yemen. The method and the design employed in conducting this study are described in this chapter. This chapter includes a description of the type of research, the target population and sample selection, and the site of the study area. Also, the data collection instrument is described in terms of its construction, validity, translation, and field testing as well as the procedures and methods employed for data analysis.

This study followed a survey research methodology. It was based on a structured interview and a questionnaire which were considered to be the most appropriate for the purpose of this study. The survey method of research is an established strategy that offers many advantages. According to Babbie (1983), "Survey research is probably the best method available to the social scientist interested in collecting origional data for describing a population too large to observe directly. Surveys are excellent vehicles for measuring attitudes and orientations in a large population" (p. 209).

Research Population and Site

This study was conducted in the Tihama Development Authority (TDA) in Hodeidah Province of Tihama Region in Yemen between October and December 1989. The Tihama region was selected for the study because the training and visit (T & V) system of agricultural extension was first adopted in the TDA project area. This project area was selected because it was the major agricultural area of Yemen and it was also representative of the coastal plain region. Further, the Tihama Development Authority, the pioneer agicultural development authority in Yemen, had been in operation for several years. Also, the T & V System was also adopted in the region four years prior to the study.

The main target groups for this study were: (a) contact farmers; (b) agricultural extension workers; and (c) agricultural extension officers, subject-matter specialists, and research personnel, who were working in the Tihama Development Authority in Hodeidah Province, Tihama Region. The project was selected because its approach was unique, its location was representative of the coastal plain region, and it had been in operation for several years. Figure 3.1 shows the location of the project area (TDA area) and the site of this study.

Research Hypotheses

After reviewing literature on perceptions of contact farmers and extension workers on the adoption of the T & V System of agricultural extension, a decision was made to state the research hypotheses. Several considerations led to this decision. Most of the research work done in this area in East Asia and East Africa is often concerned with a particular component of the T & V System. Such studies

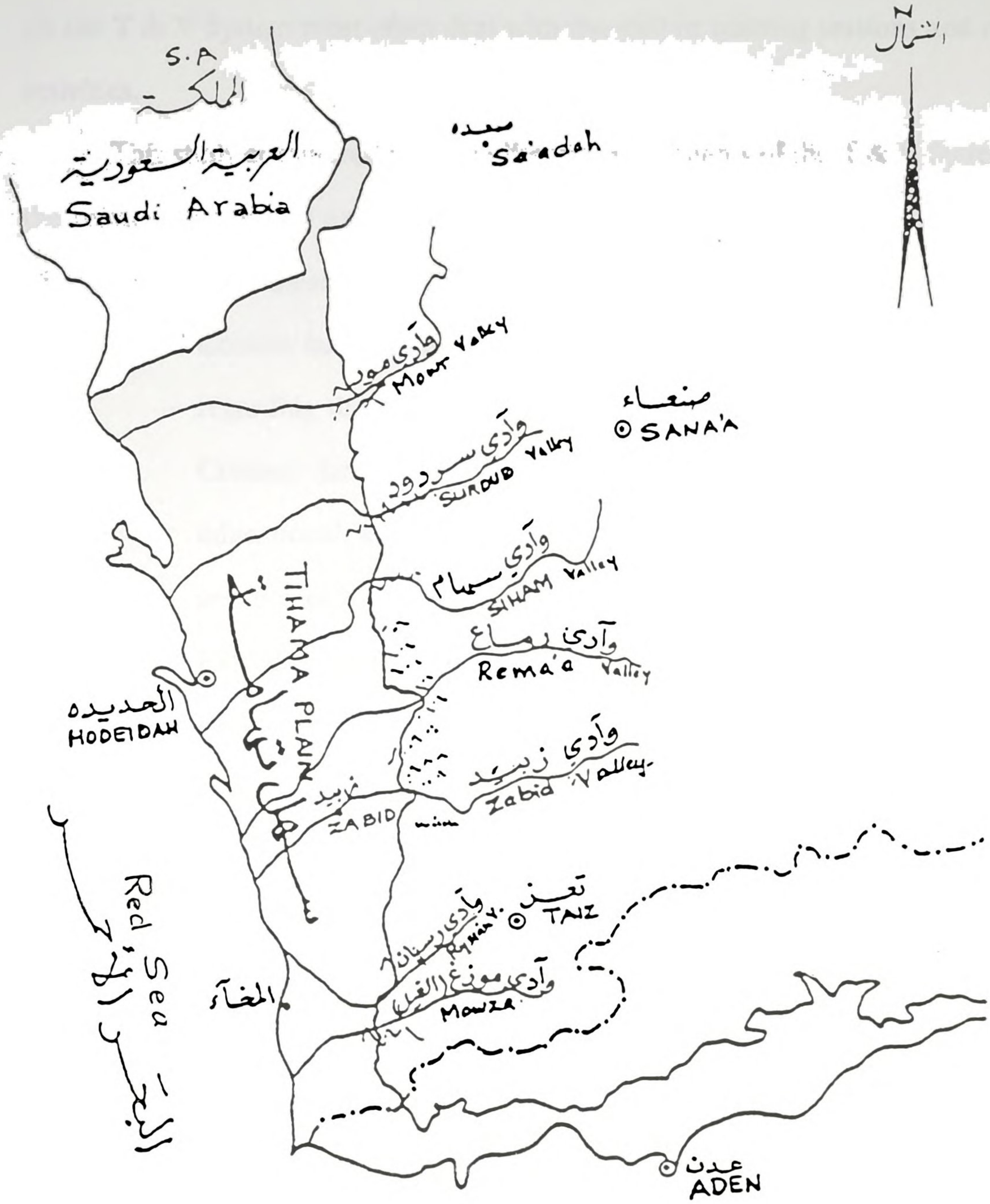


Figure 3.1: Map of Yemen Showing the Research Site.

on the T & V System most often deal with the visit or training sessions and related activities.

This study considered the two different components of the T & V System and the related agricultural extension activities.

The following hypotheses were tested:

1. **Contact farmers differ in their perceptions according to their age class regarding the selected aspects of visit sessions of the T & V System.**
2. Contact farmers differ in their perceptions according to their educational attainment regarding the selected aspects of the visit sessions of the T & V System.
3. Extension workers differ in their perceptions according to their age class regarding the selected aspects of the training sessions of the T & V System.
4. Extension workers differ in their perceptions according to their educational attainment regarding the selected aspects of the training sessions of the T & V System.
5. Extension workers differ in their perceptions according to their employment status regarding the selected aspects of the T & V System.
6. Contact farmers and extension workers differ in their perceptions about the following aspects of the T & V System:
   a. extension teaching methods used;
   b. technology/subject-matter emphasized by the extension service; and

c. overall performance of the T & V System.

7. There are relationships between the overall performance of the T & V System and the contact farmers' age, family size, farm size, income, and frequency of extension contact.

8. **There are relationships between the overall performance of the T & V System and the extension workers' age, experience in extension work, experience in present job, number of promotions, number of job transfers, and employment status.**

Sample Selection

Selecting an ideal sample of any population is not an easy task (Borg and Gall, 1979). Two major factors identified as important steps in sample selection are: (1) the population's representation by the selected sample, and (2) the sample size (Borg and Gall, 1979, Scheafer, et al, 1979).

To ensure that both of these criteria were met, the researcher utilized different sampling techniques for different populations. A list of all the contact farmers (CFs), extension workers (EWs), subject-matter specialists (SMSs), and research personnel working in the Tihama Region of Yemen were collected from the Tihama Development Authority Office. This list was used to locate the field staff.

A list of contact farmers was obtained from the TDA office which served as the basis for preparing the sampling frame. In order to draw a representative sample of contact farmers, the list of all contact farmers according to the agricultural centers was prepared. The list was then reviewed with extension officers in each agricultural center. It was noted that many contact farmers had been recently

selected by the extension workers and had very little experience to provide good judgement on the operation of the T & V System in the region. Similarly, several contact farmers were identified as "inactive". Based on these facts, contact farmers who either had less than one cropping season experience as CFs or who were "inactive" were deleted from the list and a final sampling frame was prepared. The list was prepared for each agricultural center. A 50 percent sample was drawn from each agricultural center in the southern, central, and northern districts of the TDA region following a systematic sampling technique with a random start. Table 3.1 provides the distribution of contact farmer sample in the TDA region. Altogether 144 contact farmers, 45 percent of the total in the TDA region, were interviewed.

In the case of extension workers, subject-matter specialists, extension officers and research personnel, data were collected from those whose were available in their respective offices during the field data collection. From this population 59 (100 percent) of the extension workers and 34 (95 percent) of the agricultural extension officers, SMS, and the research personnel working in the TDA region were contacted and they completed the questionnaire designed for this study.

Table 3.1: Total Number of Contact Farmers, Extension Workers, and Extension Officers, Subject-Matter Specialists and Research Personnel Considered for this Study.

Region	Contact Farmers	Extension Workers	AEO, SMS, and Researchers
Southern district	48	24	12
Central district	56	18	12
Northern district	40	17	10
Total	144	59	34

The Research Instrument

The construction of the questionnaire was largely influenced by several researchers who conducted similar studies, especially those of FAO (1989), Mapachika (1989), Samarasinghe (1985) and Al-Shereeda (1984). Based on the review of literature and experience of this researcher, three different instruments for each different population considered for this study were prepared. These were then presented to some fellow international graduate students in the Department of Agricultural and Extension Education at Michigan State University (MSU) who had experience working under similar systems of agricultural extension in their respective countries for comments and suggestions.

The instrument was revised and presented to the researcher's doctoral committee at MSU and the head of the Agricultural Economics and Extension Department of Sana'a University in Yemen. Based on the comments received, necessary revisions and corrections on the instruments were made.

The interview schedule for contact farmers, questionnaires for the extension workers, and extension officers, SMSs, and researchers were developed before leaving for Yemen. The instrument was first prepared in English and then translated into the Arabic language. The Arabic version of the instrument was reviewed by an interpreter at Sana'a University in Yemen, and assessed for appropriateness and clarity.

About ten copies of each questionnaire were printed and made ready for the field test. The researcher traveled to Hodeidah Province and administered the instruments to a sample group of ten (10) contact farmers, six (6) extension workers,

and six (6) agricultural extension officers, subject-matter specialists, and research personnel at the TDA project area. This field test sample was not part of the study's sample. The field test was conducted to determine if the questionnaire items were yielding the kind of information needed. Post hoc reliability tests using Cronbacks alpha resulted in coefficients of .72 for the visit aspect ratings and .65 for the training aspect and ratings. Some minor differences in the interpretations of the meaning of items were reported in the questionnaires designed for extension workers, SMSs, and research personnel. Based on the data from direct responses to the instruments as well as written and verbal comments by the respondents, some items were interpreted as intended.

The findings of the field test of the contact farmers instrument indicated that many CF did not possess strong feelings on either end of the Likert type scale sections of the instrument. Contact farmers either agreed, disagreed or had no opinion on several statements. Considering these findings of the field test, scaling of statements only in the contact farmer's interview schedule were changed to a three-point scale from a five-point Likert type scale.

The field test of the instruments established reasonable validity regarding the construction of the question items. On the basis of the field test results, some minor revisions in wording and in item arrangement were made to the instrument. Overall, the results of the responses indicated that the questionnaire items were clear. The average length of time it took to complete the questionnaire was 30 minutes for extension workers, and 20 minutes for SMSs and research personnel. The interview

period for contact farmers was about 45 minutes. The questions were finally revised and printed.

The research instruments consisted of two main parts. The first part of all instruments was designed mainly to obtained demographic characteristics of respondents. The second part of the instruments was devoted to identifying and assessing the perceptions of the contact farmers, extension workers, extension officers, SMSs, and research personnel on selected aspects of training and visit components of the T & V System (see Appendix B, C, and D).

Statements in the extension workers questionnaire were weighted numerically on the following scale (a five-point Likert type scale) on part two:

1 = Strongly disagree

2 = Disagree

3 = Undecided

4 = Agree

5 = Strongly disagree

For the purposes of this study, the researcher divided the selected aspects of the T & V system into two sub-groups, these sub-groups were as follows:

A. In the Contact farmers interview schedule:

   1. perceptions related to technical content of visit session;

   2. perceptions related to extension teaching methods used;

   3. perceptions related to visits of extension workers; and

   4. perceptions related to the contact farmers' performance.

B. In the extension workers questionnaire:

1. perceptions about technical content of the training sessions;
2. perceptions about the subject-matter delivery by specialists; and
3. perceptions about extension workers' visits to contact farmers.

This division was based on the Training and Visit system's two main components: (a) the training of extension workers and visits of extension workers to the farmers; and (b) the role played by the contact farmers and the extension workers. Therefore, statements in each section of the instrument were different.

Data Collection Procedures

After securing approval from the United States Agency for International Development, the College of Agriculture in Yemen, and Michigan State University, the researcher traveled to Yemen in September 1989 to collect the data for this study. Data for this study were collected between October and December, 1989.

Upon arriving in Yemen, the investigator discussed the purpose of the study with the head of Agricultural Economics and Extension of Sana'a University. The researcher traveled to Hodeidah and met with the president of the TDA and other TDA personnel in Yemen. The purpose of these meetings were to secure their assistance, discuss the purpose of the research and its objectives, as well as the content of the questionnaires; and to explain the questionnaire; study the T & V operations program; explain the research plan and the time frame; and discuss the training of the enumerators.

The researcher went back to Sana'a and shared the information with the head of Agricultúral Economics and Extension Department for further discussion of the research. The second step was the translation of the questionnaire by the

investigator and the head of the department and review by an interpreter at Sana'a University in Yemen. The instruments were field tested and some modifications and revisions were made based on the results of the field test.

About 190 copies of the contact farmer questionnaire, 85 copies of the extension worker's questionnaire, and 40 Arabic copies of the subject-matter specialists and research personnel questionnaires were printed and made available to start the research. The researcher traveled to Hodeidah to start collecting the data in early October, 1989.

Selection and Training of Interviewers

In order to obtain information from the contact farmers, the researcher selected four extension personnel in the three districts of the TDA project, and personally trained them to serve as a interviewers. Selection criteria of the interviewers were: (a) should be intermediate school graduate and above; (b) should be residents in Tihama region; and (c) should speak the same language, share similar culture and have a farming background.

As suggested by Dwyer (1976) and Spool (1978), three full days of training for the interviewers were planned to cover the following activities:

A. General orientation regarding the nature of work/research
    1. Objectives of the study.
    2. Importance of the data.
    3. Need for quality data.
B. Orientation to technique of interviewing/data processing:
    1. How to build rapport with respondents.

2. How to state questions.
3. How to record the responses on the interview schedule.
4. How to cross-check questions items, if any.
5. How to keep special notes.

C. Practicing data gathering among non-sample contact farmers.

Actual data collection was administered and closely supervised by the researcher. The researcher accompanied the interviewers during the interview sessions in the village. He carefully observed the customs of the region and with the trained assistants began each interview with the customary salutations of respect. The interview team (the investigator and his assistant) adhered to the following procedures recommended by Wiersma (1969), Madga (1953), and Salltize, et. al., (1959) as cited by Shibah (1982) and Mpachike (1989).

1. The interview will be carried on a business like manner, friendly, but avoiding excessive informality.
2. The questionnaire will be organized prior to each interview, and the recording of data will be as inconspicuous as possible, so as not to arouse suspicions.
3. Complete privacy will be granted to each interview, with the assurance that all answers will be confidential and his name will not have been used.

All questionnaires were accompanied by a cover letter. The cover letter explained the purpose of the research, and its importance and urged the participants to respond to all items as accurately and truthfully as possible. It also assured the

anonymity of respondents. Furthermore, the latter informed the respondents that their participation was on a voluntary basis and that confidentiality of responses would be maintained. The researcher, with the help of the interviewers, interviewed 144 contact farmers randomly selected from 22 agricultural centers in the TDA region. To ensure internal reliability the researcher and his assistants observed the following procedures in interviewing each farmer, as suggested by Shibah (1982) and cited by Mpachika (1989):

1. A uniform description of the purpose of the interview was explained to each interviewee.
2. The scale of instrumentation was verbally explained.
3. The competencies (statements) were read to each interviewee, and the responses were chosen by the respondent and recorded by the interviewer/researcher on the questionnaire.
4. In order to emphasize equality, the investigator and his assistants conducted each interview seated on the same ground next to the farmers.
5. All the interviews were conducted on the farmers' own property, in order not only to record the answers, but also to observe conditions.
6. Each interview began with open conversation, which allowed the farmer to express himself freely, with no restraint.

After this initial conversation, the farmer was told the purpose and value of the study in a manner that indicated his responses were important and to remove any suspicion that he might feel.

The researcher and his assistants were careful in maintaining the validity of the interview by presenting the questions in exactly the same wording and in the same order to all participants. Interview schedules were completed by 144 contact farmers. From the proposed sample of CFs, the response rate was 100 percent.

The researcher personally distributed the extension workers' survey forms in the extension centers or in the headquarters during their regular meeting with their supervisors. The researcher discussed all of the items in the survey forms and answered almost all of the questions. Fifty-nine survey forms were completed and returned to the researcher. All extension workers who were working in the region completed the questions.

The third questionnaire was designed to identify and asses the perceptions of the agricultural extension officers (AEOs), subject-matter specialists (SMSs), and the research personnel regarding the nature of linkage established by the T & V system with research and other supported services and institutions. The questionnaire was distributed to all AEOs, SMSs, and researchers in the TDA region. The researcher himself contacted each individual in this category of respondents, explained the purpose of the study, and requested them to complete the questionnaire. Altogether, 34 questionnaires were completed which was a 95 percent response rate from this group of respondents.

Treatment of Data

Data obtained were processed and analyzed through the computer facilities at Michigan State University using the Statistical Package for Social Sciences (SPSS/PC+) program.

Descriptive statistics were computed for most variables. Overall means and standard deviations were determined for each statement. Pertaining to perceptions about the T & V System, analysis of variance (F- value) was utilized to determine the magnitude of differences among the respondents' perceptions of statements regarding the selected aspects of the T & V system using Scheffe' test at .05 to locate differences. T-test was also used to measure the magnitude of differences of the contact farmers and extension workers regarding the level of perceived appropriateness of technology/subject-matter provided by the T & V system. The frequency of extension method utilized, the appropriateness of adopted technology/subject-matter, and the overall performance of the T & V system. Finally, Pearson product moment correlation coefficient was determined to assess the relationship of selected socio-economic characteristics (i.e., age, education, and employment status) with each statement to assess overall performance of the T & V system.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

The first section of this chapter describes the respondents who participated in the study in terms of their demographic characteristics, i.e., gender, age, educational attainment, type of training, marital status, family size, number of wives, length of service, employment status, knowledge of extension workers, and knowledge about assignment of extension worker.

The second section reports the findings regarding contact farmers' perceptions concerning the quality of visit sessions under the T & V System. The third section presents the findings about extension workers' perceptions concerning the training sessions organized by agricultural extension officers and subject-matter specialists (SMS), and the extent of adequacy of resource support to facilitate extension work. The fourth section compares the perceptions of contact farmers and extension workers concerning extension method utilized.

The fifth section reports the findings regarding the comparisons of contact farmers and extension workers' perceptions concerning technology/subject-matter emphasized by the extension services. The sixth section reports the findings on the relationships between respondents' perceptions of the overall performance of the T & V System and certain demographic variables.

Finally, the seventh section discusses the perceptions of agricultural extension officers (AEOs), subject-matter specialists (SMSs) and research agency personnel

regarding the linkage issues established by the T & V System between and among different institutions of agricultural development in the region.

Characteristics of the Sample

Contact Farmers

A total of 144 contact farmers (CFs) were interviewed for this study. All respondents were male. Nearly 100 percent (99.3 percent) of them were married and 6.3 percent of those who reported being married indicated having two wives (Table 4.1).

The age of the CFs ranged from 16 to 85 years with a mean of 44 years and a standard deviation of 12 years. About three-fifths (59 percent) of the respondents indicated their age between 31-50 years. The relatively higher age range of the respondents indicates that farmers in the TDA region enter into farming early in their life and they remain active in farming until they get very old. The findings also indicated that a majority of them (62.5 percent) were illiterate, about one-third (31.3 percent) of the respondents indicated that they could read and write and only a few (3.4 percent) indicated having an elementary level education (Table 4.1).

Table 4.1: Characteristics of Contact Farmers

Characteristics	Contact Farmers	
	Number	Percent
Gender:		
Male	144	100.0
Female	0	0.0
Marital Status:		
Married	143	99.3
Single	1	.7
Age (years):		
30 or less	22	15.3
31 to 40	51	35.4
41 to 50	34	23.6
51 or over	37	25.7
Educational Attainment:		
None	90	62.5
Read and Write	45	31.3
Elementary	5	3.4
Secondary or Higher	4	2.8
Family Size:		
6 or less	55	38.2
7 to 12	66	45.8
13 to 18	14	9.7
19 and above	8	5.6
Number of Wives:		
One	133	92.4
Two	2	1.4
Three or more	1	.7
Length of Service as a Contact Farmer (Months):		
3 or less	28	19.4
6 to 12 months	86	59.7
13 to 18 months	26	18.1
19 months and above	4	2.8
Knowledge about Assignment of Extension Worker:		
Yes	143	99.3
No	1	.7
Knowledge of Extension Worker's Name and Agency:		
Yes	139	95.9
No	3	2.1
No response	3	2.1
Whether Contact Farmers Could Recognize Extension Worker:		
Yes	5	3.4
No	139	96.6
Contact with TDA Extension Worker in the past year:		
Yes	132	91.0
No	8	5.5
No response	4	3.9

On the average, contact farmers had less than one year (i.e., 10 months) of experience. Almost all (99.3 percent) respondents indicated knowledge about the assignment of an extension worker in their villages. Findings also indicated that more than nine-tenths (95.9 percent) of contact farmers knew the extension workers by name and the agency to which he belonged. Ninety-one percent indicated having contact with the extension worker during the past year.

Extension Workers

Data presented in Table 4.2 show the characteristics of the extension workers. A total of 59 extension workers completed the questionnaire designed for this population. They were all male and about three-fourths (74.6 percent) were married. The age of the extension workers ranged from 20 to 40 years, with a mean of 28.8 years and a standard deviation of five years. Findings also indicated that a great majority of the respondents (72.9 percent) were young adults, i.e. 30 years old or less. About one-fourth (25.4 percent) were 31-40 years old.

A majority of the extension workers had a secondary school or higher level of education and about one-third (33.9 percent) indicated having an intermediate level (4-7 years of schooling) of education. Only a few (6.8 percent) had an elementary level education.

Formal education may provide only a partial picture about the educational background of the extension workers; therefore, an attempt was made to gather information about other pre-service and/or in-service training of extension workers. Findings indicated that about one-half (45.8 percent) had participated in more than one type of training program.

The findings also indicated that almost four-fifths (81.4 percent) of the extension workers had attended pre-service training and 68.1 percent indicated that they had received in-service training. Of the respondents, 84.8 percent indicated that they had participated in on-the-job training, and 52.6 percent of the respondents received training abroad.

The work experience or the length of service of the extension worker ranged from 6-15 years with a mean of 8.7 years and a standard deviation of 4.5 years. The experience of extension workers in their current jobs in the TDA region ranged from 6-24 months with a mean of 18 months and a standard deviation of 6 months. About half (50.9 percent) of the extension workers indicated working in the TDA region for more than 20 months and only a few (6.8 percent) indicated less than ten months of experience in this region.

About half (49.1 percent) of the respondents indicated that they had not received any promotion in their job; whereas, almost another half (45.8 percent) received promotion at least once and a few (5.1 percent) more than three times.

Transfer of extension personnel is a frequent phenomena in many countries. Field staff are transferred for various reasons and such transfers may have some impact on the employee's perception about his own job and performance. In general, the promotion of an employee in the extension organization may require him to move from one place to another. The findings of this study showed that more than three-fourths (75.1 percent) were transferred in their job three or more than three times, and about one-fourth (23.7 percent) indicated that they had not been transferred. When asked about their employment status, an overwhelming majority

(84.7 percent) indicated that they were permanently employed. Almost nine-tenths (89.8 percent) were Yemeni nationals and the rest were foreigners working on a contractual basis.

Extension Officers, Subject-Matter Specialists and Research Personnel

Data presented in Table 4.3 show the demographic characteristics of the agricultural extension officers, subject-matter specialists, and the research agency personnel who responded to this study. Altogether, 34 persons from this group responded to this study.

Of the respondents, more than two-thirds (73.5 percent) reported that they were permanently employed by the Ministry of Agriculture. An equal number (73.5 percent) indicated an experience of 1-4 years. More than four fifths (83.3 percent) employed had a B.S. degree in agriculture and the majority had received special training related to their job. Over nine-tenths (94.1 percent) of the respondents were Yemen National and only a few (5.9 percent) were foreigners working on a temporary or contractual basis.

