PERCEPTIONS OF IRANIAN AGRICULTURAL EXTENSION WORKERS AS TO THEIR ADEQUACY IN PROVIDING INSTRUCTION IN THE AREA OF ANIMAL SCIENCE

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CHAPTER I

INTRODUCTION

The strategic importance of agriculture in accelerating the social, economic, and political growth in many developing countries has been well recognized. In Iran, agriculture is the major source of livelihood, and provides the principal means of wealth for the people of the nation. Today, in Iran, after revolution, there is a nation-wide struggle to release the economy from the shackles of poverty in increasing agricultural productivity.

With the rapid expansion of the population of Iran, increasing at a rate of over 3.0 percent or more annually, greater emphasis must be focused on increasing agricultural productivity. This must be brought about both to better feed this growing population and to provide resources for the initiation and maintenance of an agricultural and rural development.

At the present time, the total Iranian population is estimated to be at about 34.4 million. Basically, it must be considered a relatively young population, with nearly one-half of the total presently under 20 years of age. It would seem fairly certain that this trend toward a younger population will continue. With the current annual population rate increase in Iran and in the absence of significant migration, the nation's growth rate must be recognized as one of the world's highest. Were this rate of growth to continue, population might well

double every 20 years. In the rather likely event that fertility does not decline between the present time and the year 2000, the population of Iran could reach an astounding 87 million people. If, on the other hand, the population growth rate were to decline dramatically so as to reach a growth rate of only around one percent per year, within the coming decades the population size might be as little as 56 million persons by 2000.

However, when one calculates the current population against the proportion of available arable land, and if one also takes into consideration the very limited water resources, implications of what could become a serious problem are clearly revealed.

The need to promote livestock production is dictated by the fact that improvement in the diet strongly indicates necessary reliance upon larger intakes of meat, milk, and eggs. This is associated with a rising per capta income which, it has been envisaged, will bring with it major increases in the demand for such commodities. In reality, recent trends in livestock output indicate a slower growth in production than the growth in demand for many animal products.

The extension service was conceived and came into being as a means of helping rural people to solve these problems and to help develop an abundantly producing agriculture. Indeed, the extension service has made a significant and lasting contribution to the growth and development of both agriculture and rural people. Therefore, the inevitable conclusion must be reached that the strengthening of the agricultural extension service in its teaching of modern animal husbandry to farmers is crucial for reaching and maintaining a minimum level of nutrition for the population. This in turn calls for

increasing the number of extension agents involved in this activity, and in particular improving their skills, providing better mobility for them and a backstopping their efforts with research activities.

Need for the Study

This emerging problem of population versus food and space resources is exacerbated by a very strong rural-to-urban migration, thus making the problem of adequate food supplies even more difficult and expensive to achieve. In recent years, the increase in agricultural production has not been keeping pace with the rate of population increase. The rising population together with a much higher per capita income could result in a significant food shortage even before 1985.

Simply stated, the accelerated growth of population mandates a higher level of agricultural production in order to reach and maintain a better way of living and a more abundant life for the people of Iran. Meanwhile, lands cultivated by traditional methods and livestock raised in the old fashioned ways are no longer suitable or indeed adequate to meet growing demands of more and more prople.

The following factors tend to make it clear that educational and developmental work in the animal science industry is not only needed but is indeed mandatory.

1. The growth of towns and ever accelerated urban population increases with concentrated demands for the best nutritive foods, which of necessity include livestock products.

2. Rising standards of living, which involve increased and more specialized agricultural production.

3. Opening of foreign markets and the growth of livestock

exports.

4. The beginning of greater specialization in agriculture and of large-scale "concession" farming projects.

Statement of the Problem

The problem is simply, "How can the production of livestock and livestock products be increased significantly to offset the inevitable increase in numbers of people who must be provided a nutritious diet?" For this study, emphasis is placed upon the educational and interpretative aspects and centered on funding at least as a partial answer to the question, "How can producers best be motivated to adopt those practices which will result in the achievement of higher levels of production needed?"

Purpose of the Study

The major purpose of the study was to identify, describe and analyze responses received from extension workers in selected portions of the West Azarbaijan Province of Iran. These responses dealt with limitations imposed upon possible further improvement and development of the animal science industry in the province. More specific categorization of these limitations were: (1) limitations imposed by present conditions and the status of animal enterprises, and (2) limitations imposed by the present function of agricultural extension workers at the local level.

Objectives

In order to give more detailed direction to the study, the

following objectives were developed:

1. To identify major problems which may presently limit the productivity of the livestock industry.

2. To obtain judgments from agricultural extension workers with regard to needed improvements in livestock production and management.

3. To obtain judgments from agricultural extension workers as to needed improvements in the programs of preparation for extension workers, more specifically with regard to training needed in animal science.