Table 4.2: Characteristics of the Extension Workers (N=59)

Characteristics	Frequency	Percent
Age:		
30 or less	43	72.9
31 to 40	15	25.4
41 and more	1	1.7
Gender:		
Male	59	100.0
Female	**0**	**0.0**
Marital Status		
Married	44	74.6
Single	15	25.4
Educational Attainment:		
Primary/Elementary	4	6.8
Intermediate	20	33.9
Secondary and Others	35	59.3
Length of Experience in Years:		
3 or less	7	11.9
4 to 6	20	33.9
7 to 10	5	8.5
11 to 14	21	35.7
15 and more	6	10.2
Type of Training:		
Pre-service	48	81.4
In-service	57	68.1
On-the-job	50	84.8
Training abroad	31	52.6
Experience in Current Job (months):		
9 or less	4	6.8
10 to 19	25	42.4
20 or more	30	50.9
Number of Promotions Received:		
None	29	49.1
3 or less	27	45.8
4 and more	3	5.1
Numbers of Times Transferred:		
None	14	23.7
3 or less	30	50.8
4 to 6	12	20.2
7 and more	2	5.1
Employment Status:		
Permanent	50	84.7
Temporary	4	6.8
Contract	5	8.5
Yemen Nationality:		
Yes	53	89.8
No	6	10.2

Table 4.3: Characteristics of Subject-Matter Specialists, Extension Officers and Research Personnel (N=34)

Characteristics	Frequency of Mention	
	Number	Percent
Experience in Years		
1 to 4 years	25	73.5
5 to 10 years	6	17.6
11 to 15 years	3	8.8
Employment Status:		
Permanent	25	73.5
Temporary	4	11.8
Contract	4	11.8
Others	1	2.9
Highest Education Attainment:		
Less than High School	2	5.9
High school	4	11.8
B.S. degree and above	28	83.3
Received Special Training Related to Your Present Job:		
Yes	23	67.6
No	11	32.4
Yemen National:		
Yes	32	94.1
No	2	5.9

Perceptions of Contact Farmers of the Training and Visit System

Training and Visit sessions were the two main components of the T & V System. This section focuses on the perceptions of contact farmers about visit sessions made by the extension workers. Contact farmers were the selected farmers whom the village extension worker visited on each fortnight. They also met with other farmers who were willing and interested in attending his/her visits and seeking his/her advice. These farmers were exposed to improved agricultural technology that was relevant to their resources and skills. Generally speaking, each contact

farmer provided a piece of his land for demonstration purposes. Moreover, each contact farmer was responsible for contacting and helping certain farm families in his area to improve agricultural technology. These farmers were expected to serve as pioneers, leaders, facilitators, learners, educators, and risk takers. They were also assigned purely educational responsibilities. Therefore, for the purpose of this study, it was important to assess and identify their perceptions about the visit component of the T & V System, especially on the following aspects:

1. The technical content of the visit sessions.
2. The extension worker delivery methods;
3. Proposed technology transfer by extension workers; and
4. Their performance as contact farmers.

Contact farmers were asked to indicate the extent to which they agreed/disagreed with selected statements. The responses were coded on a three-point scale, i.e., 1 = Disagree, 2 = undecided, and 3 = Agree. Means and standard deviations for statements related to the above aspects were computed for contact farmers.

Perceptions of Contact Farmers Regarding the Technical Content of the Visit Sessions

The overall mean rating for statements relating to technical content of the visit sessions ranged from a high of 2.9 to a low of 1.48. Overall, contact farmers rated the statement, "Extension worker usually shares information on new technology with farmers of this area" very high with an overall mean of 2.9. The lowest score was recorded on the statement, "Extension worker usually discusses new technology

which are suitable only to large farmers," (mean = 1.48). The lowest score on the negatively stated statement suggests that the T & V System serves equally to all farmers irrespective of their farm size. Further, findings are indicative to the fact that the technical content emphasized by the system are supported by local availability of inputs (Table 4.4).

The analysis of variance showed significant differences of opinion among farmers of different educational attainment on the statements: "Extension worker usually shares information on new technology for farmers of this area" (overall mean 2.9), "Information/technologies shared by extension workers are very useful to me" (mean, 2.9), "Extension workers always attempt to help us find solutions to our farm problem" (mean 2.8), and "Extension worker shares information in time according to cropping season" (overall mean 2.8). Contact farmers with high school or higher level of education rated these statements lower (i.e., 2.33, 1.68, 1.33, and 1.67 respectively) (See Appendix F, Table 1). The F-values for these statements was found 3.16, 14.38, 28.06, and 7.39, respectively and the difference was noted at $p = <.05$ level for all the above statements. Although the lower values of the standard deviations indicate that the respondents were uniform in their perceptions, the F-values were statistically significant and the differences tend to have practical implications. The analysis of variance showed no significant differences on contact farmers' perceptions based on the age class (Appendix F, Table 1).

Table 4.4: Means and Standard Deviations For Perceptions of Contact Farmers on Selected Aspects of the Training and Visit System.

Statements	Mean (N=144)	Rank	S.D.
Extension worker usually shares information on new technology for farmers of this area.	2.9	1	.34
Information/technologies shared by extension workers are very useful to me.	2.9	2	.38
Extension workers always attempt to help us find solutions to our farm problems.	2.8	3	.38
Extension worker's recommendation of new technology usually requires inputs that are simply not available in our area.	1.8	5	.85
Extension worker shares information in time according to cropping season.	2.8	4	.47
Extension worker usually discusses new technologies which are suitable only to large farmers.	1.5	6	.71

Mean was computed for each statement by assigning a scores of 3, 2, 1 for agree, undecided (or neutral), and disagree, respectively.
Scores were reversed for negative statements.

Perceptions of Contact Farmers about Teaching Methods Used

Table 4.5 presents the perceptions of contact farmers regarding the extension teaching methods followed by extension workers in the Tihama region. The overall mean ratings of the contact farmers' perceptions on each of the six statements indicated that contact farmers felt positive about the kinds of teaching methods used

indicated that contact farmers felt positive about the kinds of teaching methods used by the extension workers. As shown in Table 4.5, means for the six statements ranged from 1.8 to 2.9. Respondents gave the highest rating to the statements, "Extension worker in my village is easy to understand," "The extension worker helps me understand how to follow improved farm practices," and rated the lowest to the statement, "The extension worker brings enough bulletins and/or printed material". A majority of contact farmers tended to possess a positive perception on other related statements.

Table 4.5: Means and Standard Deviations For Perceptions of Contact Farmers Regarding Extension Teaching Methods Used.

Statements	Mean (N=144)	Rank	S.D.
Extension worker in my village is easy to understand.	2.9	1	.37
The extension worker usually visits at my home but he has no time to visit my actual farm.	2.6	3	.71
The extension worker usually comes with some samples or materials for demonstration.	2.1	5	.89
The extension worker helps me understand how to follow improved farm practices.	2.9	2	.45
The extension worker brings enough bulletins/printed materials.	1.8	7	.81
The bulletins/materials provided are helpful to understand new farming practices.	2.0	6	.76
I usually have a hard time following what the extension worker talks about.	2.6	4	.78

Mean was computed for each statement by assigning a score of 3, 2, and 1 for agree, undecided (neutral), and disagree, respectively.

Although there was generally a positive rating on the use of extension teaching methods, it is worth mentioning that a considerable number of contact farmers either disagreed or responded neutral on the effective use of samples, demonstration materials, and printed matters in the region. Table 1 Appendix F shows that contact farmers differ significantly as to their age and educational level in their perceptions about the use of extension teaching methods. A significant difference was noted on the statement, "Extension worker in my village is easy to understand," (mean of 2.92), (F-value 2.77 and 8.31, $p < .05$ respectively) by age class and education. In other words, contact farmers between 31-40 years of age who had high school or higher level of education rated the statement significantly lower than others. Another significant difference noted among contact farmers with high school or higher level of education was regarding the statement "Extension worker helps me understand how to follow improved farm practices," (mean=2.9), (F-value = 7.81, $p < .05$) (see Appendix F, Table 1).

Perceptions of Contact Farmers Regarding the Quality of Extension Workers' Visits

One of the major managerial objectives emphasized by the T & V System is that the extension workers (EWs) have to carry out regularly scheduled fortnightly visits to each contact farmer and his followers. The researcher attempted to identify the quality of the visits of the extension worker to draw information on whether the visits were regular, relevant, problem-solving oriented, and timely. Contact farmers were asked to report their perceptions to seven statements concerning the extension workers' frequency of visits practiced under the T & V System in Tihama region.

Means and standard deviations for each of the statements were computed on a three-point scale and the findings are presented in Table 4.6.

Table 4.6: Means and Standard Deviations for Perceptions of Contact Farmers Regarding the Quality of Extension Workers' Visit

Statements	Mean (N=144)	Rank	S.D.
Extension worker visits me regularly once every two weeks.	2.2	4	.96
I know in advance when and at what time the extension agent is going to visit me.	1.9	5	.91
I am usually very busy when the extension worker visits me.	1.8	6	.84
Extension worker has sufficient time to spend with me during most of his visits.	2.7	1	.67
It is very difficult to contact the extension worker during time other than the scheduled visits.	1.6	7	.73
I communicate the problems and concerns of my fellow farmers to the extension worker.	2.7	2	.65
I discuss the solutions with my fellow farmers during the extension worker's visit.	2.6	3	.64

Mean was computed for each statement by assigning 3, 2, and 1 for agree, undecided(neutral), and disagree, respectively.

The mean rating for the perceptions on the statements concerning the quality ranged from 1.6 to 2.7. Respondents indicated a higher score to the statement "Extension worker has sufficient time to spend with me during most of his visits,"

(overall mean = 2.72, rank =1) followed by the statement "Extension worker encourages me to communicate the problems and concerns of my fellow farmers" (mean = 2.67, rank =2). The lower mean score was computed for the statement "It is difficult to contact the extension worker during times other than the scheduled visits," (mean = 1.64, rank =7). A mean score of less than 2 on three statements clearly indicated a less than satisfactory perceptions regarding the quality of the visit sessions.

Analysis of variance (Appendix F, Table 1) shows that contact farmers did not differ significantly according to age class on their perceptions regarding the statements pertaining to the quality of the extension worker's visit. However, more educated contact farmers differed significantly from less educated respondents at the .05 level on the statement "Extension worker visits me regularly once in every two weeks (mean = 1.0 and 1.33, respectively; F-value = 4.93, $p < .05$) (Appendix F, Table 1).

Contact Farmers' Perceptions Regarding their Own Performance

Respondents were also requested to rate their perceptions as to how well they understood and performed their role as a contact farmer. Using the same three-point scale, the mean and standard deviations were computed for all eight statements related to the contact farmers' perceptions of their own role. F-value results for differences in perception of respondents regarding all of the statements were computed. Table 4.7 shows the mean ratings and the standard deviations for contact farmers' perceptions for the eight statements. The mean ratings of these responses ranged from 2.43 to 2.97. The high mean score on all statements is an indication that contact farmer knew their expected roles and felt that they were performing

these roles at the satisfactorily level. The higher scores on statements such as "If I have any problem/concerns about my own farming, I usually visit my local extension workers," (mean = 2.97, rank = 1), and "I will continue to serve as 'contact farmer' of this community because it is beneficial to me as well as my villagers," (mean = 2.9, rank = 2) were again a clear indication that most of the contact farmers were open to learn and have a highly positive feelings about their roles.

Table 4.7: Means and Standard Deviations For Perceptions of Contact Farmers Regarding Their Performance as Contact Farmers

Statements	Mean (N=144)	Rank	S.D.
I know that I am the "contact farmer" in this community and I know what I am expected to do.	2.6	4	.70
I know what I supposed to do as a contact farmer.	2.6	5	.71
I helped my neighboring farmers even before I became a "contact farmer".	2.8	3	.58
My neighboring farmers usually come to see me if they have any problems or if they need any suggestions regarding improved farming practices.	2.6	6	.61
If I have any problems or concerns about my own farming, I usually visit my local extension workers.	2.9	1	.18
As compared to last year, more of my neighboring farmers came to see me this year to ask about their farm related problems/concerns.	2.5	7	.76
As compared to last year, my neighboring farmers asked me questions more frequently this year.	2.4	8	.79
I will continue to serve as a "Contact Farmer" of this community because it is beneficial to me as well as my villagers.	2.9	2	.35

Mean was computed for each statement by assigning 3, 2, and 1 for agree, undecided(neutral), and disagree, respectively.

Respondents were less in agreement with the statement "As compared to last year, my neighboring farmers asked me more frequent questions this year," (mean = 2.43, rank = 7). A low standard deviations also indicate that the respondents were uniform in their perceptions. However, respondents with higher level of education differed from others in terms of their perceptions regarding the statements, "If I have any problems or concerns about my own farming, I usually visit my local extension workers" (mean of 2.97), and "I will continue to serve as a "contact farmer" of this community because it is beneficial to me as well as my villagers," (mean of 2.89; F-value = 3.47 and 8.48 respectively, p = <.05) (Appendix F, Table 1). Figures 4.1, 4.2, 4.3, and 4.4 show the percentages given to each of the statements of the selected aspects of the visit sessions by respondents surveyed.

Perceptions of Extension Workers

Systematic training is another basic concept embodied in the T & V System of agricultural extension. The main idea behind the systematic (fortnight) training is to develop adequate professional knowledge and skill in extension workers about the specific technology/recommendation to be made during forthcoming fortnight visits to the farmers. Extension workers in principle, are trained by the agricultural extension officer, subject-matter specialists, and the research personnel in their respective areas of specialization. Each extension worker is responsible for teaching/communicating to a group of contact farmers and their followers in the villages under him. Therefore, for the purpose of this study, it was important to identify and determine their perceptions on the training session with respect to the following aspects:

Perceptions of Contact Farmers Regarding the Visit Sessions

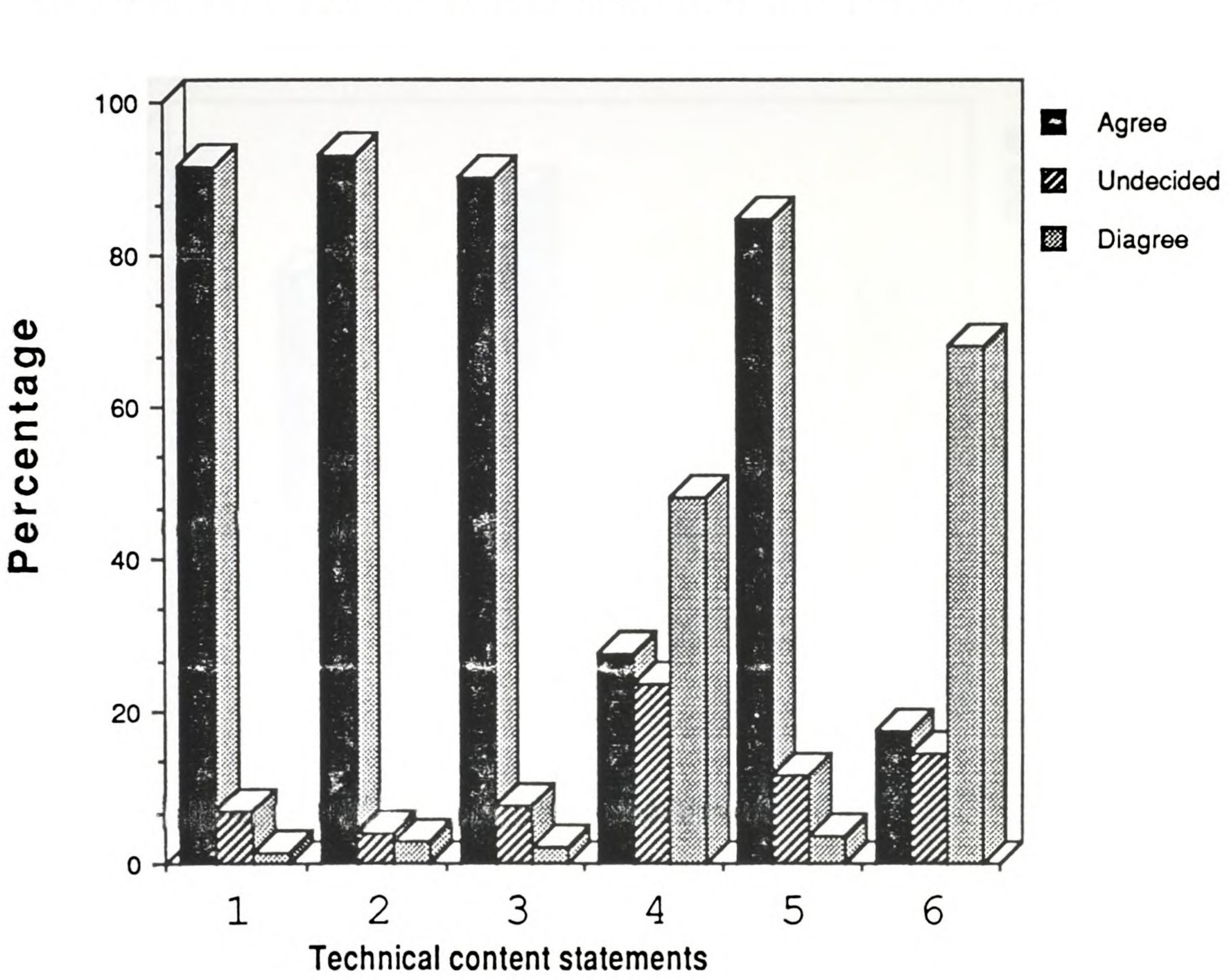


Figure 4.1: Respondents' Perceptions of the Technical Content Statements.

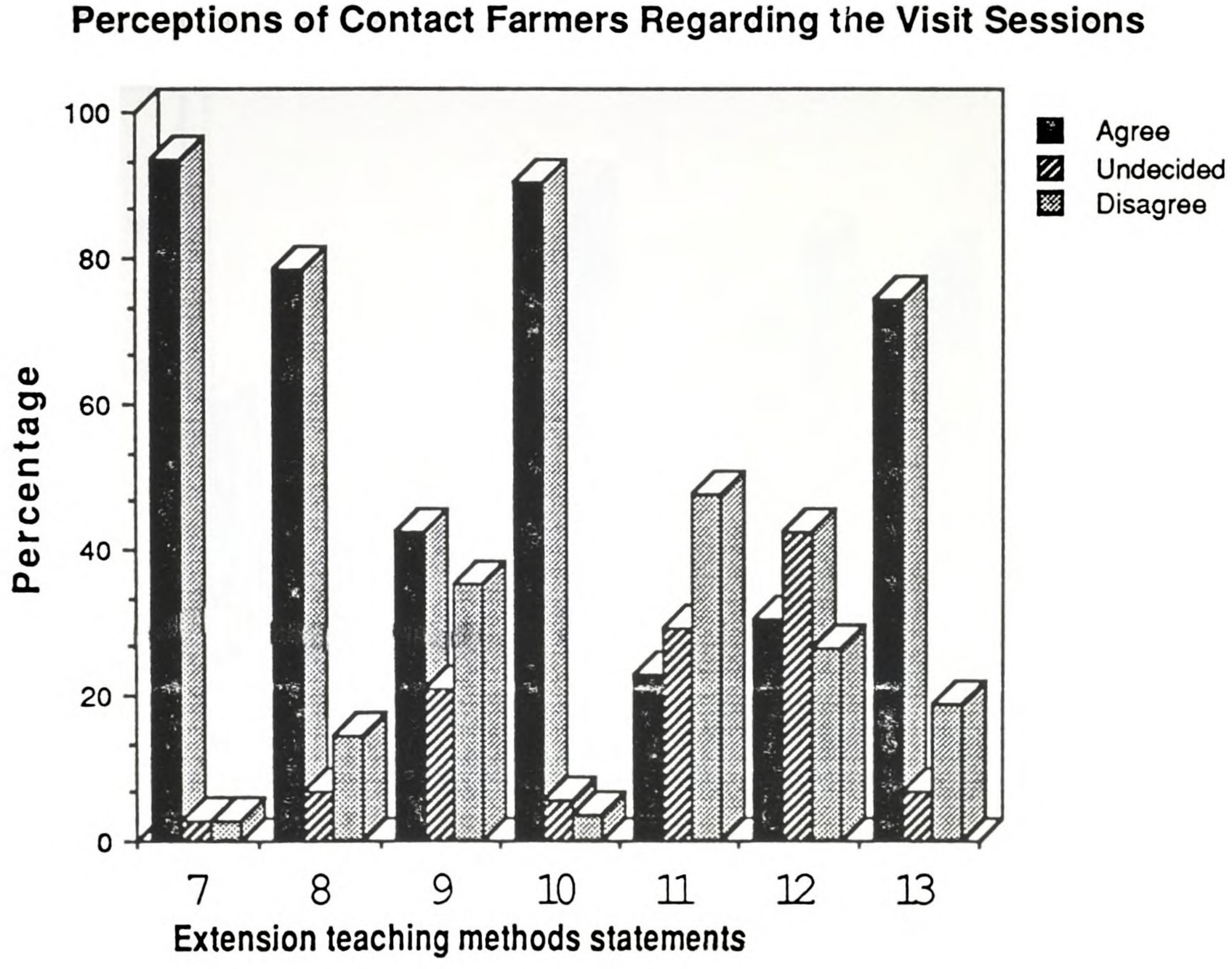


Figure 4.2: Respondents' Perceptions of the Extension Teaching Methods Statements.

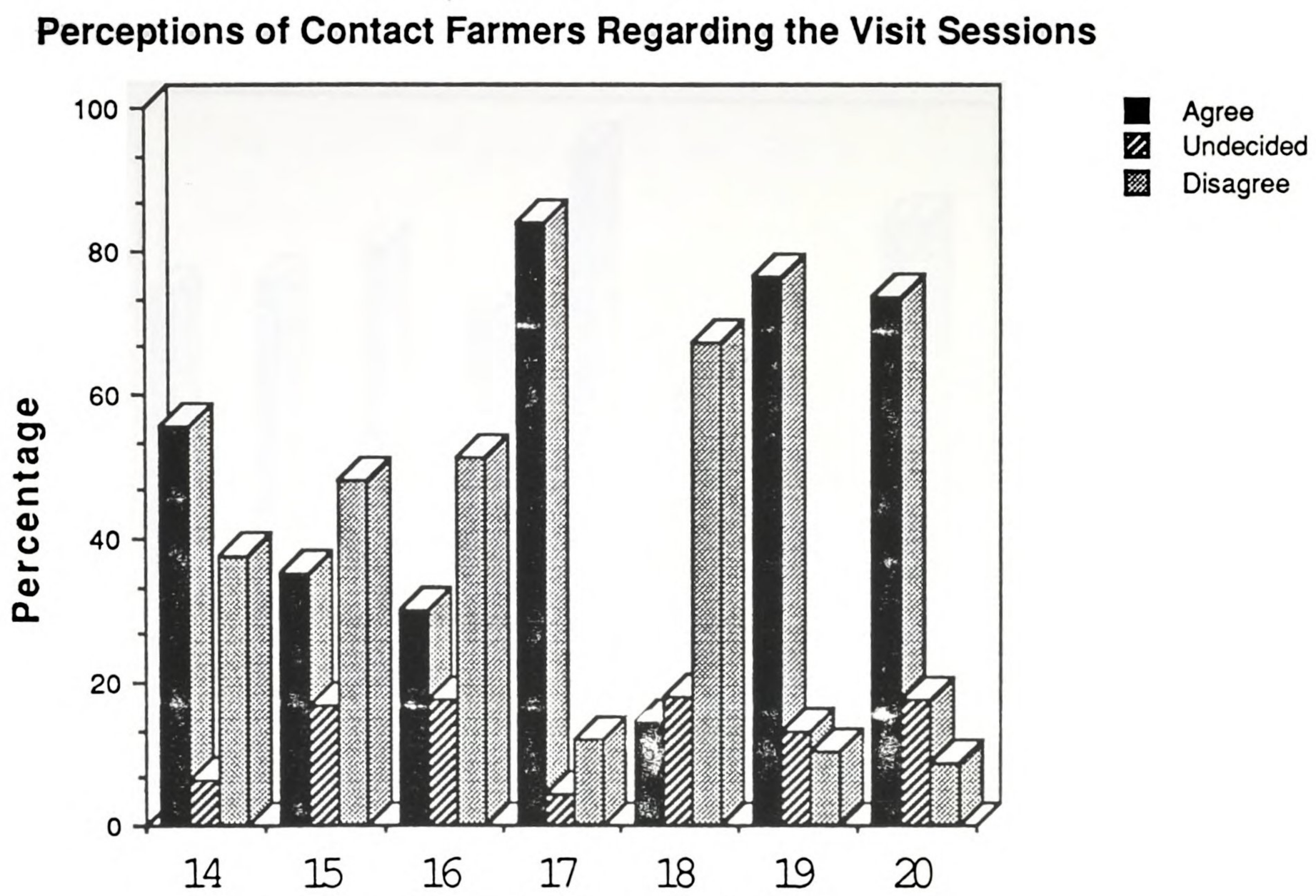


Figure 4.3: Respondents' Perceptions of the Quality of Extension Workers' Frequent Visits.

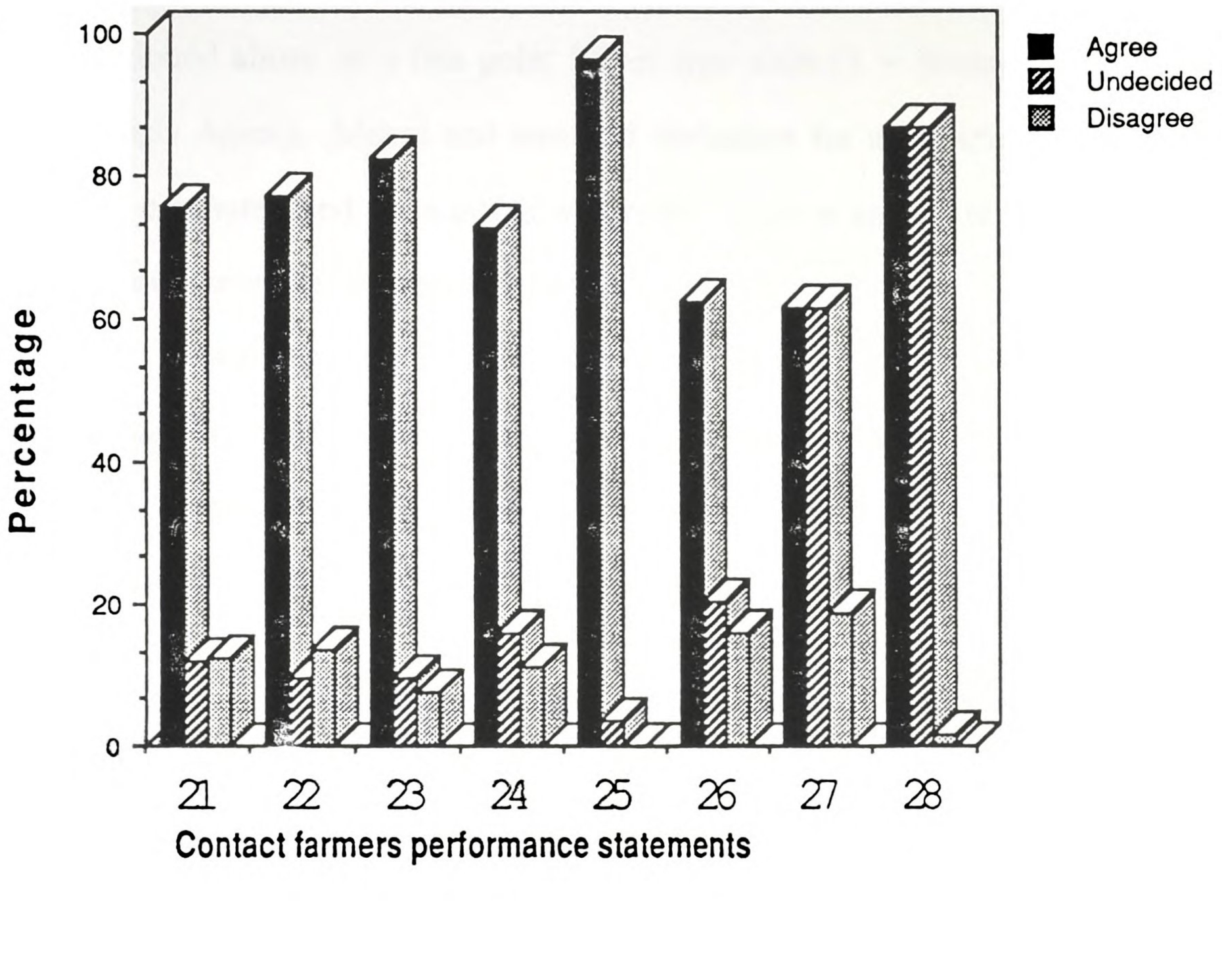


Figure 4.4: Respondents' Perceptions to the Contact Farmers' Performance Statements.

1. The technical content of the training sessions.
2. The sub-matter delivery by specialists.
3. The extension worker's visit to contact farmers.
4. Proposed technology transfer by the extension worker.

The research findings related to these statements are presented in this section of this chapter. All extension workers in the region were requested to rate their perceptions concerning the systematic training sessions with respect to the aspects mentioned above on a five point Likert type scale (1 = Strongly Disagree to 5 = Strongly Agree). Means and standard deviations for all statements of this section were computed and the analysis was based on these aggregate mean ratings of the extension workers' perceptions on each statement.

A one-way analysis of variance (ANOVA) was used to determine whether or not there exists a significant difference in respondents' perceptions regarding the selected aspects of the T & V System as to some selected demographic variables like age class, educational attainment, employment status, etc (see Appendix F, Table 2).

Perception of Extension Workers Regarding the Technical Content of the Training Systems

Table 4.8 shows the means and standard deviations for the six technical content statements for all respondents (N = 59). Findings indicated that the means for the technical content statements of the training session ranged from 3.15 to 4.27. The strongest agreement was with the statement, "These training opportunities are really necessary to update my communication skills" (means 4.3, rank = 3), and

"Fortnightly training sessions are very helpful to update my knowledge and skills required to solve farmers problems" (mean = 4.24, rank = 1).

Table 4.8: Means and Standard Deviations for Perceptions of the Extension Workers Regarding the Technical Content of the Training Sessions

Statements	Mean (N=144)	Rank	S.D.
Fortnightly training sessions are very helpful to update my knowledge and skills required to solve farmers problems.	4.2	1	.76
Fortnightly training session provide us opportunity to discuss about farmers' problems and concerns.	4.2	2	.94
Content of fortnightly training sessions is usually more theoretical than practical.	3.1	6	.83
The training sessions have improved my technical knowledge as well as communication skills.	4.1	4	.84
Training sessions provide relevant technical information in time according to the production cycle.	4.1	5	.89
These training opportunities are really necessary to update my communication skills.	4.2	3	1.3

Mean was computed for each statements by assigning a score of 5, 4, 3, 2, and 1 for Strongly Agree, Agree, Undecided, Disagree, and Strongly Disagree, respectively.

A higher value on the statement, "Content of fortnightly training sessions is usually more theoretical than practical" (mean = 3.15, rank = 6), suggests the need for improvement in order to make the training sessions more practical.

The F-values for the differences in perceptions among the extension workers according to age class, education, employment status, and training are given in Appendix F, Table 2. Findings showed that extension workers differ statistically by age class, education, and employment status in their perceptions regarding the statement: "Content of fortnightly training sessions is usually more theoretical than practical" (F = 4.41, 4.16, and 3.57 respectively, p <.05).

Extension workers between ages 31-40 years and those with less education perceived the training sessions less beneficial in updating their technical knowledge and skills. Similarly, extension workers working under contractual arrangements perceived the training sessions less beneficial than permanent and/or temporarily job holders. To put it simply, the content of the training sessions tended to be less meaningful for younger extension workers with lower levels of education and for employees under contractual employment arrangements. This could be due to the fact that the content of the training sessions might have been too technical for young but less educated workers and for foreign nationals.

Perception of Extension Workers Regarding the Subject-Matter Delivery by the Specialists

Table 4.9 shows the means and standard deviations for the six subject-matter delivery related statements. The means for the six statements ranged from 2.54 to 4.02. Respondents gave the highest rating to the statement, "The subject-matter specialist helps us understand how to follow improved farm practices" (mean 4.02, rank = 1). Respondent gave a low rating to the statement, "I usually have a hard time following what subject-matter specialist talks about" (mean = 2.54, rank = 6).

The F-values were insignificant in all subject-matter delivery by the specialist indicating that there were no practical differences between the extension workers with respect to their selected demographic characteristics and their perceptions of each of these statements. The lower standard deviation value indicated that the respondents were uniform in their perceptions.

Table 4.9: Means and Standard Deviations For Perception of Extension Workers Regarding Subject Matter Delivery by the Specialists

Statements	Mean (N=144)	Rank	S.D.
The subject-matter specialist has very good communication skills.	3.6	3	.9
The fortnightly training sessions are held regularly.	2.9	5	1.1
The subject-matter specialist usually comes with some samples or materials for demonstration.	3.5	4	1.2
The Subject-Matter specialist helps us understand how to follow improved farm practices.	4.0	1	1.0
We are given enough farm bulletins/printed materials which are helpful to understand new farming practices.	3.8	2	1.1
I usually have a hard time following what the subject-matter specialist talks about.	2.5	6	1.0

Mean was computed for each statements by assigning a score of 5, 4, 3, 2, and 1 for Strongly Agree, Agree, Undecided, Disagree, and Strongly Disagree, respectively.

Perceptions of Extension Workers Regarding their Visits to Contact Farmers

Extension workers were requested to give their perceptions on the regular field visit to contact farmers with respect to the time, contact, communication, number, and interests of the contact farmers. Table 4.10 shows the percentage distribution, overall mean, and standard deviation of scores pertaining to the statement listed under this aspect. The overall mean ratings for statements relating to visit to contact farmers ranged from a low of 2.7 to a high of 4.3. The highest agreement was with the statement, "I visit all my contact farmers regularly once every two weeks," followed by "I know in advanced when and at what time I am going to visit contact farmers in my command area" (mean = 4.3 and 4.2 respectively). Extension workers also strongly agreed that they usually spend sufficient time with their contact farmers during the fortnightly visit (mean = 3.9).

Respondents were much less in agreement with the statement, "Many contact farmers cannot be contacted and many of them are not interested about improved farming," (mean = 2.75). With regard to the latter statement, the analysis of variance shows that extension workers of 31-40 years of age rated this statement low (mean of 2.7) and differed significantly from others. Extension workers with only elementary education differed from others in terms of their perceptions to the statements, "I visit all my 'contact farmers' regularly once in every two weeks" (mean of 2.25) (f-value = 5.87, $p < .05$) (see Appendix F, Table 2). With regard to the statement, "contact farmers are usually very busy when I visit them" (overall mean of 4.1), extension workers working under contract basis rated it significantly lower than others (F-value = 3.28, $p < .05$). It could be attributed to the fact that extension

workers on working under a contract basis are usually foreign nationals and their motivation for hard work might be different from those of the Yemeni workers.

Table 4.10: Means and Standard Deviations For Perceptions of the Extension Workers Regarding their Visit to the Contact Farmer.

Statements	Mean (N=144)	Rank	S.D.
I visit all my "contact farmers" regularly once in every two weeks.	4.3	1	.75
I know in advance when and at what time I am going to visit contact farmers in my command area.	4.2	2	.80
Contact farmers are usually very busy when I visit them.	4.1	3	.85
I usually spend sufficient time with my contact farmers during most of my visits.	3.9	4	1.10
It is very difficult to contact the contact farmer during the time other than the scheduled visits.	3.6	5	1.10
I frequently communicate the problems and the concerns of my contact farmers to the subject-matter specialists.	3.3	6	1.20
I have too many contact farmers to visit them every fortnight.	3.1	7	1.20
Many contact farmers can not be contacted and many of them are not interested about improved farming.	2.7	8	.85

Mean was computed for each statements by assigning a score of 5, 4, 3, 2, and 1 for Strongly Agree, Agree, Undecided, Disagree, and Strongly Disagree, respectively.

Adequacy of Resources Support to Facilitate Extension Work

A wide variety of support resources like technical support, linkages with related agencies, availability of technical materials, audio-visual equipment and materials, transportation, and office supplies etc. are to facilitate effective extension work. These resources are usually available in many agricultural extension programs. One of the objectives of this study was to determine the perceptions of extension workers regarding the extent of adequacy and use of such resources in the extension centers in the study area. It has been recognized that adequate resource support and supervision of lower-level extension workers are two areas which are related to the satisfactory performance of extension workers. One of the major principles of the T & V System is that it skillfully combines human resources and resources support.

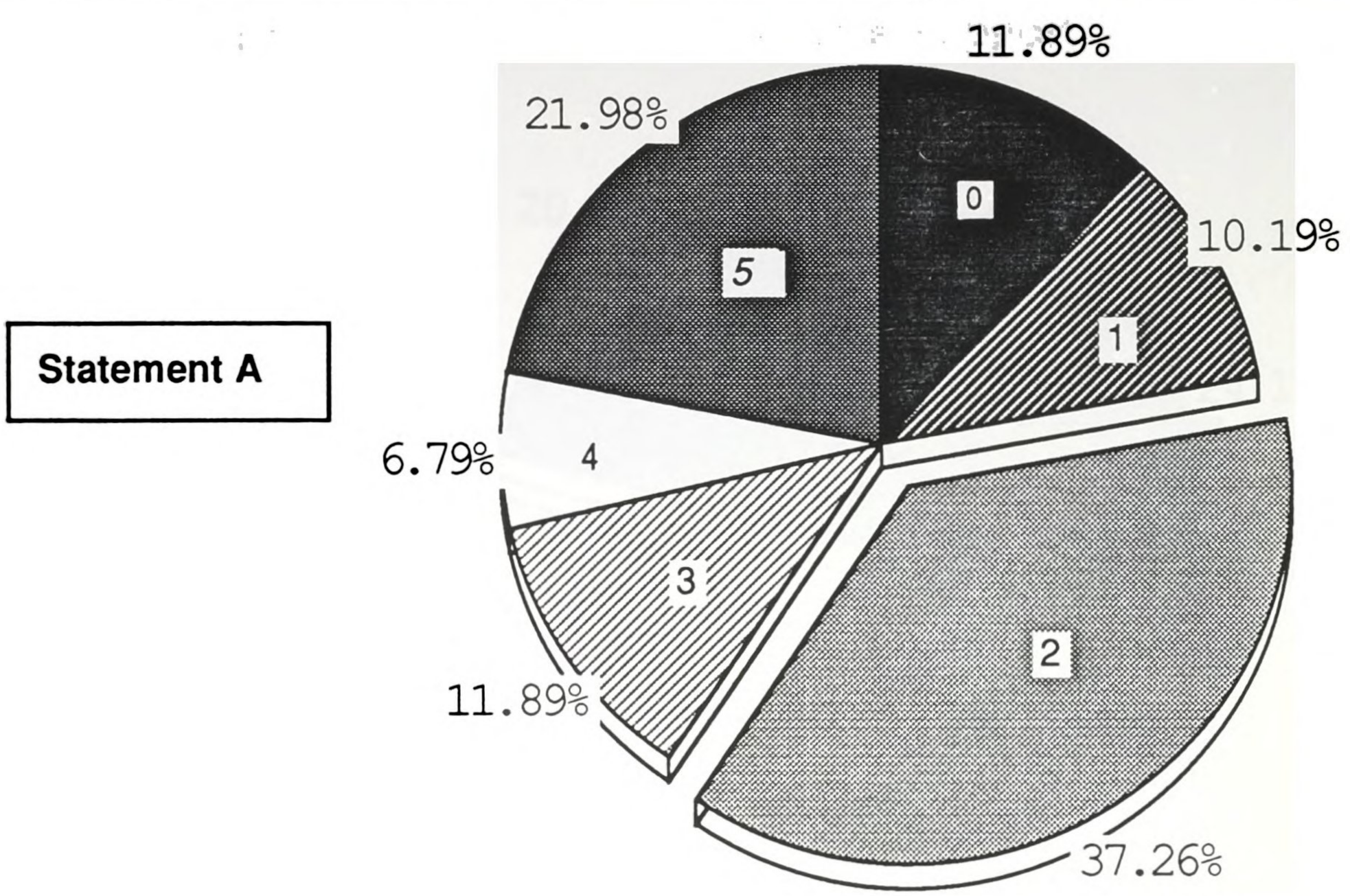
The extension workers were requested to rate the extent of resource support adequacy to facilitate their tasks. The degree of adequacy was rated on a scale ranging from non-existent to very adequate. Means and standard deviations for all items of this part were computed. The findings are shown in Table 4.11. Based on the mean values, all respondents ranked the items, "Technical supervision/ backstopping of extension work by SMSs" and linkage between extension and research as moderately adequate resource support (mean score was 3.3 for both items). Table 4.11 shows that the least adequate resource support perceived by the extension workers was "Frequency of administrative and/or supervisory visits and support" (mean = 1.6).

Table 4.11: Perceptions of Extension Workers Regarding the Extent of Adequacy of Resources Support to Facilitate Extension Work.

Statements	Mean (X) (N=59)	SD
Technical supervision/back-stopping of extension work by subject-matter specialist	3.3	1.4
Working relation between ag. research station and extension service-linkage with research	3.3	1.4
Supply of technical information materials	2.9	1.4
Supply of audio-visual materials	2.7	1.4
Transportation/mobility support	2.6	1.6
Provision of office facilities and supplies	2.3	1.7
Frequency of administrative and/ or supervisory visits and support	1.6	1.6

Rating Scale: A scale ranging from Non-Existing to Very Adequate (0 to 5) was used to compute the mean.

The mean scores for the statements, "Supply of technical information", "transportation mobility support," "Working relation between agricultural research station and extension service-linkage with research," "Provision of office facilities and supplies," were found to be 2.9, 2.6, 3.3, and 2.3 respectively. The relatively small standard deviation values indicated that the respondents were uniform in their perceptions regarding the degree of adequacy of the resource support to facilitate extension services. The mean score of less than 3 on a majority of the statements reflected a feeling of inadequacy of support resources to carry out extension work effectively in the TDA region. Figures 4.5-4.11 show the percentages given to each of the seven statements by the respondents surveyed to each level of adequacy and resources support in the extension system.



Scale ranging from non-existant to very adequate (levels 0 - 5)

Figure 4.5: Level of Adequacy of Technical Supervision.

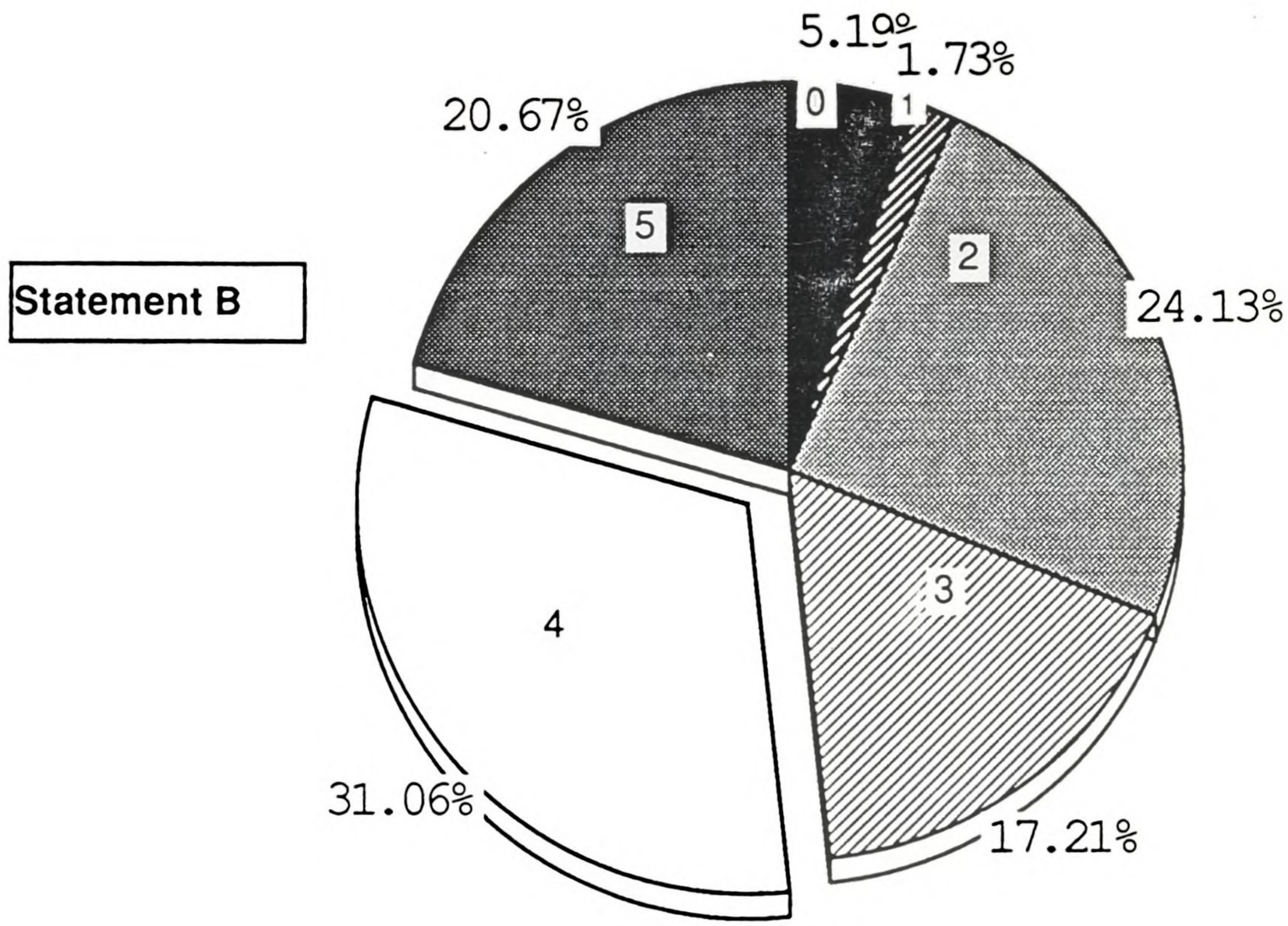


Figure 4.6: Level of Adequacy of Working Relations.

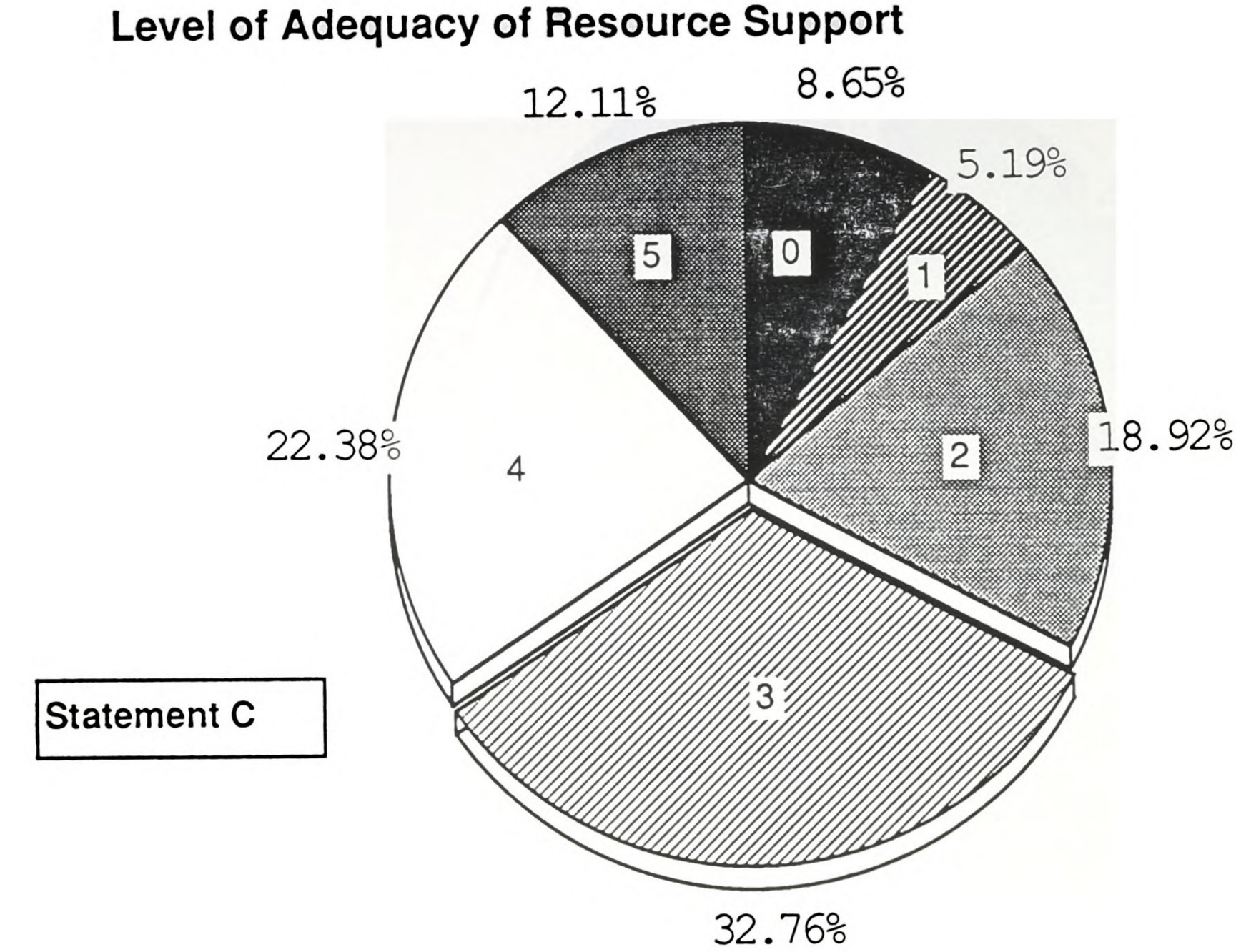


Figure 4.7: Level of Adequacy of Technical Information.