4. To determine judgments of extension workers as to who, among selected community residents, can best serve as local leaders for promoting extension programs in animal production.

Locale and Time of the Study

This study was carried out from June, 1979, to January, 1980, in the province of West Azarbaijan, in extreme northwest Iran. Plans made at the beginning of the study were to cover a large area with eight Shabrestan chosen. Unfortunately, because of the rapid development of a political situation it was possible to secure responses from only three Shahrestan rather than the eight originally planned. Three major cities made up the bulk of the population in the area actually surveyed. Their locations are shown on the map presented in Figure 1.

Design of the Study

In order to secure accurate information regarding recognized limitation, in addition to an exhaustive review of reports and other literature, a survey was administered to respondent local extension workers which included: (1) questions directed toward describing

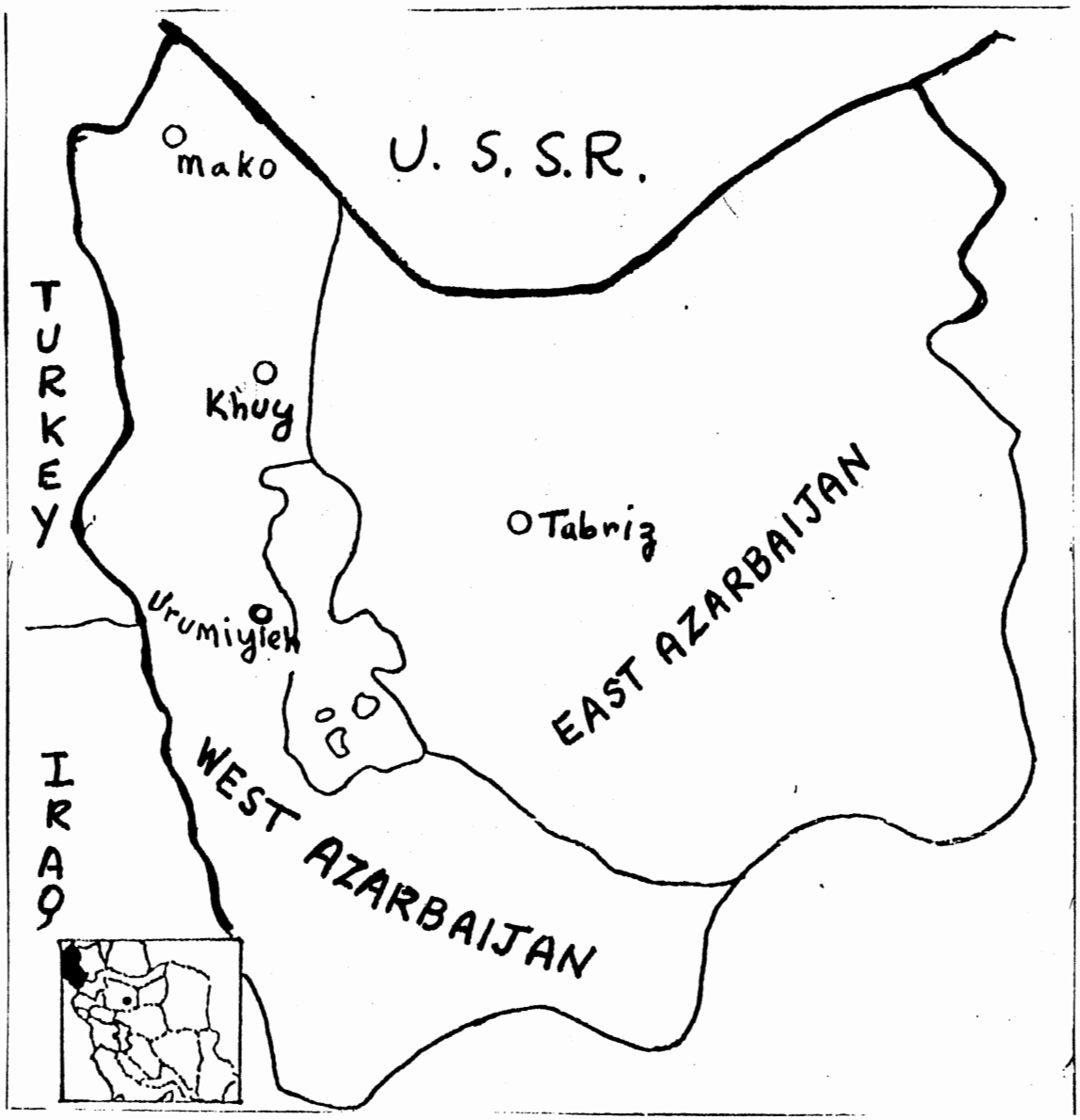

Figure 1. Map of Azarbaijan Provinces Located in the Northwestern Zone of Iran

the present status of animal enterprises in the area, and (2) a self-assessment of the present knowledge possessed and the extent of additional knowledge needed in order to function at a high level of effectiveness in assisting local livestock producers.

Population

Originally the population for the study was to consist of the 49 extension workers plus the estimated 55 extension development corps members serving in the eight Shahrestan. It was necessary, for reasons noted above, to reduce the study population to the 18 extension workers and the 22 members of the extension development corps in the three Shahrestan finally scheduled in the study.

Development of the Instrument

An instrument was designed to secure data relevant to the purpose and objectives of the study and was administered to the agricultural extension workers and the 22 extension development corps members serving in three Shahrestan, or towns of Urumiyieh, Khoy, and Maku.

The questionnaire schedule was designed for the purpose of gathering needed information from extension workers. The instrument was submitted to faculty and committee members of the Departments of Agricultural Education and Animal Science, Oklahoma State University, for review, evaluation, and suggested needed revisions.

These questionnaires were translated from English to Persian as a courtesy to and to facilitate responses of extension workers in Iran. Every attemtp was made in translating from English to Persian to ensure the same meaning. Two Iranian graduate students currently

studying at Oklahoma State University majoring in Agricultural Extension and Agronomy, helped through a careful review of the translation attempt.

Pre-testing of the Instrument

The purpose of pre-testing was to find out whether there were weaknesses in the content of the instrument which might affect procedures and securing data. The researcher was quite aware that much of the validity and reliability of the instrument depended on the accuracy of the translation provided. For this purpose, the instrument was pre-tested through submission to some other Iranian students at Oklahoma State University. Some of the students had either worked in the extension division of the Ministry of Agriculture or in the Extension Development Corps during their military service.

The questionnaire for extension workers consisted of four parts (Appendix A):

1. Personal data including sex, education, employment.

2. Statements of judgments of extension workers as to who, among selected residents, can best serve as opinion leaders for promoting extension programs. This section was composed of four statements.

3. Fifty-one statements were classified into eight groups representing various aspects of animal science. Respondents asked to rank by degree:

   a) "To what extent do you now have knowledge about these subjects?"

   b) "To what extent do you need more knowledge about these subjects?"

4. Questions were designed to secure judgments of respondents as to relative importance of selected items of limitation presently imposed on the livestock industry.

Respondents were also given an opportunity to add items which were not included in the selected list.

Administration of the Questionnaire

After the questionnaire was refined and a sufficient number of copies printed, the researcher gave detailed instructions as to its administration to a friend and fellow student, Mr. Bahman Khobehy, who returned to Iran for the summer vacation. He in turn delivered the schedules to Mr. Javad Mirza Aghazadeh, a brother of the researcher. Questionnaires could not be administered in the entire geographic area as originally planned, because of the political turmoil occurring at the time. Returns were secured by interview from 18 extension workers and 21 extension development corps. The completed schedules were returned to the investigator for tabulation, collation and analysis.

Assumptions

Assertion as to the value of the finding in this study rested on several assumptions, the more evident ones are listed below:

1. That the views of extension staff bear a true reflection of the actual animal science training needs of extension workers in the West Azerbijan Province of Iran.

2. That the extension workers who participated in this study are capable of providing useful and valid information which can be used as the basis for determining the training needs of other agents.

3. That certain identified methods and techniques generally accepted by extension workers in other countries can be used effectively and successfully with farmers in Iran in order to improve the animal science industry.

4. The extension agents in Iran can become more effective with further training in animal science extension.

5. With raising incomes and a fast increasing population, total demand for livestock products will increase rapidly.

Scope and Limitations

As the study was designed, it was early recognized that such factors as location, accessibility, translation, etc., imposed unique limitations. A number of these are listed below:

1. A major limitation of the study was the fact that the writer was unable to be in Iran during the study; therefore, it was necessary to depend largely upon the researcher's personal experiences and careful and exhaustive study of previous research and literature pertaining specifically to the problem area. This limitation extends to the material made available through translations of reports as well as publications of the Iranian Ministries.

2. This study was also largely limited to an attempt to identify the professional extension workers' training needs in the animal science industry in Iran essential to the effective performance of extension work. Even more specifically, the investigation was directed toward the situation in the Western Azarbaijan Province. Hence, the focus of the study is on those performance areas of requiring abilities considered to be essential for achieving successful animal science

extension functions. The study was not designed in any attempt to evaluate present training programs, either in the Ministry of Agriculture or in the Iranian universities. However, implications for some change in practices are necessarily inherent in this study.

Definition of Terms

A more exacting definition of certain terms and their specific application to this study is necessary in order to ensure clarity and understanding:

Ministry: An official branch of the Iranian government, comparable to cabinet level offices in the United States.

Province (Ostan): An administrative unit for governmental purposes. It is the largest sub-division of areas in Iran. There are 23 provinces which correspond to states in the United States; each is headed by an Ostandar or Governor General.