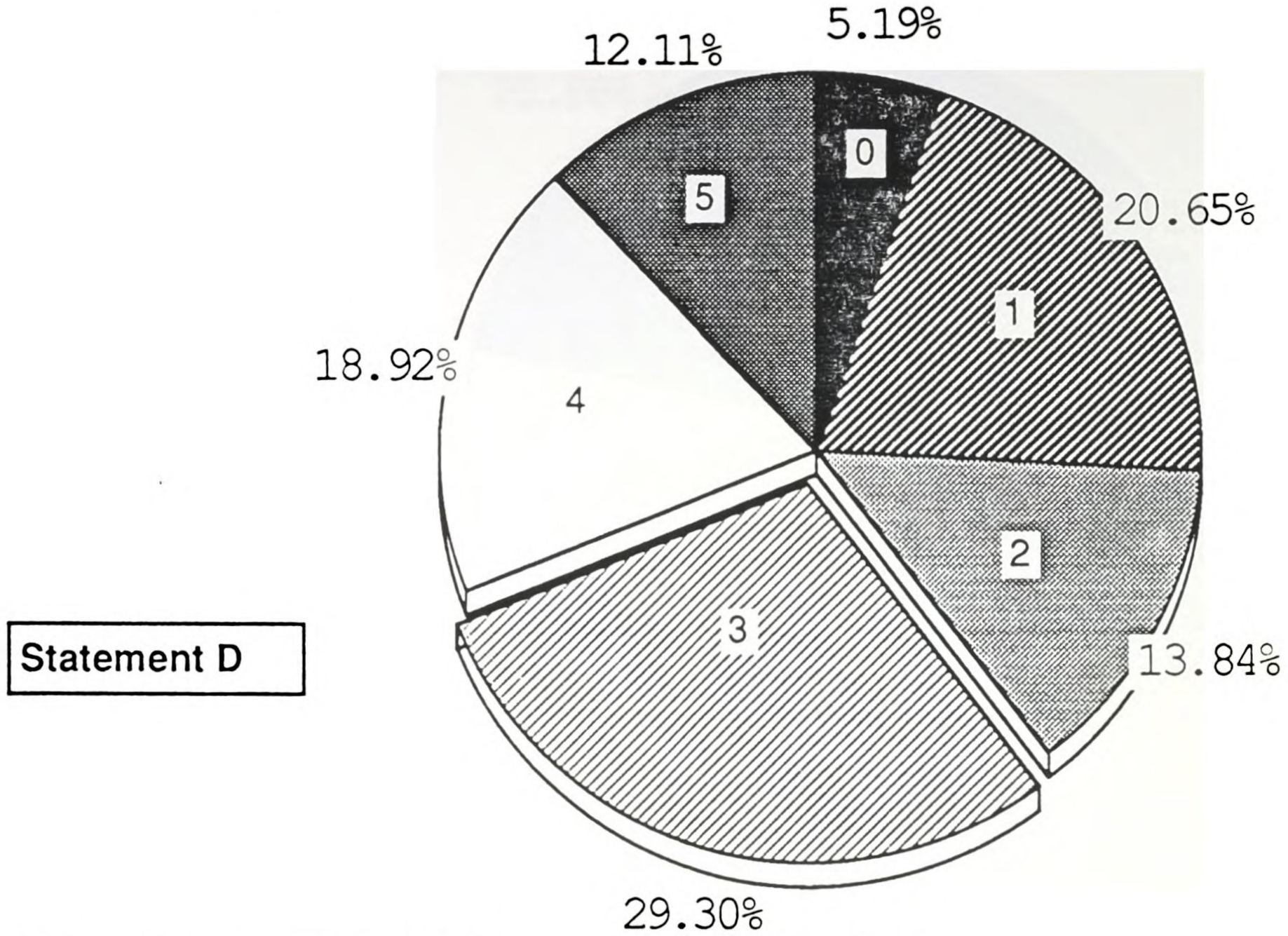


Figure 4.8: Level of Adequacy of Audio-Visual Supply.

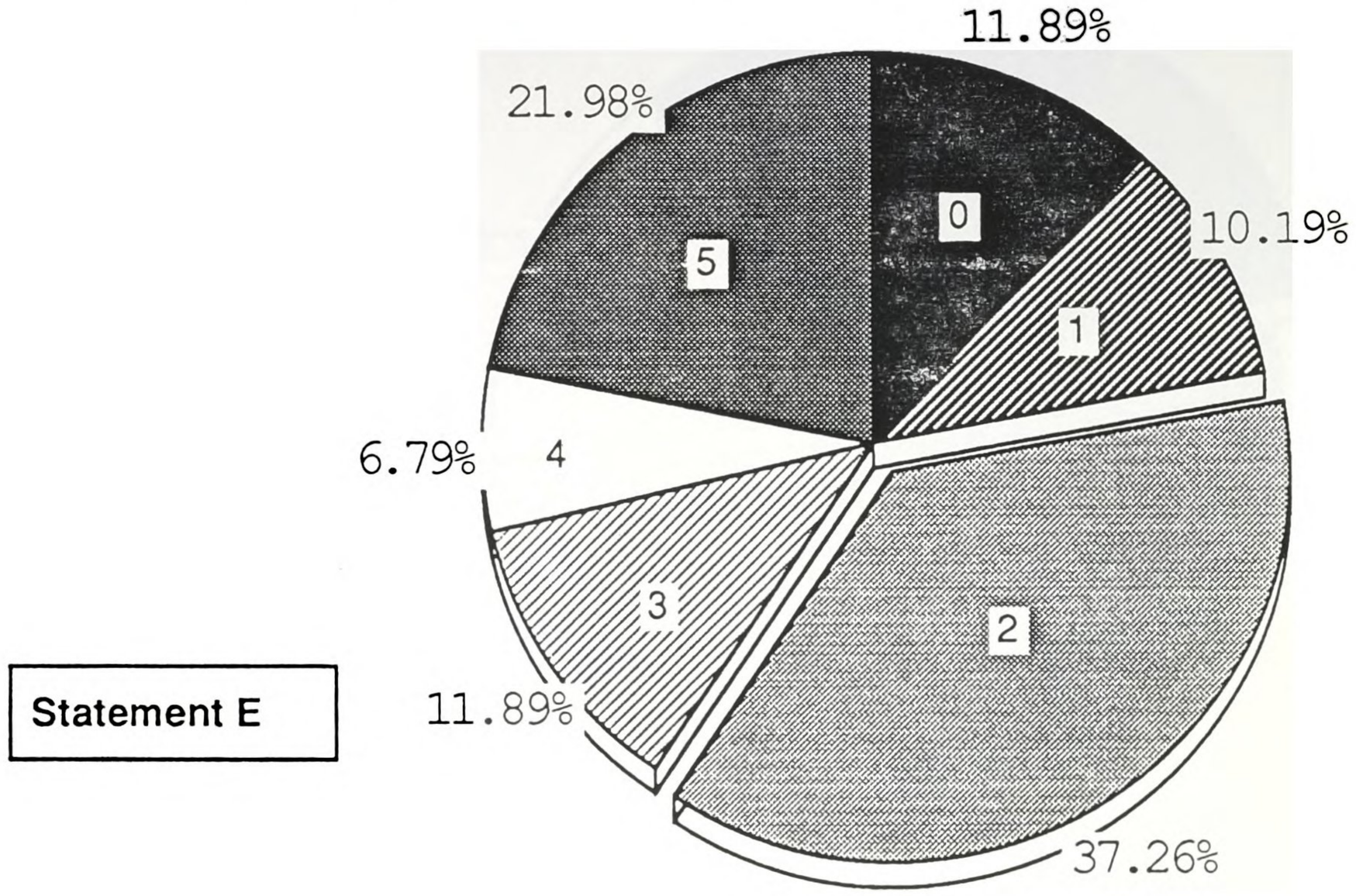


Figure 4.9: Level of Adequacy of Transportation.

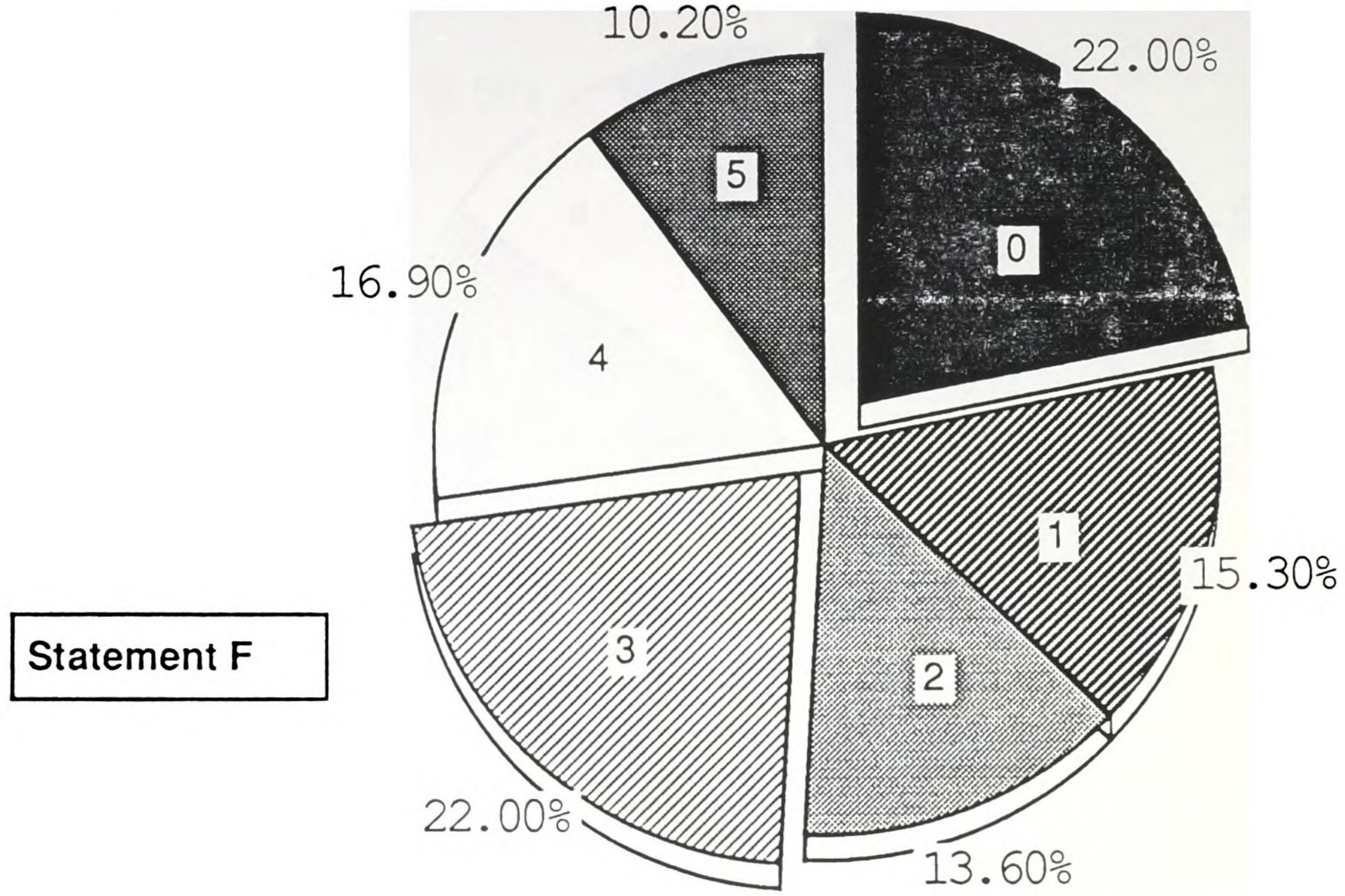
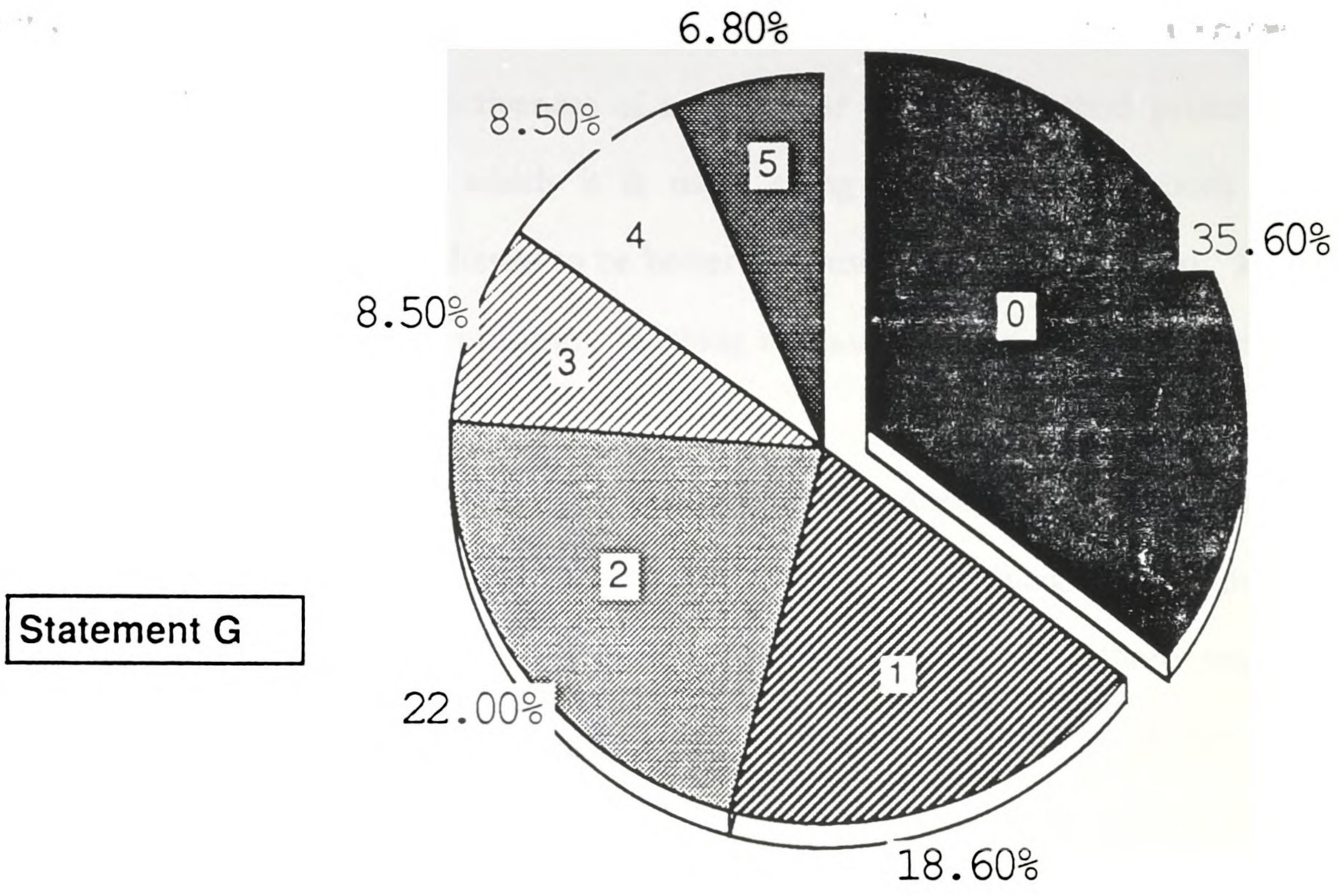


Figure 4.10: Level of Adequacy of Office Facilities.



Scale ranging from non-existant to very adequate (levels 0 - 5)

Figure 4.11: Level of Adequacy of Administration and Supervisory Visits.

Perceptions of Contact Farmers and Extension Workers About the Use of Extension Teaching Methods

A variety of educational extension methods are usually utilized by the contact farmers and extension workers to receive and convey information and messages. A variety of extension teaching methods were available for use by the extension educator. Although the effectiveness of a particular teaching method primarily depends on the context in which it is used, using a variety of methods or combination of methods is believed to be better than using any single method. The study sought to ascertain the extension teaching methods utilized by the extension workers.

Contact farmers and extension workers were requested to indicate the frequency of use of each method in their respective villages. Means and standard deviations for 14 extension teaching methods were grouped under three major categories: (a) individual methods; (b) group methods; and (c) use of special materials and media. For each extension teaching method, a mean score was computed for contact farmers and extension workers.

A t-test for the differences between means was used to determine whether contact farmers differed from extension workers on their perceptions on the extent of use of each method. Farm visits and field demonstration were the most frequently used methods as indicated by the contact farmers and extension workers. Field days and group meetings were also indicated as frequently utilized teaching methods by the extension workers.

As shown in Table 4.12, under individual methods of extension teaching, the farm visit and office call were perceived as the most frequently used method by both

the extension workers and contact farmers with mean scores of 2.44 and 2.81, respectively. While the office call, with mean score of 1.70 and 1.88, was viewed by contact farmers and extension workers as the second most important method of the individual methods. A t-value of 3.41 ($p < .05$) indicated a significant difference between the contact farmers and extension workers on their perceptions regarding the extent of use of the farm visit method. No significant difference on perception was noted in the extent of use of other individual methods.

Under the group methods, contact farmers and extension workers perceived the field demonstration as the most frequently utilized extension educational method (means of 2.38 and 2.47, respectively). There was a significant difference in the perceptions of contact farmers and extension workers regarding the group meeting extension method (t-value = 2.78, $p < .05$). In addition, extension workers perceived the field days under the group methods as more frequently used than contact farmers (Table 4.12).

Contact farmers viewed tours/trips under the group method as the least frequently utilized method with a mean score of 1.42. It was followed by farmer classes (mean = 1.72) and field days (mean = 1.99). No other significant differences in perception were recorded between the contact farmers and the extension workers with respect to the use of group extension teaching methods.

Table 4.12: Comparison of Perceptions of Contact Farmer and Extension Worker about Extension Methods Utilized.

Extension Methods	Contact Farmer (X) (n=144)	Extension Worker (X) (N=59)	t-value	2-Tail Prob.
Individual Methods:				
- Farm Visit	2.44	2.81	-3.41*	.001
- Office Call	1.70	1.88	-1.70	.090
- Letter/Notes	1.16	1.22	- .76	.450
Group Methods:				
- Farmers Classes	1.72	1.39	1.94	.055
- Field Demonstration	2.38	2.47	- .86	.390
- Field Days	1.99	2.22	1.96	.052
- Group Meetings	1.96	2.28	-2.78*	.006
- Tours/Trips	1.42	1.62	-1.71	.089
Adoption of Materials and Media:				
- Life Specimens	1.61	1.63	- .23	.821
- Samples	1.61	1.63	- .14	.886
- Leaflets	1.21	1.51	-3.15*	.002
- Bulletins	1.26	1.88	-7.18*	.000
- Poster/Charts	1.29	1.59	-3.39*	.001
- Filmstrips	1.26	1.45	-1.80	.075
- Slides	1.20	1.49	-2.86*	.005

*Significant at 0.05 level
Rating Scale: 1 = Never, 2 = Sometimes, and 3 = Always

Table 4.12 also shows the mean scores of the respondents' perceptions regarding the adoption of materials and media. It was surprising to note that both groups of respondents rated the item quite low against all of the seven items listed (all received a mean rating below 2.0). The mean score rating for the extent of use of the teaching aids perceived by contact farmers and the extension workers ranged from 1.20 to 1.61 and 1.45 to 1.88 respectively. Both groups of respondents

perceived these supportive teaching aids as being "less frequently used" in their areas.

There were statistically significant differences in the perceptions of the respondents at the .05 level for the use of leaflets, bulletins, posters/charts and slides. T-values were recorded as -3.15, -7.18, -3.39, and -2.86, respectively. It should be noted here that on all items pertaining to the extent of use of extension teaching methods, except for farmer classes, extension workers rated each method as more frequently used than by contact farmers. This could be reflected by the fact that the mean score for each method was higher for extension worker than that for the contact farmers (Table 4.12). The significant difference between farmers and extension workers in many items under the use of materials and media may provide several practical implications. Either, extension workers are not utilizing these materials/media with the contact farmers or the contact farmers are revealing the reality. Figures show the distribution of responses according to the adequacy of each statement.

Perceptions About Technology/Subject-Matter Emphasized by the Extension Service

Reasons for the emphasis on technology/subject-matter transfer in the T & V System are obvious. The adoption of recommended technology and information for increased farm productivity is a major objective of the T & V System.

Contact farmers (CFs) and extension workers (EWs) were requested to estimate the appropriate level of each improved technology/subject-matter introduced by the extension program on a three-point scale, ranging from 1 = not

appropriate to 3 = highly appropriate. Means and standard deviations for each improved technology/subject-matter area were computed for both respondents' groups. An attempt was made to determine whether significant differences existed in the respondents' perceptions, regarding the improved technology/subject-matter emphasized by the extension service. Table 16 presents the means and observed t-values and corresponding significance levels for the 25 items of the improved technology/subject-matter as perceived by contact farmers and extension workers.

The results of the analysis indicated that a significant difference existed between the respondents' perceptions on several subject-matter areas. The data in Table 4.13 reveals that the hybrid maize variety "Tihama 1" was perceived as more appropriate by extension workers than the contact farmers for the TDA region. There was also a statistically significant difference in the perceptions of respondents regarding the appropriateness of the improved sorghum variety "Daber".

Extension workers perceived that the "Debar" variety of improved sorghum was more appropriate to the area; whereas, the contact farmers perceived it as less appropriate. The data on Table 16 also revealed that there were eight other significant mean differences between the contact farmers and extension workers as follows:

Approved Fruit Varieties:

Banana (t-value = - 4.98, p = 00)
Limes (t-value = - 3.79, p = 00)
Papayas (t-value = - 3.60, p = 00)
Mango (t-value = -2.68, p = .00)
Guavas (t-value = -2.63, p = .009)
Dates (t-value = -2.57, p = .007)

Table 4.13: Comparison of Perceptions of Contact Farmers and Extension Workers about Technology/Subject-Matter Emphasized by the Extension Service

Extension Methods	Contact Farmer (X) (n=144)	Extension Worker (X) (N=59)	t-value	2-Tail Prob.
Hybrid maize-Tihama 1	1.880	2.186	-2.30*	.022
Hybrid maize-Tihama 2	1.656	1.727	- .54	.587
Improved Sorghum Varieties				
Dabher	1.336	1.607	-2.61	.010
Cabon	1.393	1.964	-4.80*	.000
Insecticides	2.467	2.456	.12	.902
Fungicides	2.395	2.321	.83	.406
Fruit Varieties				
Banana	1.977	2.597	-4.98*	.000
Limes	1.805	2.228	-3.79*	.000
Papaya	1.906	2.346	-3.60*	.000
Mango	1.847	2.182	-2.68*	.008
Guava	1.648	1.982	-2.63*	.009
Dates	1.634	1.964	-2.57*	.007
Watermelon	2.341	2.509	-1.39	.165
Honeymelon	2.226	2.368	-1.15	.253
Tomatoes	2.518	2.679	-1.64	.102
PVC	2.577	2.535	.49	.625
Land Leveling Equipment	2.573	2.644	- .88	.380
Plowing & Plowing Equipment	2.527	2.500	.34	.736
Ditch Digging Equipment	2.532	2.444	1.03	.305
Cotton:				
Alala SJ2	1.397	1.961	-4.91*	.000
Akala 310	1.832	2.151	-2.41*	.017
Barely:				
Tihama-1	2.229	2.623	-2.58*	.011
Fertilizers	2.440	2.492	- .62	.537
Institutional Credit	1.613	2.070	-4.14*	.000
Institutional Market Services	1.774	2.000	-2.06*	.041

*Significant at 0.05 level.
Rating Scale: 1 = Not Appropriate, 2 = Appropriate, 3 = Highly Appropriate.