Provincial Sub-division (Shahrestan): Each Ostan is further divided into a shahrestan or region. On the average, there are seven shahrestan per ostan. Each shahrestan is under the supervision of an appointed governor.

The Village: The great majority of the rural population live in country settlements called "deh" (villages), which are not only centers of habitation but also economic units of agricultural production and consumption. In a country whose economy is founded on agriculture, these villages produce the most important part of the national revenue.

Village Headman (Kadkhuda): Each village has a Kadkhuda who represents the villagers. The Kadkhuda is a man in a several-faceted position of representing the views of the peasants to the landlord and,

particularly in more recent years, of representing the authority of the central government in a village. Thus, in his position, oftain gained through inheritance, the Kadkhuda might unofficially represent the local organized community--the village--to a larger "outside" social world of landlords, and ultimately to the agencies of the central government of the country. In effect, he embodies a sort of spura-village authority at the village level.

From the villager's viewpoint, the principal role of the Kadkhuda is to conduct the necessary relations on his behalf, with the authorities of the "outside" world. There had been attempts in the 1950s by the Ministry of Interior to establish village councils (anjuman-idih) in Iran's villages. However, these were largely unsuccessful and did not affect the Kadkhuda's power and influence in the village.

Outstanding Farmer: The key farmers, model farmers, or demonstration farmers are those who have made outstanding successes in the use of certain improved farm practices, and usually introduce the new ideas that villagers tend to follow. However, key farmers are, in practice, much less influential than is the Kadkhuda.

Local Teacher: In Iran, in large numbers of rural communities, the teacher is the only educated outsider. Thus, if such communities are to develop, it is not only necessary for the teacher to be effective in the classroom, but also he must assume the role of a community development worker, and a respected agent of change in the local community.

Middleman: A middleman is an individual or a business concern operating between the local farmer and the ultimate consumer.

Extension Worker: The term extension worker or extension agent

refers to a person who has an assigned responsibility for carrying out agricultural extension programs in the village, district, division, or city. The term also is used to designate professionals who enter the service as a career.

Extension Corps Members: The term designates a person who has elected to serve for one and one-half years in agricultural extension as an extension of a previous six months' mandatory training in military service.

Religious Leader (Mullah): The Kadkhuda and his deputy all have formal legal authority, and yet they are not community leaders in the sense of having much power in the daily life of the villagers. This is partially true due to the fact that often they are found reside in the village only periodically, and partly because the formal legal authority which they do represent is alien to the internal structure of the village society.

It may well be, therefore, that the place of the "village leader" is filled by some other figure who may have no formal legal authority vested in him. In Western Azarbaijan, the religious assistant provided such a leader. His higher status was derived partly from the nature of his work, and being well known to and respected by virtually everyone in the community. He happens to be a descendant of the Prophet; his green turban clearly indicates that he is a devout Muslim, literate, and intelligent. This man in a multitude of roles wields great influence in village affairs of all kinds, and his authority when invoked, is particularly efficacious in settling serious disputes. Participation in the beliefs and practices of formal religion, generally a sect of Islam, is highly valued in the villages.

CHAPTER II

BACKGROUND INFORMATION FOR THE STUDY

To further clarify the problem under consideration, it is useful to examine briefly the agricultural situation in West Azarbaijan and Iran.

The Azarbaijan provinces are located in the northwest corner of Iran. Administratively the area is comprised of two provinces: Eastern Azarbaijan, in the east with Tabriz as its capital, and Western Azarbaijan in the west, with Urumyieh as its political and communication center. The area of this study is confined to West Azarbaijan. This territory covers some 4360 square kilometers, with a population of about 1,404,875. West Azarbaijan peasant villages are estimated to number 2,710. Also, West Azarbaijan is one of the most important agricultural provinces in Iran. At present, about 67.9 percent of its total population is engaged in farming.

West Azarbaijan enjoys a relatively wet period, especially in its western half, with a great deal of conventional rain. Rains of this type occur over the higher Zagras, also, and most of this area is still under a thick blanket of snow in the early months of spring.

Azarbaijan is well known for its very severe winters, when the entire plateau is invaded by cold air masses from Russia. Lowest annual temperatures are recorded at certain stations in these parts of the country. Azarbaijan in the hottest month shows a mean maximum temperature of between 21^{o} and $25^{o}C$ (Table I).

Two somewhat different ways of life have come into existence in

this region; pastoralism in the higher parts and cultivation, mostly of a settled kind, in the more favorable, lower-lying areas. Sheep and goats, with some cattle and a few horses or even camels, are reared by herders, who tend for the most part to be sedentary and have some attachment--at least for a portion of the year--to the cultivated areas at lower levels (Table II). But nomadism still exists, particularly toward the west, where Kurdish shepherds continue to migrate seasonally, sometimes across frontiers into Iraq and Turkey.

West Azarbaijan contains many diverse religious groups within its boundaries. Yet the majority of the population is Muslim. There are some Armenians, Nestorian Christians, a number of Jewish groups, mainly in Urumyieh, and in certain ancient farming communities.

There is one university in West Azarbaijan. The Urumyieh College of Agriculture is a newly established institution. At the present time, this institution consists of the colleges of Agriculture, Animal Husbandry, Veterinary Medicine, Science, and an Institute of Home Economics. The College of Agriculture is developing rapidly and was planned for training agricultural workers for the entire western part of Iran.

Cultivation follows the general Iranian pattern, with cereals and some maize as the basic crops, as well as a wide range of fruits and vegetables. Mediterranean fruits, grapes, almonds, and apricots grow very well in the more favorable parts of this region, and tobacco, sugar beets, and oil seeds are also very important (Table III). More than thirty varieties of grapes are grown on the plateau, with cultivation methods varying according to local habits. Grapes are a staple of diet during the summer months, and are dried as raisins for export in amounts up to 60,000 tons per year.

TABLE I

BASIC CLIMATIC INFORMATION FOR TWO MAJOR CITIES OF WEST AZARBAIJAN

Name of City	Geographical Location		Height Above Sea Level (m)	Ave. Max. Temp.	Ave. Min. Temp.	Absolute Max.	Absolute Min.	Ave. Temp.	Average Annual Rainfall (mms.)
	Lat. N.	Long. E.							
Uromiyeh	37° 37'	45° 05'	1332	17.6° C	5.1° C	38.4° C	-22.0° C	11.3° C	360
Khoy	38° 29' N	44° 57' E	1100	16.9° C	2.8° C	38.0° C	-20.0° C	9.9° C	403

Source: (16)

TABLE II

NUMBER OF DIFFERENT FARM ANIMALS IN WEST AZARBAIJAN - YEAR 1974 (HEADS)

Type of Animal	Western Azarbaijan	Whole Country	Rank Among the Provinces
Water Buffaloes	87,972	236,381	1
Sheep	2,320,846	28,770,730	4
Cows	447,017	5,323,920	5
Goats	691,178	14,288,568	7
Horses	24,963	355,552	4
Camels	5,693	100,848	6
Donkeys	102,019	2,141,537	8

Source: (24)

TABLE III

AREA UNDER CULTIVATION OF DIFFERENT AGRICULTURAL PRODUCTS IN WEST AZARBAIJAN - YEAR 1974 (HECTARES)

Type of Products	Western Azarbaijan Area in Hectares	Whole Country Area in Hectares	Rank Among the Provinces
Sugar Beets (100 h.)	196 (100 h.)	1,588	3
Tobacco	10,394	17,478	1
Wheat			
Irrigated	152,955	1,565,355	5
Dryland	198,759	4,407,917	10
Total	351,714	5,973,272	8
Barley			
Irrigated	29,000	3,560,000	5
Dryland	39,000	1,163,000	12
Total	68,000	1,519,000	9
Rice	1,365	353,340	9
Other Cereals	3,978	47,750	5
Beans			
Beans	260	33,200	14
Peas	15,800	133,900	5
Others	750	52,980	17
Total	16,810	220,080	15
Oilseeds	25,228	115,427	2
Alfalfa	34,282	277,667	3
Clover	954	38,047	9
Others	60,911	144,288	1
Jaliz*	3,326	226,411	11
Tomatoes	400	11,100	7
Potatoes	1,450	39,970	9

*"Jaliz" includes all bed crops such as tomatoes, cucumbers and non-orchard fruit.

Source: (24)

Azarbaijanian breeds of cattle have a high reputation in Iranian markets because they are suited to cold climates by reason of their drought-resisting qualities and their ability to withstand attacks of the major cattle tick-borne disease. However, the quality of livestock in West Azarbaijan is generally poor. Nutrition, management and breeding practices require attention, and this is especially true of water buffaloes. Well managed, they could make a much greater contribution to milk and meat supplies and to work output.

Buffaloes are maintained on mountain pastures in West Azarbaijan, where they graze with cattle up to the snowline. Sherman found that in this area they yield an average of 6.1 liters of milk per day (as cited in 35, p. 513). Chief areas of cultivation in West Azarbaijan include 1) those parts of the middle and higher Urumyieh basin away from the saline areas, and 2) the Khuy basin and adjacent parts of the Aras area of Julfa.

This section of the country has importance as the focus of major transportation routes. Besides containing a number of ancient east-west routes linking up with central Asia, the region is now on the principal lines of communication between Iran and Europe.

Agriculture in Iran

Agriculture is a major sector of the economy and the social structure of Iran. It is not of a subsistence nature as in many developed countries, but a considerable amount is integrated into the marketing economy.

Food consumption in Iran has been insufficient in quantity. The estimated daily intake of 2,300 calories per capita is still below

physiological requirements and inadequate in quality (30).