Approved Cotton Varieties:

Akala SJ2 (t-value = -4.91, p = .00)
Akala 310 (t-value = -2.41, p = .017)

Improved Barely Variety:

Tihama-1 (t-value = -2.58, p = .011)
Institutional Credit Services: (t-value = 4.14, p = .000)
Institutional Marketing Services (t-value = -2.06, p = .41)

It should be noted that in all the above cases, the mean scores based on the perceptions of extension workers were generally greater than the mean scores of the contact farmers. In other words, extension workers perceived the above improved technology/subject-matter more appropriate for the area than the contact farmers. No statistically significant differences were observed at .05 level for any other improve technology/subject-matter emphasized by the extension service.

Perceptions of Contact Farmers and Extension Workers Regarding the Overall Performance of T & V System

Contact farmers and extension workers were asked to rate their perceptions on the overall performance of the T & V System in Tihama region of Yemen considering the following factors: (a) usefulness of extension content; (b) delivery methods by extension agents; (c) adoption of new practices by farmers; and (d) Overall satisfaction of farmers with extension services. For the expected performance, a four-point type scale ranging from 1 = poor to 4 = excellent was used and means and standard deviations were computed to determine whether or not there existed statistically significant differences between the mean scores in respondents' perceptions. T-tests were computed for each factor.

Table 4.14: Comparison of Perceptions of Contact Farmers and Extension Workers about the performance of the T & V System.

Extension Methods	Contact Farmer (X) (n=144)	Extension Worker (X) (N=59)	t-value	2-Tail Prob.
Usefulness of Extension Content	3.13 (.78)	3.22 .62	-.86	.392
Delivery Methods by Extension Agents	3.11 (.63)	2.98 (.71)	1.27	.205
Adoption of New Practices by Farmers	2.39 (.81)	2.45 (.77)	-.53 -.53	.595
Satisfaction of Farmers with Extension Service	2.87 (.76)	2.64 (.64)	2.05*	.042

* Significant at 0.05 level
Rating Scale: 1 = Poor, 2 = Fair, 3 = Very Good, 4 = Excellent.
Values in parenthesis are the standard deviations.

Table 4.14 shows the means, standard deviations, and the observed t-value and its corresponding significance level for the four performance factors. As shown in Table 17 there was a statistically significant difference at .05 level in the perceptions of the contact farmers and extension workers regarding the general satisfaction of farmers with extension service (t-value = 2.05, P <.05). For this factor, the mean for extension workers was significantly less than the mean for the contact farmers (2.64 and 2.87, respectively), but the difference in mean value for this factor was .23, which may denote its non-significance in practical application.

However, a statistically significant difference indicated that the extension worker felt better about the general satisfaction of the farmers with extension service.

There were no statistically significant differences between the perceptions of the contact farmers and extension workers regarding the first three factors of performance. The standard deviations denote that contact farmers and extension workers were equally uniform in responding to the first three factors. However, the usefulness of content of the T & V System was ranked first by the contact farmers and extension workers (means 3.13 and 3.22, respectively), it was perceived as useful or very good in extension educational programs of the T & V System. In the other two factors of performance (delivery methods by extension agents and adoption of new practice by farmers), the mean score for the first was 3.11 and for the latter were 2.98, 2.39, and 2.45 for the contact farmers and extension workers respectively.

To examine the relationships between selected demographic variables of contact farmers and extension workers and their perceptions toward the performance of the T & V System, Pearson's product moment correlation coefficient was used. Selected variables concerning the characteristics of the contact farmers (i.e., age, family size, farm size, irrigated farm size, income, and length of service as CFs) were used to examine if any association existed between these variables and the respondent's perception on four major factors under overall performance.

Table 4.15: Results of Pearson Correlation Among Selected Demographic Characteristics of Contact Farmers and the Overall Performance of the T & V System

Characteristics	Content of T & V System	Methods Used	Adoption of New Practices	Satisfaction with Extension Service
Age	.1138	.1798	-.0883	.1198
Family Size	.0947	.0270	-.0287	.0180
Farm Size	-.0377	-.0536	-.0450	-.0818
Irrigated Farm Size	-.0750	-.1656	-.0880	-.0316
Income	-.0346	-.1127	-.0258	-.0217
Frequency of Extension Contact	.1494	.1170	.1932	.3099*

*Significant at .05, N = 144.

Table 4.15 shows the results on the correlation coefficient. The findings showed that only the length of service as a contact farmer had a statistically significant association on the general satisfaction of farmers with the extension service. The positive values of the correlation coefficient indicated that contact farmers' satisfaction with the extension services increases as their experience working as the contact farmer increases. Although some trend of correlations were observed between other variables, the values were not statistically significant.

In the case of the extension workers, an attempt was made to find out whether there existed an association between selected demographic characteristics and the perception of overall performance of the T & V System. No significant associations were observed between the variables.

Table 4.16: Results of Pearson Correlation Between Selected Demographic Characteristics of Extension Workers and of Overall Performance of T & V System.

Characteristics	Content of T & V System	Methods Used	Adoption of New Practices	Satisfaction with Extension Service
Age	-.04	-.02	-.05	-.00
Experience in Extension Work	-.00	-.14	-.01	-.06
Experience in Present Job	.09	-.27	.19	.29
Number of Promotions	-.25	-.04	.08	.01
Number of Job Transfers	-.01	.16	-.02	-.02
Employment Status	.01	-.01	.13	.21

*Significant at .05, N=59.

Perception of Agricultural Extension Officers, Subject-Matter Specialists, and Research Agency Personnel

In addition to good supervision and coordination, strengthening of the linkage between research and other support services and institutions is an important principle in the T & V System. Agricultural extension officers (AEOs), subject-matter specialists, (SMSs) and research agency personnel (RAPs) were requested to give their perceptions/views regarding some issues related to the nature of coordination and linkages established and/or developed by the T & V System with research and other supported services (i.e., credit, marketing). For this purpose, a

set of open-ended as well as closed questions were designed to collect information necessary to obtain the views and opinions of a group of SMSs, AEOs and RAPs.

Table 4.17 shows the distribution of respondents' perceptions regarding the existence of "joint extension and research committee at the project level". The data show that the majority of respondents indicated that there was an extension and research council/committee and about one-fourth of them (23.5 percent) reported negatively on the same statement. When asked about the frequency of meetings of these committees, almost one-half (44.1 percent) did not respond to the question and about one-fourth (26.5 percent) indicated two meetings a year.

Table 4.17: Frequency and Percentage Distribution of the Sample Regarding the Existence of an Extension and Research Committee, at the Project Level (N = 34)

Question/Item	Frequency	%
At the project level, is there a joint extension and research council/committee?		
Yes	26	76.5
No	8	23.5
Number of times research council/committee meeting per year		
Once	3	8.8
Twice	9	26.5
Three or more times	7	20.6
No response	15	44.1

Findings also indicated that the research council/committee at the project level meets about twice a year to discuss the research-extension issues. Almost half of the respondents (44.1 percent) gave no response regarding the frequency of these

meetings. It could be attributed to the fact that many extension officers and subject-matter specialists were working at the field level and were unaware of the meetings. Similarly research personnel who are not the member of such committees might not know the frequency of these meetings.

Table 4.18 shows the responses of the respondents concerning their views regarding the questions, "Do researchers and extension workers go to the field together with farmers to identify and analyze farmers problems/technical problems?," and the number of times this is done per year. About three-fifths (61.8 percent) of the respondents indicated negatively on the above question and the rest (38.2 percent) indicated that researchers and extension workers go to the field with farmers. Of those who reported visiting farmers' fields with extension workers, the majority indicated that such visits were made one-three times a year.

Table 4.18: Frequency and Percentage Distribution of the Sample Regarding the Researchers and Extension Workers' Joint Visit to the Field with the Farmer and the Number of Times Per Year (n = 34).

Question/Item	Frequency	%
Do researcher and extension workers go to the field together with farmers to identify and analyze farmers' problems/technical problems?		
Yes	13	38.2
No	21	61.8
If yes, number of times is this done per year?		
1-3 times	6	46.2
4 times or more	3	23.1
No response	4	30.7

Table 4.19 shows the distribution of the respondents' perceptions regarding whether the researchers/research representatives join with extension SMS/extension workers in deciding and formulating technical recommendations for farmers. The majority (64.7 percent) of the respondents reported negatively to this statement.

Table 4.19: Frequency and Percentage Distribution of the Sample Regarding the Formulation of Technical Recommendations (n = 34)

Question/Item	Frequency	%
Do researchers/research representatives join with extension SMS/extension workers in deciding and formulating technical recommendations for farmers?		
Yes	12	35.3
No	22	64.7

Table 4.20 shows the distribution of the responses on whether both researchers/research representatives and extension workers participate in field demonstrations as a part of their regular tasks. The data indicated that about one-half (44.1 percent) of the respondents participated in the joint field demonstrations but a majority of them (52.9 percent) reported that they did not participate. About three-fifths of the respondents (58.8 percent) also indicated that they did not participate in field trials jointly organized by research and extension services in the TDA region.

Table 4.20: Frequency and Percentage Distribution of the Sample Regarding the Participation of Research Representative(s) and Extension Worker(s) in Field Demonstrations (N = 34).

Question/Item	Frequency	%
Do or did both researchers/research representatives and extension workers participate in:		
Field Demonstrations		
Yes	15	44.1
No	18	52.9
No response	1	2.9
Field Trials		
Yes	14	41.2
No	20	58.8
If yes, is this participation on:		
Regular	2	5.9
Ad hoc basis	13	38.2
No response	19	55.9

A majority of the respondents reporting these forms of participation indicated that their participation was more on an ad-hoc basis, while 5.9 percent of them reported participating on a regular basis.

Table 4.21 shows the frequency and percentage distribution of respondents' perceptions regarding the question "Do SMSs of the project area visit the research stations/centers?" About three-fourths (73.5 percent) of the respondents indicated positively. When asked about what percentage of the SMSs make such visits, responses varied from 1 to 21 percent or more. In a further follow-up question of how many times do SMSs visit the research centers, 38.2 percent of the respondents indicated 3 or less, while 17.6 percent of them reported 4 and more times a year.

Table 4.21: Frequency and Percentage Distribution of the Sample Regarding the Subject-Matter Specialists' Visits to the Research Stations, the Percentage and Times (n=34)

Question/Item	Frequency	%
Do SMSs of the project area visit the research stations/centers?		
Yes	25	73.5
No	9	26.5
If yes, above, what percentage of the SMSs do this?		
1-10 %	6	17.6
11-20 %	3	8.8
21 % and more	7	20.6
Missing	18	53.9
And how many times/year do SMSs visit research stations/ centers?		
3 or less	13	38.2
4 and more	6	17.6
No response	15	44.1

Table 4.22 shows the frequency and percentage of the respondents' perceptions regarding researchers' visits to the farmers of the study area with extension workers. Data show that more than one-third (35.3 percent) of the respondents indicated "yes" (i.e., researchers visited the farmers of the study area with the extension workers). Of the respondents who said yes, only about one-sixth (17.9 percent) indicated that such visits were practiced up to three times a year, while 2.9 percent of them indicated that these visits were practiced four or more times a year. About half of the respondents who indicated visiting farmers with extension workers did not report the frequency of such visits.

Table 4.22: Frequency and Percentage Distribution of Researchers' Visits to Farmers of the Study Area with the Extension Worker (N=34)

Question/Item	Frequency	%
Do researchers visit the farmers of the study area with the extension workers?		
Yes	**12**	**35.3**
No	**23**	**64.7**
If yes, how many times per year is this practiced?		
3 or less times	6	17.6
4 and more times	1	2.9
No response	17	79.4

Table 4.23 shows the frequency and percentage of linkage meetings held with related agencies and institutions. The majority of the respondents (70.6 percent) reported that the extension services held meetings with the Cooperative and Agricultural Credit (CACB). The number of such meetings between extension service and the CACB reported ranged from one to 15 per year.

Regarding the number of meetings held with Sana'a University, the majority of the respondents (70.6 percent) indicated no working linkages through regular meetings were established in the TDA project area. However, 23.6 percent of the respondents reported the number of meetings held with Sana'a University were between 1-2, per year.

Table 4.23: Frequency Distribution of Meetings Held with other Institutions in the Project Area. (N=34)

Question/Item	Frequency	%
Does the extension service in the project area hold meetings with:		
CACB:		
1 to 15 times	24	70.6
16 or more times	10	29.3
Sana'a University:		
No meetings held	24	70.6
Once	4	11.8
Twice	4	11.8
Three times	1	2.9
Yemen Agriculture Marketing Company:		
No meetings held	31	91.2
Few meetings held	3	9.8
Local Development Associations and Cooperatives		
No meetings held	32	94.1
One meeting	2	5.9

The linkages through regular meetings with the Yemen Agriculture Marketing Company and the extension service was also found to be almost non-existent. The majority of respondents (91.2 percent) stated that there were no meetings held between the two organizations in the project area. Similarly, an overwhelming response (94.1 percent) was noted indicating that there were no meetings with the local development associations and cooperatives.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this chapter is to review the objectives of the study and the research methodology, summarize the major findings, present conclusions, and make recommendations.

Summary of the Study

This study determined the perceptions of contact farmers and extension workers regarding the effectiveness of the Training and Visit System (T & V) of agricultural extension as a mean for improving conditions of farmers in the Tihama region in Yemen. The research was designed to study and explain the extent to which the training and visit sessions (the two main components of the T & V System) were practiced in the TDA in extension educational programs in Yemen as perceived by contact farmers and extension workers/personnel. The study also investigated the perceptions of agricultural extension officers, subject-matter specialists, and research agency personnel regarding the extent to which the T & V System of agricultural extension was able to establish a linkage between the extension program and other agricultural institutions in the project area. Specifically, the study was designed to determine the following objectives:

1. To determine the contact farmers' satisfaction with the materials (content) and extension information dissemination methods with a particular focus on:
   a. technical content;
   b. extension worker delivery; and
   c. propose technology transfer by extension workers.
2. To assess the perceptions of contact farmers regarding the quality of visits made by the extension workers.
3. To determine the extension workers' satisfaction with the training programs of the T & V System with a particular focus on:
   a. technical content;
   b. subject-matter specialist delivery (mode of instruction, time, etc.);
   c. extension worker's visits to contact farmers; and
   d. resources to facilitate the work of the extension worker.
4. To ascertain the extension teaching methods utilized by the extension workers. (Propose technology transfer from extension workers to contact farmers.)
5. To assess the perceptions of extension workers and the contact farmers about the appropriateness of new technologies proposed in the area.
6. To examine the relationship between selected socioeconomic characteristics (such as age, material status, gender, education, etc.)

of the extension workers and the contact farmers and their perceptions toward the performance of the T & V System.

7. To study the nature of linkages established by the T & V System with research and other supported services and institutions, such as the College of Agriculture at Sana'a University, input supply, credit and marketing.

Study Population and Sample

The target population of this study was comprised of contact farmers, extension workers/personnel and agricultural extension officers, subject-matter specialists, and research agency personnel in the Tihama Development Authority's project area in Hodeidah province in the coastal region of Yemen. The Tihama region was selected for the study because the Training and Visit (T & V) System of agricultural extension was first adopted in the TDA project area. This project area was selected because it was the major agricultural area of Yemen and it was also representative of the coastal plain region. Further, the Tihama Development Authority, the pioneer agricultural development authority in Yemen, had been in operation for several years and the T & V System had also been adopted in this region for five years.

The descriptive method of research using the questionnaire technique, was utilized in this study. The survey form instruments used were an interview schedule designed for contact farmers and a questionnaire for extension workers/personnel. A third questionnaire was designed to collect data from the agricultural extension officers, subject-matter specialists, and the research agency

personnel. This last instrument consisted of a set of 15 open-ended and closed questions grouped into two parts. The first part consisted of a set of questions designed to collect demographic data, and the second part consisted of eight question items designed to secure information about the nature of linkages established by the T & V System with other agricultural institutions/organizations.

The contact farmers' interview schedule consisted of two main parts: (a) demographic information; and (b) perceptions of contact farmers on selected aspects of the T & V System of agricultural extension. In the second part, the survey instrument was designed to collect information on seven major variables, namely:

1. technical content of the visit sessions;
2. extension teaching methods used;
3. visit of extension worker to the contact farmer;
4. performance of contact farmers;
5. frequency of use of extension methods;
6. appropriateness of subject-matter/technology provided; and
7. the overall performance of the T & V System.

Variables 1-4 listed above mainly related to the visit component of the T & V System. There were 28 related statement under these variables.

The extension worker's questionnaire consisted of two parts: the first part was designed to gather demographic information about the respondents and their

perceptions about selected aspects of the T & V System. It was also designed to collect information on eight major variables as follows:

1. technical center of training sessions;
2. subject-matter delivery by specialists;
3. extension workers' frequency of visit to contact farmers;
4. subject-matter/technology emphasized by the extension service;
5. the adequacy of resource support;
6. the frequency of use of extension methods;
7. appropriateness of subject-matter/technology provided; and
8. the overall performance of the T & V System.

The first three variables consisted of 20 statement items related to each variable. Simple descriptive statistics were computed and utilized in addressing most of the research objectives. A one-way analysis of variance (ANOVA) was used at the .05 significance level to determine whether or not there existed significant differences in contact farmers' and extension workers' perceptions regarding each variable/statement between and among different levels of some demographic variables. A t-test was used to determine whether or not there existed significant mean differences in contact farmers' and extension workers' perceptions regarding selected variables. Research hypotheses were tested the .05 level of significant.

Summary of the Hypotheses Tested

Two hypotheses related to the perceptions of contact farmers according to their age class and educational attainment regarding the selected aspects of the

visit sessions of the T&V System were tested by employing the one-way analysis of variance (ANOVA) with the level of significance set at .05. Similarly, three hypotheses related to the perceptions of extension workers according to their age class, educational attainment, and employment status regarding the selected aspects of the training sessions of the T&V System were tested employing the ANOVA analysis with the level of significance set at .05.

The sixth hypothesis related to the perceptions of the contact farmers and extension workers regarding the related extension activities/aspects of the T&V System (i.e., extension teaching methods, technology/subject-matter emphasized by the extension service, and overall performance of the T&V System) was tested by employing the t-test procedure with the level of significance set at .05. The results of hypotheses are as follows:

1. The difference in perceptions of contact farmers according to their age class was found to be statistically significant only with respect to the extension teaching methods of the selected aspects of the visit sessions of the T&V System.
2. The differences in perceptions of contact farmers according to their educational attainment were found to be statistically significant with respect to all aspects of the visit sessions of the T&V System included in this study.
3. The differences in perceptions of extension workers according to their age class, educational attainment, and employment status were found to be statistically significant with respect to the technical

content and extension workers' visits to contact farmers of the training sessions of the T&V System.

4. The differences in perceptions of the contact farmers and extension workers were found to be statistically significant regarding the extension teaching methods used, technology/subject-matter emphasized by the extension service, and overall performance of the T&V System.

The statistical package for social science (SPCC-PC+) that was available for IBM computers was used in the computation and analysis of this research.

Summary of Findings

Characteristics of Respondents

A total of 237 respondents participated in this study. Of the 237 respondents, 144 (60.75 percent) were contact farmers; 34 were agricultural extension officers, subject-matter specialists, and research agency personnel; and 59 were extension workers.

A. Contact farmers.

1. Of the 144 contact farmers, 99 percent of them were married and 6.3 percent of the married respondents had two wives.
2. Almost two-thirds of the respondents were illiterate and about one-third could only read and write (literate).
3. Of the total 144 contact farmers, 22 (15.3 percent) were 30 years old or less, 51 (35.4 percent) were between 31-40 years old, 34 (23.6

percent) were between 41-50 years old, and 37 (25.7 percent) were 51 years old and over.

4. Over 40 percent of the respondents had a family size between 7-12, and 38.5 percent of them had a family size of 6 or less.

5. Nearly two-thirds of the respondents had six months or more of experience as a contact farmer. Over 90 percent of the respondents knew the extension worker assigned to their areas/villages and his name and agency and had contacted him last year.

B. Extension Workers

1. Of the 59 respondents, 74.6 percent were married.

2. The majority of the respondents in the study (72.9 percent) were young adults of 30 years old or less. The next largest age group was between 31-40 years old (25.4 percent).

3. In terms of education; 59.3 percent of the respondents had earned secondary school and other degrees, while 33.4 percent of them had completed an intermediate school.

4. Almost half (45.8 percent) of the respondents had participated in all types of training programs (i.e., pre-service, on-the-job, in-service, and study abroad training). About one-fourth (25.4 percent) of them had participated in the first three types of training.

5. One-third of the respondents had 11-14 years of experience as extension workers, while 35.9 percent of the respondents had 4-6 years of extension experience.

6. Of the total 59 extension workers, four (6.8 percent) had nine months or less, 25 (42.4 percent) had between 10-19 months of experience, and 30 (or 50.9 percent) had 20 months and more experience in their current jobs.

7. About half (50.8 percent) of the respondents had not received any promotion. Nearly 50 percent had transferred in their jobs three times or less.

8. Of the respondents, 84.7 percent were permanently employed, and 89.8 percent were Yemen Nationals.

C. Agricultural extension officers, subject-matter specialists, and research agency personnel.

1. Almost three-fourths of the respondents had 1-4 years of experience in their current jobs and 17 percent had between 5-10 years of experience.

2. Of the respondents, 71.4 percent were permanently employed and 11.4 percent were temporary employed by their respective agencies.

3. Of the total 34 respondents (i.e., AEOs, SMSs, and RAPs), two (5.7 percent) had less than a high school degree, four (11.4 percent) had a high school diploma, 27 (77.4 percent) had a B.S. degree in agriculture and only one (2.9 percent) had a masters degree in agriculture.

4. The majority of the respondents at the supervisory level had received special training related to their job/field. Over 90 percent were Yemen nationals.

Findings from the Analysis of Contact Farmers' and Extension Workers' Perceptions on Selected Aspects of the Training and Visit System

The findings indicated that contact farmers were generally satisfied with the technical content of the extension program. The content was perceived as informative, helpful, timely, relevant, and suitable for their needs. Of all the six technical content statements, two were perceived by contact farmers as satisfactorily provided, while other statements were perceived with less satisfactory response. There were some variations in the perceptions of more educated farmers regarding the availability of the recommended inputs in their area, and on the extension workers' continuous help to find solution to farming problems.

Regarding the extension teaching methods, contact farmers in the study area perceived the extension teaching methods utilized by extension workers as satisfactory teaching methods in terms of clarity, understanding, and diversity. There was a statistically significant difference in perceptions of contact farmers with higher educational level regarding the easy understanding of the extension workers' presentations and the sufficiency of the printed materials.

With respect to the visit of extension workers to contact farmers, almost all respondents rated the items relatively lower pertaining to extension workers' visit. Respondents with an intermediate educational level expressed significantly lower

response on the statement, "Extension worker visits me regularly once every two weeks". A relatively low score on the statement "I know in advance when and at what time the extension agent is going to visit me," indicated that many farmers did not know in advance when and at what time the extension worker was going to visit them.

Almost all of the contact farmers felt that they were performing well as contact farmers. Respondents with high school and higher educational levels expressed significantly less agreement regarding the statements, "If I have any problems or concerns about my own farming, I usually visit my local extension workers," and "I will continue to serve as a 'contact farmer' for this community, because it is beneficial to me as well as my villagers."

Perceptions of the Extension Workers Regarding the Training Sessions of the T & V System

In general, all extension workers indicated much greater agreement (highly positive responses) concerning the technical content statements of the training sessions. All extension workers expressed relatively strong agreement that training opportunities were effective to update their communication skills and knowledge required to solve farmers' problems. Respondents within the ages of 31-40, who had an elementary education level, and who were on contractual employment status expressed significantly less agreement that the training opportunities were really necessary to update their communication skills. Extension workers gave relatively low ratings to the fortnightly training content sessions as usually more theoretical than practical.

Extension workers in the TDA project area, regardless of age, educational attainment, and employment status, agreed that the subject-matter delivery by specialists was satisfactory in terms of communication, provision of samples and/or materials for demonstration, and applicability.

A relatively low agreement (or response) was indicated by respondents concerning the statement, "I usually have a hard time following what subject-matter specialist talks about".

Extension workers gave highly positive responses concerning their visits to contact farmers. In general, respondents agreed that their visit schedules were set in advance to each command area, they spent sufficient time with the contact farmers during most of their visits, communicated contact farmers' problems and concerns to subject-matter specialists and visited all their contact farmers regularly once in every two weeks. Respondents generally disagreed with the statement, "Many contact farmers cannot be contacted and many of them are not interested about improved farming."