The Iranian farmer has a minimum investment in land, animals, and machinery. He utilizes his own labor and the labor of his animals to the maximum. His animals grow slowly and are not very productive. However, they provide the farm family with labor and food, and largely find their own food. They require little supplemental feed and, most importantly, seldom consume any food that could be consumed by the human population.

Fields generally are cultivated in small holdings of an average of three to four hectares in area. Cultivated areas are grouped around villages and separated from each other by semi-desert or wild mountain country.

In 1977, out of 66,000 villages in Iran, only 3,106 had electricity. This means that only 4.7 percent of villages had access to electricity. Since about 60 percent of the total population of Iran live in villages and rural areas, somewhat less than 50 percent of Iranians were using electricity in 1977 (18).

The Health Corps had about 600 medical units in the countryside for 66,000 villages. Even if each unit could serve ten villages, still 91 percent of villages had no access to medical care even of the most rudimentary kind (19).

Illiteracy rate in 1976 was 55 percent, and in 1975, more than 60 percent of the men and 90 percent of the women in rural areas were illiterate.

Primitive and rigid farm practices, unscientific methods of cultivation and irrigation, and lack of capital have tended to restrict agricultural development. Compared with the rest of the economy,

agricultural production has been increasing at a relatively slow rate since 1962, due to movements of peasants to cities and antiquated methods of farming (1). Officially, the average annual rate of agricultural growth during the fourth plan was put at four percent.

Quite rightly in a country with as much rural underemployment as Iran, less stress has been put on mechanization, and the number of tractors rose only from 4,500 in 1960 to 22,000 in 1972 (30).

Water is of vital importance in an arid country like Iran, and is one of the main production factors for agriculture. Irrigation is also a main requisite for introducing modern agricultural production, especially for the profitable application of fertilizer and mechanization.

The resources used and usable for agriculture are shown in Table IV.

TABLE IV

LAND UTILIZATION IN IRAN

	Hectares (millions)	Percent
Total land area	163.0	100.0
Cropland under annual and perennial crops	6.0	3.7
Fallow cropland	12.0	7.4
Pasture and wood land of villages	1.3	0.8
Potentially cultivable (sic) wasteland - 31.5 Desert and other wasteland - 31.6	113.1	69.1
Forest and rangeland	28.0	17.1

It should be pointed out that the classification and enumeration in this table are necessarily fairly crude approximates, and considerable regional variations are obscured.

On the 12 percent of the land area which can be regarded as productive under sedentary agriculture--some 19 million hectares--less than one-third is under cultivation at any one time.

The important agricultural crops of Iran include wheat as the principal crop as well as other grains, especially barley, rice, cotton, dates, tobacco, and sugar beets. The principal cash crop is cotton. But there are signs that cotton as a traditional export item is losing ground in foreign markets (1).

Animal products account for a substantial part of the country's food and agricultural income, contributing about one-third of the value of the total agricultural sector. The animal sector is still characterized largely by tribal and village blocks of over-grazed pastures. So livestock, too, is relatively unproductive in Iran. Most livestock is not fed or pastured on crop farms, but graze natural pastures and grain aftermath the year around.

Sheep are by far the most common animals bred, providing 340,000 tons of meat (1977-1978), and at least 20 percent of the milk used as food, and yielding the wool used in making carpets, Iran's important source of foreign exchange. Wool production was estimated at 15,750 tons on a clean basis for 1977-1978. The next most commonly raised animal is the goat, estimated at 14,000,000 head in 1978. Sheep and goat milk are the main sources of milk products in rural areas.

Iran was largely self-sufficient in food supplies until 1962. Iran had produced most types of food in sufficient quantities to supply

domestic requirements, and there was need to import only a few items, such as tea and sugar, which were not produced at all or were produced in insufficient quantities to satisfy domestic requirements. This relationship has, however, changed rapidly, with greater food demands, greater costs, and little attention and priority given by government to the agricultural sector. Recently, Iran has become an importer of most agricultural products, especially wheat. Hence, the 1974-1978 food and agricultural import costs rose to almost 8.80 billion dollars.

The traditional system of land ownership also retards the progress of agriculture. More than one-half of the claimed land is owned by absentee landlords, and the peasant cultivates it as a sharecropper. A large majority of the peasants farm land in this manner.

The relationship between farmers and land owners has been strained. Although some of the farmers owned land through the act of "Land Reform," because of the very restricting and highly questionable policy of the ex-regime, most of these land-owning farmers could not produce more than enough to meet their own needs. The farmers who did not own the land worked through "Mozaren;" that is, they contracted land from landowners and worked on it. The profit from the crops produced from the land was divided on a percentage basis between the farmer and the land owner. The farmer's percent of the profit often did not cover his living expenses.

The one shortcoming which definitely plagued the previous governments was the lack of a proper distribution system either of money or of materials for agricultural production. Many a brilliant plan, which dazzled the planners themselves while it was on paper, has gone away because of this shortcoming. In many cases, neither money nor material

reached the farmers on time.

Revival of agriculture is imperative not only for the healthy development of the national economy but also to save the urban areas in general and Tehran in particular from ultimate doom.

Official Ministry of Agriculture figures suggest that as a result of all phases of the "land reform" program of 1962, some 1.6 million families received land but nearly 70 percent of these plots were 13 acres or less, whereas the government had determined that the minimum viable plot per family was about 18 acres! In any case, by 1973 the government had reversed itself and it was forcing farmers to join cooperatives by giving their land to it in exchange for shares. The management of these cooperatives was appointed by Tehran. Those who refused had their land expropriated. The upshot was that hundreds of thousands of farmers lost their land and were forced to move to large cities, seeking work in the construction industry. In the vast majority of cases, these farmers had to leave their families behind in the village. Many were unable to see their families for more than a few days a year.

Agricultural Regions

Because of climatic and topographic limitations, food production and agriculture in general are concentrated in certain limited localities.

Iran's most important agricultural area is in the north, and includes parts of Azarbaijan, the Caspian littoral, the Gorgan plains to the southeast of the Caspian and Khorasan in the northeast.

The Caspian Sea area includes the provinces of Mazandaran, Gilan,

and Gorgan. It is characterized by subtropical vegetation and forests; rainfall is abundant--from 1,000 to 1,500 mm per year--and the temperature is moderate. The main crop is rice, but other cereals as well as tea and tobacco are grown. Cotton and flax are cultivated in the lowlands especially in Gilan, where large areas have been reclaimed from the jungle.

The mountainous slopes of Azarbaijan, Kurdistan, Hamadan, and Luristan, extending down to Khuzistan, have rich pastures and fertile valleys. The climate in these regions is characterized by intensely cold winters and hot summers, with little or no humidity. Rainfall in Azarbaijan and Kurdistan reaches 380 to 890 mma per year.

The Khuzistan drainage basin, comprising much of the southwestern part of Iran, has a warm, semi-arid climate.

The Persian Gulf area is characterized by intense heat and high humidity during the summer months, but the climate is mild from November to March. Rainfall is scanty, but the soil is rich, and large streams allow intensive cultivation. Dates are the principal crop.

The central plateau is a great semi-arid plain with two great salt deserts that include one-fourth of the total area. Large fertile regions are found, usually along the periphery of the plateau. These include the plains of Hamadan, Tehran, and Khorassan and the great oasis of Isfahan, which enjoys adequate rainfall and temperate weather. Crops in the plateau area include wheat, barley, sugar beets, cotton, fruits, and vegetables (16).

Agricultural Research, Extension and Education

These three services to the agricultural industry are closely

related. It is the function of research in agriculture to discover and investigate the fundamental laws governing plant and animal life and their productivity and the way in which these laws should be applied to the processes of plant and animal husbandry in order to bring greater productivity and economic efficiency to the agricultural industry. It is within the sphere of extension to bring these discoveries to the farmer, to educate him as their value and usefulness and to assist him to apply these new techniques to his farming in his own interests and those of the nation. It is the duty of education to provide the technically equipped personnel needed not only to carry out research, but also to disseminate the existing stock of knowledge as teachers and extension officers at various levels, and to provide the necessary implements and tools for the progressive farmer and farm manager.

Agricultural Research

Research is basic to the agricultural economy of any country, and this is particularly so in the case of a developing country like Iran.

While the principles and methods of scientific agriculture, which have brought about such large increases in agricultural productivity in the more developed countries, may have universal applicability, it is seldom possible to transplant them without modification to other climates and other natural and economic conditions. There have been several unfortunate instances where breeds of livestock have been introduced to farmers in less developed countries without testing under local conditions, or where breeds of livestock have been introduced without first verifying their adaptability to local climatic, Food, and disease conditions, or where new varieties of crops from developed countries have

been recommended to farmers in less-developed countries without testing under local conditions. More and more it is being found that indigenous varieties of crops or breeds of livestock, after proper selection, give better results than do imported strains. Therefore, in most developing countries it is necessary to intensify applied research, concentrating on the immediate problems facing agricultural production. Applied and developmental research must be conducted in the ecological, economic, and social context of the country itself.

Agricultural Research in Iran

Agricultural research work is undertaken by the National Agricultural Research Organization in the Ministry of Agriculture under the leadership of a Research Deputy Minister. The research is conducted by seven Research Institutes and a Research Center which have approximately 14 major and 22 minor research stations.

Other organizations in the Ministry with minor research responsibilities include the Division of Agricultural Engineering, Ghazvin Development Organization, Kohkiloyeh Development Organization, Veramin and Garmsar and Saveh Development Organization, and Jiroft Development organization (10).