Respondents with an elementary educational level agreed significantly less with the statements, "I usually spend sufficient time with my contact farmers during most of my visit," and "I visit all my 'contact farmers' regularly once in every two weeks." Extension workers within the 31-40 years age group expressed significantly less agreement that many contact farmers cannot be contacted and many of them are not interested about improved farming.

Respondents on a contractual employment status expressed significantly less agreement that contact farmers are usually very busy when they visited them.

This study included seven resource statements concerning the satisfactory performance of extension workers. This was done in an attempt to determine the extent of adequacy of resource support to facilitate extension work. It was found that of the seven resource statements, four statements: technical supervision/ backstopping of extension work by subject-matter specialist, frequency of administration and supervisory visits and support, supply of technical information materials, and transportation/ mobility support were orderly ranked by the respondents above the overall mean, as adequate resource supports. A relatively low response was indicated by respondents concerning the adequacy of other resources support to facilitate extension work (i.e., supply of audio-visual materials and provision for office supplies, etc).

Findings of the Comparison of Contact Farmers and Extension Workers' Perceptions Regarding the Extension Methods Utilized

1. There were significant differences in the frequency of use for the respondents' groups held for the individual, group methods, and materials and media. Extension workers perceived farm visits under the individual method as the most frequently used method.
2. Of the individual extension methods, all study respondents groups considered the farm visits method as most frequently used.
3. When comparing the respondents' perceptions on the frequency of use of the group extension method, both respondent groups reported highly

positive response concerning the field demonstration method of the group extension methods.

4. When considering the frequency of use and adoption of the materials and media teaching aids, there were significant differences noted between the contact farmers and extension workers on four out of seven teaching aids which were leaflets, bulletins, posters/charts, and slides. Extension workers perceived media aids as more frequently used; whereas, the contact farmers perceived them as less appropriate.

5. In general, extension worker expressed more frequent use of all types of extension teaching methods than the contact farmers.

Findings of Comparison of Contact Farmers and Extension Workers Regarding Technology/Subject-Matter Transfer Emphasized by the Extension Service

1. There were significant differences in perceptions of contact farmers and extension workers on 13 out of 25 technology/subject-matter items.

2. When considering the grain crops, both respondent groups were significantly different in their perceptions to the hybrid maize Tihama 1, and Improved sorghum Cebon. Extension workers perceived that the "Daber" variety of sorghum was more appropriate to the area; whereas, the contact farmers perceived it as less appropriate.

3. There were significant differences in perceptions of contact farmers and extension workers on the appropriateness of all fruits crops (i.e., banana, limes, papayas, mango, etc.). Extension workers perceived that banana,

limes, papayas, mango, guavas, and dates fruit varieties were more appropriate to the area; whereas, contact farmers perceived them as less appropriate.

4. There were significant differences between both respondent groups on the two cotton variables (i.e., Akala SJ2 and Akala 310).

5. When considering the appropriateness of supportive institutional services, significant differences were noted in the respondents' perceptions regarding the credit and marketing institutional services. Extension workers perceived that the credit and marking institutional services as more appropriate to the area; whereas, the contact farmers perceived them as less appropriate.

In general, extension worker expressed more positive feelings regarding the level of appropriateness of technology/ subject-matter areas addressed by the T&V system than the contact farmers.

Findings of Comparison of Contact Farmers and Extension Workers Regarding the Overall Performance of the Training and Visit System

1. There were significant differences in the contact farmers' and extension workers' perceptions on one out of four overall performance factors listed in this study. In terms of general satisfaction, contact farmers expressed a relatively higher response than the extension workers.

2. When comparing the rating of four factors of the overall performance, there was only one significant difference in the perceptions of contact

farmers and extension workers. The significant difference was reported in both respondent groups' perceptions regarding the general satisfaction of farmers with extension service.

3. Length of service as a contact farmer had a statistically significant relationship to the general satisfaction of contact farmers with extension service. No other statistically significant relationships were noted.

4. Statistically, no relationships were noted between the selected demographic variables of the extension worker and the four factors of performance of the T & V System.

Conclusions

1. Technical content of the visit sessions were useful, relevant, and problem-solving oriented.

2. Contact farmers were somewhat dissatisfied with the extension worker's recommendations of new technology which requires inputs that are simple and not available in their areas.

3. Contact farmers were somewhat dissatisfied with the extension worker's use of extension teaching methods and the lack of supportive teaching aids (i.e., samples and printed materials).

4. Extension workers spent sufficient time with contact farmers during most of their visits and contact farmers can contact the extension workers during times other than the scheduled visits.

5. Frequent visits by extension workers to contact farmers enhanced the opportunity to develop close relationships between farmers and extension agents.

6. Frequent visits by extension workers to contact farmers were not regularly scheduled. Contact farmers were not visited regularly on a fortnightly basis and they did not know in advance when and at what time the extension worker was going to visit them.

7. Contact farmers and their fellow farmers were somewhat less actively involved in deciding which crops to select and/or plant in their demonstration fields.

8. Contact farmers were involved in discussing and communicating the problems and concerns of their fellow farmers during the extension workers' visits.

9. Contact farmers were positive concerning their performance as contact farmers. They reported that they knew what was expected of them.

10. In general, contact farmers were satisfied with their roles and were willing to continue to serve as "contact farmers."

11. Extension workers were satisfied with the technical content of the training sessions under the T & V System in the Tihama region.

12. Extension workers expressed relatively strong agreement that training opportunities were effective to update their communication skills and knowledge required to help solve the farmers' problems.

13. Extension workers between 30-40 years of age, those who had an elementary level of education, and those employed on a contractual basis expressed less satisfaction regarding the training opportunities to update their communication skills.
14. Extension workers were pleased with the effectiveness and timeliness of technical information brought to the contact farmers and their fellow farmers.
15. Extension workers were somewhat dissatisfied with some of the contact farmers' participation and performance in field activities.
16. Extension workers with an elementary level of education did not cover all contact farmers and also indicated spending less time with them.
17. Extension workers of 31-40 years of age perceived that many contact farmers could not be contacted and many of them were not interested in improved farming.
18. Extension workers were satisfied with the extent of adequacy of resource support of technical supervisory, backstopping of extension work by subject-matter specialist, frequency of administrative and supervisory visits and support, supply of technical information and materials, and transportation/mobility support to facilitate extension work.
19. Extension workers were generally less satisfied with the adequacy of resource support regarding the working relationship between the agricultural research station and the extension service, the supply of audio-

visual materials, and the provisions for office supplies to facilitate extension work.

20. Most agricultural information received by contact farmers was through farm visits followed by field demonstration methods.

21. Leaflets, bulletins, posters/charts, and slide shows were frequently used teaching aids.

22. Contact farmers and extension workers differed in their perceptions regarding the extent of use of various teaching methods and the adoption of materials and media.

23. Contact farmers and extension workers differed in their perceptions regarding the level of appropriateness of technology/subject-matter being emphasized by the T & V System. Extension workers felt that the subject-matter proposed by the extension service was more appropriate to other farmers in the area than the contact farmers.

24. Contact farmers expressed more satisfaction with the extension service than with the extension workers. The length of service as a contact farmer tended to be positively associated with the general satisfaction of the performance of the extension service.

25. There tended to be a weak linkage between the extension service and the other related agricultural development institutions and agencies.

Recommendations

This study was designed to determine the perceptions of contact farmers and extension workers/personnel concerning the effectiveness of the T & V System as a means for improved conditions for farmers. Analysis of the responses of all respondents revealed several suggestions which might strengthen the effectiveness of the T & V System in terms of visits to contact farmers and the training of extension workers. Following is a list of recommendations drawn from this study:

1. Contact farmers and extension workers should be involved in determining technical content to be stressed in the extension program. Involving extension workers, contact farmers, and their fellow farmers in extension programming will identify relevant technical content based on local problems and opportunities, and also invite participation in implementing the extension program.
2. Newly selected contact farmers should receive further training about the extension program objectives, their role, and participation to improve their practical skills and performance.
3. Involve extension workers in determining the content and format of regular training sessions given to them by the subject-matter specialists. Use of a variety of extension teaching methods and materials should also be emphasized in these training sessions.
4. A high school level of education, preferably in agriculture, should be considered as a minimum entry-level qualification for the extension

worker. The technical training at the high school level tended to be positively related with their performance as an extension worker. Regular in-service training opportunities should be continued.

5. Both the extension workers and contact farmers should be trained and encouraged to use a variety of extension teaching methods and materials.

6. Maintain regular fortnightly visits to contact farmers by the extension worker through proper supervisory visits.

7. Adequate transport facilities and office supplies should be provided for the extension workers in order to facilitate their work.

8. There is a need to establish and strengthen the linkages between agricultural research and extension service. AEOs, SMSs, and researchers should be encouraged to have a regular dialogue and joint visits to the farmers field.

9. Linkages of extension services with other related institutions and agencies should also be strengthened. Representatives of these agencies should hold frequent meetings to plan and implement relevant programs based on the needs of the farmers of the TDA region.

10. The College of Agriculture at Sana'a University of Yemen should effectively contribute to the operation of the T & V System of agricultural extension in the Tihama region in particular, and to the improvement of the extension program in general in Yemen.

Suggestions for Further Research

This study was conducted within the boundaries of the Tihama Coastal Plain Region of Yemen and the results may not be generalizable to other parts/regions of the country. Thus, similar research could be conducted in other regions so that a national policy on agricultural extension could be derived. Identification of extension workers' training needs to improve their technical competence and the training needs of the farmers could also help in formulating the long-term extension strategy for the region. Finally, this study was not designed to answer all questions related to the T & V System of agricultural extension in the TDA region. This could, however, serve as the basis for further studies in the subject.

APPENDIX A

COVER LETTER

This study is being conducted by Tarek K. M. Agbari, a Ph.D. candidate in Agricultural and Extension Education at Michigan State University, East Lansing, Michigan, U.S.A. He is conducting research on "perceptions of contact farmers and extension workers/personnel regarding the training and visit (T & V) system of agricultural extension in the Hodeidah Province, Yemen".

Information obtained from this study will be helpful in improving extension programs for farmers and extension workers in the future.

Your participation in completing this interview schedule/questionnaire is strictly voluntary. You may decide not to participate at all, or not to answer certain questions without any penalty. This survey will take about 30-45 minutes to complete. Your name is not required in this study. All responses and information will be kept strictly confidential.

Instructions:

The following is a list of questions and statements related to you and your perceptions on selected aspects of the training and visit components of the Training and Visit system, which are relevant to the objectives of this study. Please listen (or read) very carefully and tell me your honest perceptions about the extent of "agreement" or "disagreement" to each statement by using the following scale:

SA = Strongly Agree A = Agree N = Neutral
D = Disagree SD = Strongly Disagree

Please let me know whenever you need explanation about any of the statement items.

Tarek K. M. Aghabri
Ph.D. Candidate.
Michigan State University

APPENDIX B

CONTACT FARMER QUESTIONNAIRE

Interview Schedule for Contact Farmers

Respondent Number:

Name of Interviewer:
Date of Interview:
Place of Interview:
Time interview began: **Time interview completed:**

PART A: Background Information

1. Name of District: Village:

2. Respondents' sex: _____ male _____female

3. Respondent's age?_____ years

4. What is your educational attainment? (please check)
   _____ Do not know how to read and write
   _____ Literate but no formal schooling
   _____ Elementary education (1-6 years of schooling)
   _____ Intermediate education (7-9 years of schooling)
   _____ High school (10-12 years of schooling)
   _____ College education and above

5. What is your marital status? (please check)
   ___Single ___Married
   If married , how many wives do you have? _____

6. What is your family size? ____ (please mention the number of family members who are living with and are dependent on your income fully or partly)

7. (a) How many acres of farm land do you own? _____ Acres
   (b) How many acres is irrigated? _____ acres
   (c) Do you rent out some of your farm? ___yes ____no
   if yes, how many acres did you rent out this year? ____acres
   (d) Do you rent in some farm from others? ___yes ___no
   if yes, how many acres did you rent in this year? ____acres

8. Mention your annual family income from different sources as of 1988.

Sources of Income	Amount in Rial
Farming	_____
Business	_____
Service	_____
Labor	_____
Property (e.g. house renting)	_____
Capital investment	_____
Others (specify)_____	_____
Total	_____

9. How long have you been working as a "Contact Farmer"?
____ years.

10. Do you know if there is any extension worker assigned in your village to help you in your farming?
_____yes _____no
If yes, do you know his/her name and the agency he/she belongs?

Name	TDA
1._____	_____
2._____	_____

If you don't know his/her name, could you recognize him/her by face?
____yes ____no

11. Do you have any contact with such extension workers during the past one year?

a.	TDA extension worker	____ yes	____ no
b.	Others	____ yes	____ no

If the answer to Question 11 is NO, go to section V on page 5.

PART B: PERCEPTIONS OF CONTACT FARMERS ON SELECTED ASPECTS OF TRAINING AND VISIT EXTENSION

Circle the response which "best" indicates the extent to which respondent **AGREES** or **DISAGREES** with the following statements using following scale.

DISAGREE (D),
NEUTRAL (N), AND
AGREE (A).

I. Perceptions Related to Technical Content of Visit Session

1. Extension worker usually shares information on new technology with farmers of this area.	D	N	A
2. Information/technologies shared by extension workers are very useful to me.	D	N	A
3. Extension workers always attempt to help us find solutions to our farm problems.	D	N	A
4. Extension workers' recommendation of new technology usually requires inputs that are simply not available in our area.	D	N	A
5. Extension worker shares information in time according to cropping season.	D	N	A
6. Extension worker usually discusses new technology which are suitable only to large farmers.	D	N	A

II. Perceptions Related to Extension Teaching Methods Used

7. The extension worker in my village is easy to understand.	D	N	A
8. The extension worker usually visits at my home, but he has not time to visit my actual farm.	D	N	A
9. The extension worker usually comes with some samples or materials for demonstration.	D	N	A

10. The extension worker helps me understand how to follow improved farm practices.	D	N	A
11. The extension worker brings enough bulletins/printed materials.	D	N	A
12. The bulletins/materials provided are helpful to understand new farming practices.	D	N	A
13. I usually have a hard time following what the extension worker talks about.	D	N	A

III. Perceptions Related to Visit of Extension Worker

14. Extension worker visits me regularly once every two weeks.	D	N	A
15. I know in advance when and at what time the extension agent is going to visit me.	D	N	A
16. I am usually very busy when the extension worker visits me.	D	N	A
17. Extension worker has sufficient time to spend with me during most of his visits.	D	N	A
18. It is very difficult to contact the extension worker during times other than the scheduled visits.	D	N	A
19. I communicate the problems and fellow farmers to the extension worker.	D	N	A
20. I discuss the solutions with my fellow farmers during the extension worker's visit.	D	N	A

IV. Perceptions Related to Their Performance as Contact Farmers

21. I know that I am the "contact farmer" in this community and I know what I am expected to do.	D	N	A

22. I know what I am supposed to do as a contact farmer.	D	N	A
23. I helped my neighboring farmers even before I became a "contact farmer".	D	N	A
24. My neighboring farmers usually come to see me if they have any problems or if they need any suggestions regarding improved farming practices.	D	N	A
25. If I have any problems or concerns about my own farming, I usually visit my local extension workers.	D	N	A
26. As compared to last year, more of my neighboring farmers came to see me this year to ask about their farm related problems/concerns.	D	N	A
27. As compared to last year, my neighboring farmers asked me more frequent questions this year.	D	N	A
28. I will continue to serve as a "contact farmer" of this community because it is beneficial to me as well as my villagers.	D	N	A

V. How often do you receive information or help on farming problems from following methods?

Extension Methods	Frequency of use		
	Always	Sometimes	Never
1. Individual methods			
farm visits	—	—	—
office calls	—	—	—
letters/notes	—	—	—
2. Group methods			
farmers classes	—	—	—
field demonstrations	—	—	—
field days	—	—	—
group meetings	—	—	—
tours/field trips	—	—	—
group projects	—	—	—
3. Adoption of following materials and media			
live specimens	—	—	—
samples	—	—	—
leaflets	—	—	—
bulletins	—	—	—
pictorial/illustrated materials: poster,charts	—	—	—
filmstrips	—	—	—
slides	—	—	—

4. List below three methods you use more frequently:
   a. _____
   b. _____
   c. _____

Following are some areas of subject matter/ information/ technology which was emphasized by the extension services. Please, estimate the extent of appropriateness of following technology/ information to you.

Subject-matter Area	Level of Appropriateness and/or Extent of Adoption		
	highly appropriate	appropriate	not appropriate
Hybrid maize variety			
Tihama-1	———	———	———
Tihama-2	———	———	———
Improved sorghum			
Daber	———	———	———
Cebon	———	———	———
Improved millet	———	———	———
New insecticides	———	———	———
New fungicides	———	———	———
New fruit varieties			
Banana	———	———	———
Limes	———	———	———
Papayas	———	———	———
Mango	———	———	———
Guavas	———	———	———
Dates	———	———	———
New vegetable seeds			
Watermelon	———	———	———
Honeymelon	———	———	———
Tomatoes	———	———	———
New irrigation techniques	———	———	———
New farm equipment			
Land leveling equipment	———	———	———
Land plowing equipment	———	———	———
Ditch digging equipment	———	———	———
New variety of barley	———	———	———

New cotton varieties			
Akala-SJ2	———	———	———
Akala-310	———	———	———
Institutional Credit services	———	———	———
Institutional marketing services	———	———	———

VI. Perception Of Performance of T & V System

In general, how would you rate the overall performance of T & V system in this area considering the following factors?

	Excellent	Good	Fair	Poor
a. Usefulness of extension content	———	———	———	———
b. Delivery methods by extension agents	———	———	———	———
c. Adoption of new practices by farmers	———	———	———	———
d. General satisfaction of farmers with extension service	———	———	———	———

Thank you very much for your time and cooperation.

APPENDIX C

EXTENSION WORKER QUESTIONNAIRE

EXTENSION WORKER QUESTIONNAIRE

Respondent Number:

Part A: Background Information

1. Respondent's age? ____years.
2. Respondents' sex? ___ male ___ female
3. What is your marital status?
   ___ Single
   ___ Married
4. What is your highest educational attainment? (please check)
   ___ Elementary school
   ___ Intermediate school
   ___ Agricultural secondary school
   ___ B. Sc. Agriculture degree
   ___ other (please specify) _____

5. What types of training in extension have you received? (check as many as they apply to you)
   ___ Pre-service training
   ___ On-the-job training
   ___ In-service training through refresher courses
   ___ Training abroad

6. How long have you been working as an extension worker?
   _____ years ____ months

7. How long have you been working on your present job?
   ____ years ____ months

8. How many times did you receive promotion in your job?
   ____ times

9. How many times were you transferred in your job?
   ____ times

10. What is your employment status? (check one)
    ____ permanent or tenurial track
    ____ temporary
    ____ contract

11. Are you a Yemenese national? ___ yes ___no

12. Are you a resident of Tihama region or Hodeidah province?
____yes ___no

Part B: Perceptions of Extension Workers on Certain Aspects of the Training and Visit System of Agricultural Extension

Circle the response which "best" indicates the extent to which respondent **AGREES** or **DISAGREES** with the following statements

STRONGLY DISAGREE (SD),
DISAGREE (D),
NEUTRAL (N),
AGREE (A) AND
STRONGLY AGREE (SA)

I. Perceptions about Technical Content of the Training Sessions

1. Fortnightly training sessions are very helpful to update my knowledge and the skills required to solve farmers problems.	SD D N A SA
2. Fortnightly training sessions provide us an opportunity to discuss farmers' problems and concerns.	SD D N A SA
3. Content of fortnightly training sessions is usually more theoretical than practical.	SD D N A SA
4. The training sessions have improved my technical knowledge as well as my communication skills.	SD D N A SA
5. Training sessions provide relevant technical information in time according to the production cycle.	SD D N A SA
6. These training opportunities are really necessary to update my communication skills.	SD D N A SA

II. Perceptions about Subject Matter Delivery by Specialists

7. The subject-matter specialist has very good communication skills.	SD D N A SA

8. The fortnightly training sessions are held regularly. SD D N A SA

9. The subject-matter specialist usually comes with some samples or materials for demonstration. SD D N A SA

10. The subject-matter specialist helps us understand how to follow improved farm practices. SD D N A SA

11. We are given enough farm bulletins/printed materials which are helpful to understand new farming practices. SD D N A SA

12. I usually have a hard time following what the subject-matter specialist talks about. SD D N A SA

III. Perceptions about Extension Workers' Visit to Contact Farmers

13. I visit all of my "contact farmers" regularly once every two weeks. SD D N A SA

14. I know in advance when and at what time I am going to visit contact farmers in my command area. SD D N A SA

15. Contact farmers are usually very busy when I visit them. SD D N A SA

16. I usually spend sufficient time with my contact farmers during most of my visits. SD D N A SA

17. It is very difficult to contact the contact farmer during times other than the scheduled visits. SD D N A SA

18. I frequently communicate the problems and the concerns of my contact farmers to the subject-matter specialists. SD D N A SA

19. I have too many contact farmers to visit them every fortnight. SD D N A SA

20. Many contact farmers cannot be contacted and many of them are not interested about improved farming. SD D N A SA

Perceptions of Extension Workers about the Extent of Adequacy of Resource Support to Facilitate Extension Work

(Encircle the number that describes the degree of adequacy)

	Nil					Very adequate
Technical supervision/backstopping of extension work by subject-matter specialist.	0	1	2	3	4	5
Working relation between ag. research station and extension service-linkage with research	0	1	2	3	4	5
Supply of technical information materials	0	1	2	3	4	5
Supply of audio-visual materials	0	1	2	3	4	5
Transportation/mobility support	0	1	2	3	4	5
Provision of office facilities and supplies	0	1	2	3	4	5
Frequency of administrative and/supervisory visits and support	0	1	2	3	4	5

Subject-matter Area	Level of Appropriateness and/or Extent of Adoption		
	highly appropriate	appropriate	not appropriate
Hybrid maize variety			
Tihama-1	———	———	———
Tihama-2	———	———	———
Improved sorghum			
Daber	———	———	———
Cebon	———	———	———
Improved millet	———	———	———
New insecticides	———	———	———
New fungicides	———	———	———
New fruit varieties			
Banana	———	———	———
Limes	———	———	———
Papayas	———	———	———
Mango	———	———	———
Guavas	———	———	———
Dates	———	———	———
New vegetable seeds			
Watermelon	———	———	———
Honeymelon	———	———	———
Tomatoes	———	———	———
New irrigation techniques	———	———	———
New farm equipment			
Land leveling equipment	———	———	———
Land plowing equipment	———	———	———
Ditch digging equipment	———	———	———
New variety of barley	———	———	———

New cotton varieties			
Akala-SJ2	____	____	____
Akala-310	____	____	____
Institutional Credit services	____	____	____
Institutional marketing services	____	____	____

How often do you receive information or help on farming problems from the following methods?

Extension Methods	Frequency of use		
	Always	Sometimes	Never
1. Individual methods			
farm visits	____	____	____
office calls	____	____	____
letters/notes	____	____	____
2. Group methods			
farmers classes	____	____	____
field demonstrations	____	____	____
field days	____	____	____
group meetings	____	____	____
tours/field trips	____	____	____
group projects	____	____	____
3. Adoption of following materials and media			
live specimens	____	____	____
samples	____	____	____
leaflets	____	____	____
bulletins	____	____	____
pictorial/illustrated materials: poster, charts	____	____	____
filmstrips	____	____	____
slides	____	____	____

4. List below three methods you use more frequently:
   a. _____
   b. _____
   c. _____

Following are some areas of subject matter/information/technology which were emphasized by the extension services. Please, estimate the extent of appropriateness of the following technology/information to you.

In general, how would you rate the overall performance of T & V system in this area **considering the following factors?**

		Excellent	Good	Fair	Poor
a.	Usefulness of extension content	____	____	____	____
b.	Delivery methods by extension agents	____	____	____	____
c.	Adoption of new practices by farmers	____	____	____	____
d.	General satisfaction of farmers with extension service	____	____	____	____

Thank you very much for your time and cooperation.

APPENDIX D

AGRICULTURAL EXTENSION OFFICERS, SUBJECT-MATTER SPECIALISTS, AND RESEARCH AGENCY PERSONNEL QUESTIONNAIRE

QUESTIONNAIRE FOR AGRICULTURAL EXTENSION OFFICERS, SUBJECT-MATTER SPECIALISTS, AND RESEARCH AGENCY PERSONNEL

1. What is your job title? _____

2. How many years have you been working in your current position?
____ years _____months.

3. What is your employment status?
__ permanent or tenurial track
__ temporary
__ contract
__ other (please specify)_____

4. What is your highest educational attainment?
__ Less than high school
__ High school
__ B.S. degree
__ Masters degree
__ Ph.D.
__

5. Have you received any special training(s) related to your present job?
_____ yes _____no
If yes, could you specify: a. _____
b. _____
c. _____

6. Are you a Yemenese national? ____yes ____no.

Please indicate the patterns of linkages between research, extension and other services in this project area during the past 3-4 years by answering the following questions.

7. At the project level, is there a joint extension and research council/committee? _____ yes _____ no

If there is, what is the frequency of meeting per year?_____

8. Do researchers and extension workers go to the field together with farmers to identify and analyze farmers' problems/technical problems?
_____ yes _____no

If yes, how often is this done per year? _____

9. Do researchers/research representatives join with extension SMS/extension workers in deciding and formulating technical recommendations for farmers?
_____yes _____no

10. **How does research/do researchers** influence the formulation of extension **recommendations for farmers?**

_____

_____

11. **Do or did both researchers/research representatives and extension workers** participate in:
a) field demonstrations? _____ yes _____no
b) field trials? _____ yes _____ no

If yes, is this participation on a regular or ad hoc basis?
____ regular basis _____ ad hoc basis

12. Do the subject matter specialists of the project area visit the research stations/centers ? ____ yes ____ no

If yes, about what percentage of the SMS do this? ____ %

How many times per year do they visit research stations/centers? _____ times per year.

13. Do researchers visit the farmers of the study area with the extension workers?
_____ yes _____ no

If yes, how many times a year is this practiced? ____ times

14. Does the extension service in the project area hold meetings with (check those which apply):
__ Cooperative and Agricultural Credit Bank
__ Sanaa University, Faculty of Agriculture
__ Yemen Agricultural Marketing Company
__ Local Development Associations and Cooperatives
__ Others (please specify) _____

How many times per year are these meetings held?
____ times per year.

15. In what ways do you think Sanaa University, Faculty of Agriculture can be more instrumental in complementing /supplementing the overall goals of this project? Please list your opinion below.

_____

_____

_____

_____

_____

_____

APPENDIX E

QUESTIONNAIRES IN ARABIC

جامعة صنعاء
كلية الزراعة
قسم الاقتصاد والإرشاد الزراعي

إستبيان رقم: ____

دراسة حول نظام التدريب والزيارة
في الإرشاد الزراعي في منطقة عمل هيئة
تطوير تهامة بلواء الحديدة

إستمارة إستبيان لمزارعي الإتصال

رقم المزارع : _____ العمر : _____
الحالة الإجتماعية : _____ عدد افراد الأسرة : _____
اسم القرية : _____ المنطقة : _____
اسم المركز :

اسم جامع البيانات : _____
تاريخ ملء الإستبيان : _____
وقت بدء الإستبيان : _____
تاريخ مراجعة الإستمارة : _____

١- المستوى التعليمي

أمي	يقرأ ويكتب	ابتدائي						إعدادي			ثانوي			أخرى
		١	٢	٣	٤	٥	٦	١	٢	٣	١	٢	٣	

٢- الوضع الحيازي المزرعي

نوع الحيازة	المساحة الكلية (معاد)	المساحة المزروعة		المساحة غير المزروعة (معاد)
		مروية (معاد)	غير مروية (معاد)	
ملك				
ملك مؤجر للغير				
إستئجار من الغير				
الإجمالي				

٣- ماهو دخلك السنوي العائلي من مصادرة المختلفة خلال عام ١٩٨٨م ؟

مصدر الدخل	المبلغ بالريال
الزراعة والإنتاج الحيواني	
العمل (خاص)	
خدمات	
عمالة	
املاك (إيجار وغيره)	
إستثمار	
أخرى	
الإجمالي	

٤- ماهي عدة مملك كمزارع إتصال ؟ ـــــ سنة .

٥- هل يوجد مرشد زراعي معين لمساعدتك في عملك الزراعي (الإرشادي) في قريتك ؟

ـــ نعم ـــ لا

في حالة نعم ، هل تعرف إسمه (إسمها .. والجهه التابعه له (لها)

الأسم	جهة العمل

إذا كنت لا تعرف اسمه (اسمها).. هل يمكنك التعرف عليه إذا رأيته (رأيتها) وجها لوجه ؟
— نعم — لا

٦- هل قمت بالإتصال بمثل هؤلاء المرشدين الزراعيين خلال السنه الماضيه ؟
أ- المرشد الزراعي التابع لمكتب وزارة الزراعة — نعم — لا
ب- المرشد الزراعي التابع لمشروع تطوير تهامة — نعم — لا

إذا كان الجواب على سؤال رقم (٦) لا.. اذهب الى سوال رقم ( )

الجزء الثاني : آراء زُرّاع الإتصال عن نظام التدريب والزيارة في الإرشاد الزراعي

أولاً : معلومات تتعلق بالمضمون الفني لجلسات الزيارة .

	غير موافق	محايد	موافق
١ -			
١ — المرشد الزراعي يزود المزارعين بالمعلومات التقنية (التكنولوجية) في هذة المنطقة.	☐	☐	☐
٢- المعلومات التكنولوجيه (التقنيات) التي يزودنا بها المرشد الزراعي مفيدة جداً .	☐	☐	☐
٣- المرشد الزراعي يحاول دائماً مساعدتنا لإيجاد حلول لمشاكل مزارعنا .	☐	☐	☐
٤- تتطلب التوصيات الإرشادية مدخلات يصعب الحصول عليها في منطقتنا .	☐	☐	☐
٥- المرشد الزراعي يزودنا بالمعلومات وفقاً للموسم المحصولي الزراعي .	☐	☐	☐
٦- غالبية إتصالات المرشد تكون بكبار الزراع لنشر التقنيات الجديدة بينهم .	☐	☐	☐

ثانياً : آراء متعلقة بطرق الإرشاد التعليمية المتبعة :

٧- افهم بسهولة ما يقوله المرشد الزراعي .	☐	☐	☐

	غير موافق	لا رأي	موافق
٨ ـ المرشد الزراعي يزورني ـ عادة ـ في البيت ولكن ليس لديه الوقت لزيارتي في المزرعة.	☐	☐	☐
٩ ـ المرشد الزراعي ـ في العادة ـ يحضر معه بعض العيّنات او المواد للعرض والإيضاح.	☐	☐	☐
١٠ ـ المرشد الزراعي يساعدني في فهم كيفية اتباع طُرق الزراعة المحسنة.	☐	☐	☐
١١ ـ يحضر المرشد الزراعي عادة نشرات ارشادية.	☐	☐	☐
١٢ ـ النشرات والمطبوعات الإرشادية التي يزودنا بها تساعدنا على فهم الطرق الزراعية الحديثة.	☐	☐	☐
١٣ ـ اجد عادة صعوبة في متابعة ما يتكلم عنه المرشد الزراعي.	☐	☐	☐

ثالثاً: معلومات متعلقة بزيارة المرشد الزراعي:

١٤ ـ المرشد الزراعي يزورني بإنتظام مرة كل اسبوعين.	☐	☐	☐
١٥ ـ اعرف ـ مقدماً ـ متى وفي اي وقت سيزورني المرشد الزراعي.	☐	☐	☐
١٦ ـ اكون عادة مشغولاً جداً عندما يزورني المرشد الزراعي.	☐	☐	☐
١٧ ـ يكون لدى المرشد الزراعي وقتاً كافياً يقضيه معي خلال معظم زياراته.	☐	☐	☐

	غير موافق	لا رأي	موافق
١٨ـ من الصعب جداً الإتصال بالمرشد الزراعي في وقت غير موعد الزيارات المبرمجة.	☐	☐	☐
١٩ ـ اقوم بتوصيل مشاكل واهتمامات زملائي للمرشد الزراعي.	☐	☐	☐
٢٠ـ اناقش الحلول المقترحة مع زملائي اثناء زيارة المرشد الزراعي.	☐	☐	☐

رابعاً : معلومات متعلقة باداء مزارعي الإتصال :

٢١ ـ اعرف ـ تماماً ـ ماهو متوقع مني عمله كمزارع إتصال.	☐	☐	☐
٢٢ـ اعرف تماماً ماهي مهام عملي كمزارع إتصال.	☐	☐	☐
٢٣ـ اعتدتُ مساعدة جيراني المزارعين حتى قبل أن أصبح مزارع إتصال.	☐	☐	☐
٢٤ـ يأتي ـ عادة ـ جيراني المزارعين لعرض مشاكلهم ومعرفة الممارسات المزرعية المحسنة.	☐	☐	☐
٢٥ـ إذا كان لديّ أي مشاكل او إهتمامات عن نشاطي الزراعي، فإني ألجأ عادة إلى المرشد الزراعي في منطقتي.	☐	☐	☐
٢٦ـ مقارنة بالسنة الماضية قلم بزيارتي عدد اكبر من جيراني المزارع هذة السنة مستفسرين عن امورهم ومشاكلهم المزرعية.	☐	☐	☐
٢٧ـ مقارنة بالسنة الماضية سألني جيراني المزارعين اكثر من هذة السنة	☐	☐	☐

غير موافق لا رأي موافق

٢٨- سأواصل عملي كمزارع إتصال لهذة الجماعة
وذلك لفائدتي وفائدة المزارعين. ☐ ☐ ☐

خامساً : ماهي "درجة" حصولك على معلومات اوحلول لمشاكلك الزراعية من خلال الطرق الإرشادية التالية :

الطرق الإرشادية	درجة استخدام: بدرجة كبيرة	بدرجة متوسطة	بدرجة محدودة
٢٩- الطرق الفردية :			
زيارات المزرعة			
زيارات مكتبية			
رسائل / مذكرات			
٣٠- الطرق الجماعية :			
فصول الزراع			
حقول إرشادية			
ايام الحقل			
إجتماعات إرشادية			
رحلات / جولات حقلية			
٣١- المواد والوسائل الإعلامية :			
نماذج حية			
عينات			
كتيبات			
نشرات إرشادية			
مواد تصويرية إيضاحية :			
ملصقات وصور			
افلام شريطية			
شرائح مصورة			

٣٢- اذكر أهم ثلاثة مصادر لمعلوماتك من الطرق الإرشادية المذكورة آنفاً :

أ-

ب-

جـ -

٣٣- فيما يلي بعض الممارسات والتقنيات الجديدة والخدمات التي تسعى الخدمات الإرشادية لنشرها بين الزراع ، في تقديرك ما مدى مناسبتها لك .

المادة /موضوع المعلومة	مستوى الملاءمة			مدى التبني		
	مناسب جداً	مناسب	غير مناسب	نعم	لا	المدة (سنة)
اصناف الذرة الشامية المهجنه						
تهامة ١	___	___	___	___	___	___
تهامة ٢	___	___	___	___	___	___
اصناف الذرة الرفيعه المحسنة						
دَبّر	___	___	___	___	___	___
سيمبون	___	___	___	___	___	___
مبيدات الآفات الحديثة	___	___	___	___	___	___
المبيدات الحشريه	___	___	___	___	___	___
المبيدات الفطريه	___	___	___	___	___	___
اصناف فواكة جديدة						
الموز ، ليمون	___	___	___	___	___	___
باباى ، مانجو	___	___	___	___	___	___
جوافه ، نخيل	___	___	___	___	___	___
اصناف خضروات جديدة						
الحبحب ، الشمام	___	___	___	___	___	___
الطماطم	___	___	___	___	___	___
طرق رى حديثة						
انابيب رى بلاستيكيه	___	___	___	___	___	___
معدات مزرعية حديثة						
آلة التسويه	___	___	___	___	___	___
آلة التخطيط	___	___	___	___	___	___
آلة شق القنوات	___	___	___	___	___	___
اصناف القطن						
اكالا اس جيه ؟	___	___	___	___	___	___

	مناسب جداً	مناسب	غير مناسب	نعم	لا	المدة (سنة)
دخن محسن						
تهامة	—	—	—	—	—	—
استعمال الأسمدة والمبيدات						
	—	—	—	—	—	—
الأنشطة العقلية						
	—	—	—	—	—	—
الخدمات التسليفية	—	—	—	—	—	—
الخدمات التسويقية	—	—	—	—	—	—

سادساً : معلومات عن التقييم الأدائي لنظام التدريب والزيارة في الإرشاد الزراعي .

عموماً ماهو تقديرك لأداء نظام التدريب والزيارة الإرشادي في منطقتك فيما يتعلق بالنواحي التالية؟ :

	ممتاز	جيد جداً	مقبول	ضعيف
أ- فائدة مضامين (محتويات) التوصيات الإرشاديه.	—	—	—	—
ب- طرق الإتصال بالمرشد الزراعي .	—	—	—	—
ج- تبني المزارعين لممارسات جديدة .	—	—	—	—
د- قناعة ورضى المزارع من خدمة الإرشاد الزراعي بشكل عام .	—	—	—	—

شكراً على تعاونك معنا

وقت إنتهاء المقابلة؟ — د — ساعة؟

جامعة صنعاء
كلية الزراعة
قسم الإقتصاد والإرشاد الزراعي

إستبيان رقم: ____

إستمارة إستبيان للمرشد الزراعي

الرقم المسلسل :
الرقم للمرشد : _____ العمر : _____
الحالة الإجتماعية : _____ الجنس : _____
المركز : _____ المنطقة : _____
القرية

تاريخ ملء الإستبيان :
تاريخ مراجعة الإستمارة :

• الجزء الأول:

١- المستوى التعليمي

ابتدائي						إعدادي			ثانوي			جامعي اخر
١	٢	٣	٤	٥	٦	١	٢	٣	١	٢	٣	

٢- انواع التدريب في الإرشاد التي تلقيتها (فضلاً ضع اشارة √ امام نوع التدريب)

- [ ] تدريب قبل الخدمة
- [ ] تدريب مرتبط بمزاوله العمل
- [ ] تدريب اثناء العمل (دورات تنشيطيه)
- [ ] تدريب في اثناء ريع (بعدد)

٣- ماهي مدة عملك كمرشد زراعي ؟ ـــــ سنة ـــــ شهر

٤- منذ متى تعمل في وظيفتك الحالية؟ ـــــ سنة ـــــ شهر
(منذ تطبيق نظام التدريب والزيارة)

٥- ماهو عدد مرات الترقي في وظيفتك؟ ـــــ مرات .

٦- كم عدد المرات التي تنقلت فيها خلال فترة عملك ؟ ـــــ مرة .

٧- ماهو وضعك الوظيفي ؟

مُثبت رسمياً
مؤقت (منتدب)
متعاقد

٨- هل أنت يمني الجنسية ؟ ـــــ نعم . ـــــ لا .

٩- إذا كنت يمني الجنسية .. هل انت من أبناء هذا اللواء؟ ـــــ نعم ـــــ لا

• الجزء الثاني :

آراء المرشدون الزراعيين حول نظام التدريب والزيارة في الإرشاد الزراعي

اولاً : معلومات حول المضمون الفني لجلسات التدريب النصف شهرية :

	غير موافق عليه	غير موافق	لا رأي	موافق	موافق تماماً
١ـ تعتبر جلسات التدريب مساعدة جداً في تجديد معارفي ومهاراتي المطلوبه لحل مشاكل المزارعين .					
٢ـ تتيحا جلسات التدريب الفرصه لمناقشة مشاكل واهتمامات المزارعين .					
٣ـ يكون محتوى جلسات التدريب عادة نظرية اكثر من كونها عملية .					
٤ـ حسّنت جلسات التدريب معارفي الفنية ومهاراتي الإتصالية .					
٥ـ تُزودنا جلسات التدريب بالمعلومات الفنية ذات العلاقة في الوقت المناسب ووفقاً لدورة الإنتاج .					
٦ـ تُعتبر جلسات التدريب هذة ضرورية لتجديد مهاراتي الإتصالية .					

ثانياً : معلومات حول التوصيات والمعلومات الموصّلة بواسطة اخصائي الموضوع.

٧ـ لدى اخصائي الموضوع مهارات إتصالية جيدة جداً.					
٨ـ تقام جلسات التدريب نصف الشهرية بإنتظام.					
٩ـ يُحضر اخصائي الموضوع عادة معه بعض العينات او المواد للايضاح .					

	غير موافق كلية	غير موافق	لا رأي	موافق	موافق تماماً
١٠ ـ يساعدنا الأخصائي في كيفية إتباع ممارسة الزراعة المحسنة.	___	___	___	___	___
١١ ـ يعطي لنا نشرات زراعية إرشادية كافية تساعدنا في فهم الممارسات المستحدثة في الزراعة	___	___	___	___	___
١٢ ـ اجد عادة صعوبة في متابعة ما يتكلم عنه اخصائي الموضوع.	___	___	___	___	___

ثالثاً: معلومات حول زيارة المرشد الزراعي لزراع الإتصال:

١٣ ـ اقوم بزيارة كل زراع إتصال مرة كل اسبوعين وبشكل منتظم.	___	___	___	___	___
١٤ ـ اعرف مقدماً متى وفي أي وقت سأزور زراع الإتصال في منطقة عملي.	___	___	___	___	___
١٥ ـ عادة ما يكون زراع الإتصال مشغولين جداً عندما ازورهم.	___	___	___	___	___
١٦ ـ اقضي ـ عادة ـ وقتاً كافياً مع مزارعي الإتصال خلال معظم زياراتي.	___	___	___	___	___
١٧ ـ انه من الصعب جداً الإتصال بزراع الإتصال خلال اوقات مغايرة لمواعيد الزيارات المبرمجة.	___	___	___	___	___
١٨ ـ كثيراً ما أقوم بنقل مشاكل واهتمامات زراع الإتصال لأخصائي التدريب	___	___	___	___	___
١٩ ـ لدي اعداد كبيرة جداً من زراع الإتصال لزيارتهم كل اسبوعين.	___	___	___	___	___

غير موافق تماماً | غير موافق | لا رأي | موافق | موافق تماماً

٢٠- يصعب الإتصال بالعديد من زرّاع الإتصال والكثير منهم غير مهتمين بمسائل الزراعة المحسنة.

☐ ☐ ☐ ☐ ☐

رابعاً: فيما يلي بعض جوانب الموضوع / المعلومات / التكنولوجيا والتي تؤكد عليها خدمات الإرشاد الزراعي:

٢١- فضلاً قدّر مدى ملاءمة المعلومات / التكنولوجيا بالنسبة للمزارعين:

المادة / موضوع المعلومة	مستوى الملاءمة			نطاق التبني		
	مناسب جداً	مناسب	غير مناسب	كبير	متوسط	محدود
اصناف الذرة الشامية المهجن.						
تهامة ١	—	—	—	—	—	—
تهامة ٢	—	—	—	—	—	—
اصناف الذرة الرفيعة المحسن.	—	—	—	—	—	—
دَبّر	—	—	—	—	—	—
سيبون	—	—	—	—	—	—
بلدي						
دُخن مُحسّن.						
تهامة	—	—	—	—	—	—
مواد جديدة مقاومة للآفات						
المبيدات الحشرية	—	—	—	—	—	—
المبيدات الفطرية	—	—	—	—	—	—
اصناف فواكة جديدة						
الموز، ليمون، باباي	—	—	—	—	—	—
مانجو، جوافه، نخيل	—	—	—	—	—	—
بذور خضروات جديدة						
الحبحب، الشمام	—	—	—	—	—	—
الطماطم	—	—	—	—	—	—
طرق ري حديثة						

	مناسب جداً	مناسب	غير مناسب	كبير	متوسط	محدود
معدات زراعية حديثة:						
آلة التسوية	—	—	—	—	—	—
آلة التخطيط	—	—	—	—	—	—
آلة شوه القنوات	—	—	—	—	—	—
اصناف جديدة من القطن						
اكالا اس جيه ٢	—	—	—	—	—	—
اكالا ٢١٠	—	—	—	—	—	—
خدمات تسليفية	—	—	—	—	—	—
خدمات تسويقية	—	—	—	—	—	—

٢٢- معلومات المرشدون الزراعيين حول مدى كفاية الموارد المرغمة (المتوفرة) لتسهيل عمل الإرشاد الزراعي . (فضلاً اعمل دائرة حول الرقم الذي يصف درجة الكفاية)

	لا شيء				مناسبة جداً
الإشراف الفني لعمل الإرشاد من قبل اخصائي التدريب .	صفر ١	٢	٣	٤	٥
علاقات العمل بين محطات الأبحاث الزراعية وخدمة الإرشاد (الرابط مع الأبحاث)	صفر ١	٢	٣	٤	٥
توفر المعلومات الفنية .	صفر ١	٢	٣	٤	٥
توفر الوسائل السمعية والبصرية	صفر ١	٢	٣	٤	٥
توفر وسائل النقل والإنتقال	صفر ١	٢	٣	٤	٥
توفر المواد والتسهيلات المكتبية	صفر ١	٢	٣	٤	٥
تكرار الزيارات الإدارية والإشرافية والدعم اللازم .	صفر ١	٢	٣	٤	٥

خامساً: ما مدى استخدامك لكل وسيلة من الوسائل التعليمية والإرشادية التالية لتوصيل المعلومات والمساعدة في حل المشاكل الزراعية

طرق الإرشاد	تكرار الاستخدام		
	بدرجة كبيرة	بدرجة متوسطة	بدرجة محدودة
٢٣- طرق فردية			
زيارات المزرعة			
زيارات مكتبية			
رسائل / مذكرات			
٢٤- طرق جماعية			
فصول المزارعين			
إيضاحات حقلية			
أيام الحقل			
٢٥- اجتماعات إرشادية			
رحلات / جولات حقلية			
٢٦- المواد والوسائل الإرشادية الإعلامية التالية			
نماذج حية			
عينات			
كتيبات			
نشرات			
مواد تصويرية / إيضاحية:			
ملصقات وصور			
أفلام شريطية			
شرائح مصورة			
فيديو			
أفلام (سينما)			
راديو			
تليفزيون			

٢٧- معلومات عن التقييم الأدائي لنظام التدريب والزيارة في الإرشاد الزراعي.
عموماً.. ما هو تقديرك لأداء نظام التدريب والزيارة الإرشادي في منطقتك فيما يتعلق بالنواحي التاليه :-

	ممتاز	جيد جداً	مقبول	ضعيف
أ- فائدة محتوى الإرشاد الزراعي.	—	—	—	—
ب- طرق التوصيل للمرشدين الزراعيين.	—	—	—	—
ج- تبني المزارعين للممارسات الجديدة.	—	—	—	—
د- قناعة او رضى المزارعين التام بالنسبة لخدمة الإرشاد.	—	—	—	—

شكراً على تعاونك

الجمهورية العربية اليمنية
جامعة صنعاء
كلية الزراعة

إستمارة إستبيان
لموظفي الإرشاد الزراعي وأخصائي
التدريب والبحوث الزراعية

في

هيئة تطوير تهامة

١- نوع العمل (اللقب الوظيفي) _____

٢- منذ متى تعمل في مركزك الحالي ؟ ___ سنه. ___ شهر.

٢- ماهو وضعك الوظيفي ؟

مثبت رسمياً.
مؤقت (منتدب).
متعاقد
اخر (فضلاً وضح أنه وجد)

٤- ماهو مستواك العلمي ؟

اقل من مرحلة ثانوية
المرحلة الثانوية.
درجة بكالوريوس.
درجة ماجستير
درجة دكتوراة

٥- هل تلقيت أي تدريب خاص متعلق بوظيفتك الحالية؟ ___ نعم. ___ لا.
إذا كان الجواب « نعم » هل يمكن التحديد.

أ-
ب-
جـ-

٦- هل انت يمني الجنسيه؟ ___ نعم. ___ لا.

فضلاً اذكر انواع الروابط (الإتصال) بين الأبحاث ، الأرشاد ، والخدمات الأخرى في منطقة هذا المشروع خلال ال ٣-٤ سنوات الماضية بالإجابة عن الأسئلة التاليه:-

٧- على مستوى المشروع ، هل هناك لجنه/ مجلس مشترك بين الأرشاد والأبحاث.
نعم ___. لا ___.
إذا كان هناك ، اذكر عدد مرات الإجتماع بالسنه _____ مرات

٨- هل يذهب الباحثون والمرشدون الزراعيه إلى الحقل سوياً مع المزارعيه للتعرف على مشاكل المزارعين الفنيه وتحليلها ؟ نعم ___ لا ___.
إذا كان نعم ، كم مرات يقومون بذلك في السنه؟ _____ مرات.

٩- هل ينضم ممثلو الأبحاث مع أخصائي التدريب / المرشدين الزراعيين في تقدير وصياغة التوصيات الفنية للمزارعين ؟ نعم ـــــ لا ـــــ

١٠- كيف يؤثر الباحث / الباحثون في صياغة التوصيات الإرشادية للمزارعين ؟

١١- هل كل من ممثلي الأبحاث (الباحثين) والمرشدين الزراعيين يشتركون في :

أ- محتوى الإيضاح . نعم ـــــ لا ـــــ

ب- التجارب الحقلية . نعم ـــــ لا ـــــ

إذا كان نعم ، هل تتم هذه المشاركة على أساس منتظم أو لغرض معين ؟

منتظم ـــــ لغرض معين (خاص) ـــــ

١٢- هل اخصائيو التدريب لمنطقة عمل المشروع يزورون محطات / مراكز البحوث ؟

نعم ـــــ لا ـــــ

إذا كان نعم ، اذكر النسبة المئوية لقيامهم بذلك . ـــــ ٪

كم عدد المرات بالسنة يقوم الاخصائيون بزيارة محطات / مراكز البحوث ؟

ـــــ مرة

١٣- هل يقوم الباحثون بزيارة المزارعين في منطقة الدراسة مع المرشدين الزراعيين ؟ نعم ـــــ لا ـــــ

إذا كان نعم ، كم عدد المرات بالسنة يقومون بذلك ؟ ـــــ مرات

١٤- هل يجتمع موظفو الإرشاد الزراعي في منطقة المشروع مع :
(فضلاً ضع علامة ✓ امام أي من التالي) :

عدد المرات لعقد هذه الاجتماعات

ممثلي بنك التسليف التعاوني والزراعي .
ممثلي الشركة اليمنية لتسويق المنتجات الزراعية .
ممثلي هيئات التعاون الأهلي للتطوير
ممثلي كلية الزراعة - جامعة صنعاء
اخرين (فضلاً اذكرهم)

١٥- بإعتقادك بأي الوسائل / الطرق التي يمكن أن تكون لكلية الزراعة
بجامعة صنعاء دوراً مساعداً ، مكملاً / مدعماً لنظام التدريب والزيارة
فضلاً وضح رأيك فيما يلي :

شكراً على تعاونك معنا

APPENDIX F

TABLES

APPENDIX TABLE 1

ANOVA Results for the Differences in Perceptions of Contact Farmers by Ageclass and Education Regarding the Selected Aspects of the Training Sessions

Statement	Ageclass				F-Val.	P-Val.
	30 or less (n=22)	31-40 (n=51)	41-50 (n=34)	51 & above (n=37)		
a. The Technical Content						
1. Extension worker usually shares information on new technology with farmers of this area.	2.9	2.8	2.9	2.9	0.9	0.5
2. Information/technologies shared by extension workers are very useful to me.	2.9	2.8	3.0	2.9	2.1	0.1
3. Extension workers always attempt to help us find solutions to our farm problems.	2.8	2.8	2.9	2.9	0.7	0.7
4. Extension workers' recommendations of new technology usually require inputes that are simply not available in our area.	1.6	1.9	1.6	1.9	1.4	0.3
5. Extenwion worker shares information in time according to cropping season	2.8	2.8	2.8	2.8	0.2	0.9
6. Extension worker usually discusses new technology which are suitable only to large farmers.	1.7	1.4	1.4	1.5	0.8	0.9
b. Extension Teaching						
7. Extension worker in my village is easy to understand.	3.0	2.8	2.9	3.0	2.8*	0.1
8. The extension worker usually visits my home, but he has not time to visit my actual farm.	2.7	2.6	2.7	2.5	0.6	0.6
9. The extension worker usually helps me understand how to follow improved farm practices.	1.7	2.1	2.1	2.1	1.3	0.3
10. The extension worker helps me understand how to follow improved farm practices	2.7	2.9	2.9	2.9	1.9	0.1

APPENDIX TABLE 1, CONT'D.

Statement	Ageclass 30 or less (n=22)	31-40 (n=51)	41-50 (n=34)	51 & above (n=37)	F-Val.	P-Val.
11. The extension worker brings enough bulletins/printed materials.	1.7	1.8	1.8	1.6	0.4	0.7
12. The bulletins/materials provided are helpful to understand new farming practices.	2.1	2.1	1.8	2.1	0.9	0.4
13. I usually have a hard time following what the extension worker talks about.	2.3	2.7	2.5	2.5	1.3	0.3
c. Visit of Extension Worker						
14. Extension worker visits me regularly once every two weeks.	1.7	2.3	2.4	2.2	2.3	0.1
15. I know in advance when and at what time the extension agent is going to visit me.	1.8	1.9	1.9	1.7	0.3	0.8
16. I am usually very busy when the extension worker visits me.	1.6	1.7	2.0	1.8	1.1	0.4
17. Extension worker has sufficient time to spend with me during most of his visits.	2.6	2.8	2.7	2.7	0.4	0.7
18. It is very difficult to contact the extension worker during times other than the scheduled visits.	1.6	1.5	1.4	1.4	0.5	0.7
19. I communicate the problems and concerns of my fellow farmers to the extension worker.	2.5	2.7	2.6	2.7	0.4	0.8
20. I discuss the solutions with my fellow farmers during the extension worker's visit.	2.6	2.6	2.6	2.7	0.5	0.9
d. The Contact Farmer's Performance						
21. I know that I am the "contact farmer" in this community and I know what I am expected to do.	2.6	2.6	2.7	2.6	0.4	0.8

APPENDIX TABLE 1, CONT'D.

Statement	Ageclass: 30 or less (n=22)	31-40 (n=51)	41-50 (n=34)	51 & above (n=37)	F-Val.	P-Val.
22. I know what I am supposed to do as a contact farmer.	2.8	2.6	2.7	2.5	0.7	0.5
23. I helped my neighboring farmers even before I became a "contact farmer".	2.5	2.8	2.8	2.7	1.3	0.3
24. My neighboring farmers usually come to see me if they have any problems or if they need any suggestions regarding improved farming practices.	2.4	2.8	2.5	2.6	2.2	0.1
25. If I have any problems or concerns about my own farming, I usually visit my local extension workers.	2.9	2.9	2.9	2.9	0.1	0.9
26. As compared to last year, more of my neighboring farmers came to see me this year to ask about their farm related problems/concerns.	2.4	2.5	2.4	2.5	0.1	0.9
27. As compared to last year, my neighborning farmers asked me more frequent questions this year.	2.2	2.5	2.4	2.5	0.9	0.4
28. I will continue to serve as a "contact farmer" of this community because it is beneficial to me as well as my villagers.	2.9	2.9	2.9	2.9	0.1	0.9

*ANOVA is significant at .05
Rating Scale: 1-Disagree, 2-Undecided (neutral), 3-Agree

APPENDIX TABLE 1, CONT'D.

Statement	Education				F-Val.	P-Val.
	R&W+ Elem. (n=89)	Inter-Med. (n=45)	Sec. (n=5)	HS& above (n=3)		
a. The Technical Content						
1. Extension worker usually shares information on new technology with farmers of this area.	2.9	2.9	3.0	2.3	3.2*	0.0
2. Information/technologies shared by extension workers are very useful to me.	2.9	2.9	3.0	1.7	14.4*	0.0
3. Extension workers always attempt to help us find solutions to our farm problems.	2.9	3.0	3.0	1.3	28.1*	0.0
4. Extension workers' recommendations of new technology usually require inputes that are simply not available in our area.	1.8	1.8	1.4	2.3	0.8	0.5
5. Extenwion worker shares information in time according to cropping season	2.8	2.9	2.8	1.7	7.4*	0.0
6. Extension worker usually discusses new technology which are suitable only to large farmers.	1.5	1.5	1.8	1.3	0.4	0.8
b. Extension Teaching						
7. Extension worker in my village is easy to understand.	2.9	2.8	3.0	2.0	8.3*	0.0
8. The extension worker usually visits my home, but he has not time to visit my actual farm.	2.6	2.7	3.0	2.7	0.9	0.4
9. The extension worker usually helps me understand how to follow improved farm practices.	2.1	2.2	1.0	2.0	2.2	0.1
10. The extension worker helps me understand how to follow improved farm practices	2.9	2.9	2.4	2.0	7.8*	0.0

APPENDIX TABLE 1, CONT'D.

Statement	Education					
	R&W+ Elem. (n=89)	Inter-Med. (n=45)	Sec. (n=5)	HS& above (n=3)	F-Val.	P-Val.
11. The extension worker brings enough bulletins/printed materials.	1.7	1.9	1.6	2.0	0.5	0.7
12. The bulletins/materials provided are helpful to understand new farming practices.	1.9	2.2	2.0	2.0	0.9	0.5
13. I usually have a hard time following what the extension worker talks about.	2.6	2.6	2.6	2.3	0.4	0.8
c. Visit of Extension Worker						
14. Extension worker visits me regularly once every two weeks.	2.1	2.4	1.0	1.3	4.9*	0.0
15. I know in advance when and at what time the extension agent is going to visit me.	1.8	1.9	2.0	1.3	0.7	0.6
16. I am usually very busy when the extension worker visits me.	1.8	1.8	1.4	1.7	0.4	0.3
17. Extension worker has sufficient time to spend with me during most of his visits.	2.7	2.7	2.8	2.0	1.2	0.3
18. It is very difficult to contact the extension worker during times other than the scheduled visits.	1.5	1.5	1.0	1.3	0.7	0.5
19. I communicate the problems and concerns of my fellow farmers to the extension worker.	2.7	2.7	2.4	2.0	1.4	0.3
20. I discuss the solutions with my fellow farmers during the extension worker's visit.	2.6	2.7	2.6	2.0	1.5	0.2
d. The Contact Farmer's Performance						
21. I know that I am the "contact farmer" in this community and I know what I am expected to do.	2.6	2.8	2.6	2.0	1.4	0.2

APPENDIX TABLE 1, CONT'D.

Statement	Education					
	R&W+ Elem. (n=89)	Inter-Med. (n=45)	Sec. (n=5)	HS& above (n=3)	F-Val.	P-Val.
22. I know what I am supposed to do as a contact farmer.	2.6	2.8	2.6	2.0	2.5	0.1
23. I helped my neighboring farmers even before I became a "contact farmer".	2.8	2.7	2.6	2.3	0.6	0.6
24. My neighboring farmers usually come to see me if they have any problems or if they need any suggestions regarding improved farming practices.	2.6	2.7	2.6	.27	0.2	0.9
25. If I have any problems or concerns about my own farming, I usually visit my local extension workers.	2.9	3.0	3.0	2.7	3.5*	0.0
26. As compared to last year, more of my neighboring farmers came to see me this year to ask about their farm related problems/concerns.	2.5	2.5	1.8	2.3	1.6	0.2
27. As compared to last year, my neighborning farmers asked me more frequent questions this year.	2.5	2.5	1.8	1.7	2.3	0.1
28. I will continue to serve as a "contact farmer" of this community because it is beneficial to me as well as my villagers.	2.9	2.8	3.0	2.0	8.5*	0.0

*ANOVA is significant at .05
Rating Scale: 1-Disagree, 2-Undecided (neutral), 3-Agree

APPENDIX TABLE 2

ANOVA Results for the Differences in Perceptions of Extension Workers by Ageclass, Education, and Employment Status Regarding the Selected Aspects of the Training Sessions

Statement	Ageclass 30 or less (n=22)	31-40 (n=51)	41-50 (n=34)	F-Val.	P-Val.
a. The Technical Content					
1. Fortnightly training sessions are very helpful to update my knowledge and skills required to solve farmers' problems.	4.1	4.5	5.0	1.0	0.4
2. Fortnightly training sessions provide us with an opportunity to discuss farmers' problems and concerns.	4.2	4.2	4.0	0.0	0.9
3. Content of fortnightly training sessions is usually more theoretical than practical.	3.4	2.3	4.0	4.4*	0.0
4. The training sessions have improved my technical knowledge as well as my communication skills.	4.1	4.3	4.0	0.2	0.8
5. Training sessions provide relevant technical information in time according to the production cycle.	4.2	4.1	4.0	0.1	0.9
6. These training opportunities are really necessary to update my communication skills.	4.2	4.4	5.0	0.8	0.5
b. The Subject-Matter Delivery					
7. The subject-matter specialist has very good communication skills.	3.7	3.6	4.0	0.1	0.9
8. The fortnightly training sessions are held regularly.	2.9	2.7	5.0	1.9	0.1
9. The subject-matter specialist usually comes with some samples or materials for demonstration.	3.4	3.5	5.0	0.8	0.5
10. The subject-matter specialist helps us understand how to follow improved farm practices.	3.9	4.3	4.0	0.9	0.4

APPENDIX TABLE 2, CONT'D.

Statement	Ageclass 30 or less (n=22)	31-40 (n=51)	41-50 (n=34)	F-Val.	P-Val.
11. We are given enough farm bulletins/printed materials which are helpful to understand new farming practices.	3.6	4.1	4.0	0.7	0.5
12. I usually have a hard time following what the subject-matter specialist talks about.	2.6	2.4	2.0	0.3	0.7
c. <u>The Extension Workers' Visit to Contact Farmers</u>					
13. I visit all of my "contact farmers" regularly once every two weeks.	3.8	4.2	4.0	0.6	0.6
14. I know in advance when and at what time I am going to visit the contact farmers in my command area.	4.2	4.6	4.0	1.5	0.2
15. Contact farmers are usually very busy when I visit them.	3.1	3.1	4.0	0.3	0.7
16. I usually spend sufficient time with my contact farmers during most of my visits.	4.2	4.1	4.0	0.1	0.9
17. It is very difficult to contact the contact farmer during times other than the scheduled visits.	3.1	3.9	4.0	2.8	0.1
18. I frequently communicate the problems and the concerns of my contact farmers to the subject-matter specialists.	4.0	4.4	4.0	1.1	0.3
19. I have too many contact farmers to visit them every fortnight.	3.5	4.0	4.0	0.9	0.4
20. Many contact farmers cannot be contacted and many of them are not interested about improved farming.	2.9	2.27	4.0	4.7*	0.0

*ANOVA significant at .05
Rating Scale: 1-Strongly Disagree, 2-Disagree, 3-Undecided, 4-Agree, and 5-Strongly Agree

APPENDIX TABLE 2, CONT'D.

Statement	Education: Elem. Schl (n=4)	Inter-Med. (n=20)	Sec.Ag (n=35)	F-Val.	P-Val.
a. The Technical Content					
1. Fortnightly training sessions are very helpful to update my knowledge and skills required to solve farmers' problems.	3.7	4.4	4.3	0.6	0.6
2. Fortnightly training sessions provide us with an opportunity to discuss farmers' problems and concerns.	3.7	4.4	4.2	0.9	0.4
3. Content of fortnightly training sessions is usually more theoretical than practical.	2.0	2.7	3.5	4.2*	0.0
4. The training sessions have improved my technical knowledge as well as my communication skills.	3.7	4.3	4.1	0.7	0.5
5. Training sessions provide relevant technical information in time according to the production cycle.	3.7	4.4	4.1	1.3	0.3
6. These training opportunities are really necessary to update my communication skills.	4.0	4.5	4.2	0.9	0.4
b. The Subject-Matter Delivery					
7. The subject-matter specialist has very good communication skills.	3.5	3.6	3.7	0.3	0.7
8. The fortnightly training sessions are held regularly.	2.3	2.8	3.0	0.8	0.4
9. The subject-matter specialist usually comes with some samples or materials for demonstration.	3.5	3.4	3.5	0.1	0.9
10. The subject-matter specialist helps us understand how to follow improved farm practices.	3.7	4.0	4.1	0.2	0.9

APPENDIX TABLE 2, CONT'D.

Statement	Education: Elem. Schl (n=4)	Inter-Med. (n=20)	Sec.Ag (n=35)	F-Val.	P-Val.
11. We are given enough farm bulletins/printed materials which are helpful to understand new farming practices.	3.3	4.1	3.6	1.0	0.4
12. I usually have a hard time following what the subject-matter specialist talks about.	3.3	2.4	2.6	1.2	0.3
c. <u>The Extension Workers' Visit to Contact Farmers</u>					
13. I visit all of my "contact farmers" regularly once every two weeks.	2.3	4.2	4.0	5.9*	0.0
14. I know in advance when and at what time I am going to visit the contact farmers in my command area.	4.3	4.2	4.3	0.1	0.9
15. Contact farmers are usually very busy when I visit them.	3.5	2.8	3.2	0.7	0.5
16. I usually spend sufficient time with my contact farmers during most of my visits.	3.5	4.4	4.2	2.1	0.1
17. It is very difficult to contact the contact farmer during times other than the scheduled visits.	2.7	3.4	3.3	0.4	0.6
18. I frequently communicate the problems and the concerns of my contact farmers to the subject-matter specialists.	3.7	4.1	4.2	0.4	0.6
19. I have too many contact farmers to visit them every fortnight.	4.3	3.8	3.5	0.9	0.4
20. Many contact farmers cannot be contacted and many of them are not interested about improved farming.	3.3	2.5	2.8	1.8	0.2

*ANOVA significant at .05
Rating Scale: 1-Strongly Disagree, 2-Disagree, 3-Undecided, 4-Agree, and 5-Strongly Agree

APPENDIX TABLE 2, CONT'D.

Statement	Employment Status: Permanent (n=50)	Temporary (n=4)	Contract (n=5)	F-Val.	P-Val.
a. The Technical Content					
1. Fortnightly training sessions are very helpful to update my knowledge and skills required to solve farmers' problems.	4.3	4.0	3.8	0.8	0.5
2. Fortnightly training sessions provide us with an opportunity to discuss farmers' problems and concerns.	4.2	4.0	4.2	0.1	0.9
3. Content of fortnightly training sessions is usually more theoretical than practical.	3.2	4.3	2.0	3.8*	0.0
4. The training sessions have improved my technical knowledge as well as my communication skills.	4.2	4.0	4.4	0.3	0.8
5. Training sessions provide relevant technical information in time according to the production cycle.	4.1	4.0	4.4	0.3	0.8
6. These training opportunities are really necessary to update my communication skills.	4.3	3.7	4.6	1.4	0.3
b. The Subject-Matter Delivery					
7. The subject-matter specialist has very good communication skills.	3.6	4.3	3.6	0.9	0.4
8. The fortnightly training sessions are held regularly.	2.9	3.5	2.6	0.7	0.5
9. The subject-matter specialist usually comes with some samples or materials for demonstration.	3.4	3.7	3.8	0.3	0.7
10. The subject-matter specialist helps us understand how to follow improved farm practices.	4.1	3.7	3.8	0.3	0.8

APPENDIX TABLE 2, CONT'D.

Statement	Employment Status: Permanent (n=50)	Temporary (n=4)	Contract (n=5)	F-Val.	P-Val.
11. We are given enough farm bulletins/printed materials which are helpful to understand new farming practices.	3.9	4.0	4.2	0.5	0.6
12. I usually have a hard time following what the subject-matter specialist talks about.	2.6	3.3	1.6	3.0	0.0
c. The Extension Workers' Visit to Contact Farmers					
13. I visit all of my "contact farmers" regularly once every two weeks.	3.9	4.5	3.6	0.7	0.5
14. I know in advance when and at what time I am going to visit the contact farmers in my command area.	2.4	4.0	5.0	2.3	0.1
15. Contact farmers are usually very busy when I visit them.	3.1	4.0	2.0	3.3	0.0
16. I usually spend sufficient time with my contact farmers during most of my visits.	4.1	4.3	5.0	2.7	0.1
17. It is very difficult to contact the contact farmer during times other than the scheduled visits.	3.3	3.7	3.6	0.4	0.7
18. I frequently communicate the problems and the concerns of my contact farmers to the subject-matter specialists.	4.2	3.7	4.0	0.5	0.6
19. I have too many contact farmers to visit them every fortnight.	3.6	3.7	4.2	0.6	0.6
20. Many contact farmers cannot be contacted and many of them are not interested about improved farming.	2.8	3.0	2.4	0.6	0.6

*ANOVA significant at .05
Rating Scale: 1-Strongly Disagree, 2-Disagree, 3-Undecided, 4-Agree, and 5-Strongly Agree

Perception of Technical Content of Visit Sessions by contact Farmers with Different Educational Attainment #.1

ONEWAY--Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	1.0627	.3542	3.1631	.026
Within Groups	139	15.5667	.1120		
Total	**142**	**16.6294**			

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	G G G G 4 1 2 3
	Elem. School	
2.3333	Grp 4	
2.9000	Grp 1	*
2.9333	Grp 2	*
3.0000	Grp 3	

G 1: Read & Write &
G 2: Intermed. School
G 3: Secondary School
G 4: High Sch. & Above

Perception of Technical Content of Visit by Educational Attainment #.2

ONEWAY
Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	4.8849	1.6283	14.3755	.0000
Within Groups	139	15.7444	.1133		
Total	142	20.6294			

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Group 4 1 2 3
1.6667	Grp 4	
2.9000	Grp 1	*
2.9778	Grp 2	*
3.0000	Grp 3	*

Perception of technical content of visit #.3 by educational attainment

ONEWAY
Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Group	3	7.912	2.637	28.06	.000
Within Groups	139	13.0667	.0940		
Total	142	20.9790			

(*) Denotes pairs of groups significantly different at the .050 level

Group

Mean	Group	4 1 2 3
1.3333	Grp 4	
2.8667	Grp 1	*
3.0000	Grp 2	*
3.0000	Grp 3	*

Perception of technical content of visit #.5 by educational attainment

ONEWAY
Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	4.3910	1.4637	7.3952	.0001
Within Groups	139	27.5111	.1979		
Total	142	31.9021			

(*) Denotes pairs of groups significantly different at the .050 level

Group

Mean	Group	4 1 3 2
1.6667	Grp 4	
2.8000	Grp 1	*
2.8000	Grp 3	*
2.9111	Grp 2	*

Perception of extension teaching methods #.7 by educational attainment

ONEWAY
Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	2.9041	.9680	8.3068	.000
Within Groups	138	16.0818	.1165		
Total	141	18.9859			

(*) Denotes pairs of groups significantly different at the .050 level

Group

Mean	Group	4 2 1 3
2.0000	Grp 4	
2.8636	Grp 2	*
2.9667	Grp 1	*
3.0000	Grp 3	*

Perception of extension teaching methods #.10 by educational attainment

ONEWAY
Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	3.7308	1.2436	7.8052	.0001
Within Groups	138	21.9875	.1593		
Total	141	25.7183			

(*) Denotes pairs of groups significantly different at the .050 level

Group

Mean	Group	4 3 1 2
2.0000	Grp 4	
2.4000	Grp 3	
2.8876	Grp 1	*
2.9556	Grp 2	* *

Perception of visit of extension worker #.14 by educational attainment

ONEWAY Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	12.4388	4.1463	4.9258	.0028
Within Groups	138	116.1598	.8417		
Total	141	128.5986			

(*) Denotes pairs of groups significantly different at the .050 level

Group

Mean	Group	3 4 1 2
1.0000	Grp 3	
1.3333	Grp 4	
2.1348	Grp 1	
2.4444	Grp 2	*

Perception of C. F. performance #.25 by educational attainment

ONEWAY
Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	.3363	.1121	3.4711	.0179
Within Groups	139	4.4889	.0323		
Total	142	4.8252			

(*) Denotes pairs of groups significantly different at the .050 level

Group

Mean	Group	4 1 2 3
2.6667	Grp 4	
2.9556	Grp 1	
3.0000	Grp 2	*
3.0000	Grp 3	

Perception of C.F. performance #.28 by educational attainment

ONEWAY
Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	3	2.7879	.9293	8.4831	.0000
Within Groups	133	14.598	.1095		
Total	136	17.3577			

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Group 4 2 1 3
2.0000	Grp 4	
2.8372	Grp 2	*
2.9419	Grp 1	*
3.0000	Grp 3	*

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Perception of technical content Q. 3 by employment status

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	11.4971	5.7486	3.5717	.0347
Within Groups	56	90.1300	1.6095		
Total	58	101.6271			

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Group 3 1 2
2.0000	Grp 3	
3.1800	Grp 1	
4.2500	Grp 2	*

Perception of technical content Q. 3 by Ageclass of extension agents

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	13.8287	6.9143	4.4101	.0166
Within Groups	56	87.7984	1.5678		
Total	58	101.6271			

(*) Denotes pairs of groups significantly different at the .050 level

Mean	Group	Group 2 1 3
2.3333	Grp 2	
3.4186	Grp 1	*
4.0000	Grp 3	

Perception about ext. worker visit Q. 20 by Ageclass of extension agents

Analysis of Variance

Source	D.F.	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	6.0183	3.0092	4.7041	.0131
Within Groups	54	34.5431	.6397		
Total	56	40.5614			

(*) Denotes pairs of groups significantly different at the .050 level

		Group
Mean	Group	2 1 3
2.2667	Grp 2	
2.9024	Grp 1	*
4.0000	Grp 3	

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