Some of the main research centers in the country are discussed here.

Forest and Rangelands Research Institute (FRRI)

This institute was established in 1958. Presently, this institute is one of several research institutes of a new organization called the Research Organization for Agricultural and Natural Research, and comes

under the Ministry of Agriculture and Natural Resources.

The staff includes 59 scientists and 10 technicians. The main activities of this institute are: Forestry research, range research, soil conservation research, watershed management and sand dune fixation.

Plant, Pests and Disease Research Institute (PPDRI)

The Institute started out as a laboratory associated with the plant protection organization. It later developed into a general directorate and expanded its activities until it became an independent institute. The staff includes 130 scientists and 40 technicians.

The main activities of this institute include study of pests and diseases afflicting growing plants and harvested crops with a view to prevention and control of damage.

Soil Institute of Iran

The Soil Institute of Iran was established in September, 1966, with the aim of increasing production of agriculture through intensified soil survey and classification, research, and action programs. The Soil Institute was founded through the incorporation of Departments of Soil Survey and Classification, Soil Fertility and Soil and Water Laboratories which were independent within the Ministry of Agriculture until 1966. The staff includes 38 scientists and 21 technicians. The main activities of this institute are research in soil and water resources utilization to increase agricultural production.

Some of the main animal science research centers are discussed later.

Agricultural Education in Iran

As developing nations attempt to move quickly toward modernization of their agriculture, their institutions of higher education, either existing or newly created, must assume leading roles. If they do not, progress will be stifled. Where an agrarian way of life predominates, opportunities for good agricultural education are essential in order that the national agriculture may be able to count on the services of well qualified young men and women. Thus, it is imperative that each country's agricultural institutions be improved continually and, furthermore, that they be developed realistically in terms of the requirements of the nation.

There are demands for agricultural graduates in the research institutions, in the faculties of agriculture of the new universities, in the extension services, in rural education institutions, plantation undertakings, and in certain commercial houses such as the fertilizer and chemical industries for technical services. In fact, the shortage of agricultural graduates is one of the most acute in Iran's developing economy and, assuming continued proper economic planning and execution, this shortage will continue to be felt for some time to come, since the rate of output of agricultural graduates from eight to nine unversities is likely to continue to fall short of requirements.

Development of Agricultural Education in Iran

The first agricultural school in Iran was established in 1901 near Tehran with a 5-year curriculum and a staff of European teachers. The aim was to train technicians in agriculture, but the school was

discontinued after seven years. In 1919, an elementary boarding school known as the "Farmers' School" was established by the Ministry of Agriculture. Another school was opened in 1922 near Tehran and became a secondary agricultural school in 1923 with a 2-year course and one year's practical work at the Minstry of Agriculture model farm in Karaj. This school was also eventually discontinued.

In 1932, another elementary agricultural school, later raised to secondary level, was established in Park Amindowleh, just south of Tehran. A total of 35 students graduated before it was closed down. In 1938, another agricultural school of the secondary level was established in Karaj mainly to train agricultural technicians. This school became a college of agriculture in 1950; in 1955, it was separated from the Ministry of Agriculture by a decree of the Council of Ministers and became the Faculty of Agriculture attached to the University of Tehran (43).

At the present time there are nine faculties and colleges of agriculture in different parts of the country. There are altogether 22 agricultural schools under the Ministries of Agriculture and Education, open to boys only.

Problems in Agricultural Education

The important problems facing agricultural education in Iran are concerned with young persons entering the colleges of agriculture who often come either from subsistence farms, where technical agriculture was essentially unknown, or from the cities. Thus, they have little or no skill in managing crops or animals for high productivity. At the colleges they are taught by faculty members who share this background and who, even though they hold advanced degrees from major universities

in developed nations, nevertheless have not been afforded opportunities to become skilled in the art and practice of technical agriculture. Consequently, present and past graduates are handicapped by lack of understanding of the problems facing the farm producer and are not equipped with the new information that could increase the productivity and profitability of farming. Because some are not experienced in production techniques, they often cannot show the farmer how to use new technology, nor can they often diagnose problems and prescribe useful remedies.

The choice of agriculture as a career is not as popular as are other professions for many reasons. While the course is comprehensive, requiring hard work, it is considered less impressive and less rewarding than are medicine, engineering, the law, and even the liberal arts.

Ways of encouraging pupils and students to take up agriculture and ways of encouraging those who have undergone training in agriculture to go into the country and practice what they have learned must be found. It has been observed by students of economics and sociology that most school dropouts and those who have finished agricultural training would prefer to be employed in Tehran and the vicinity.

The subject of agricultural education has not taken an important place in the schemes of economic development, yet agriculture forms the main occupation of the people. Teaching agriculture in schools has in the past been considered as a punishment and time wasted. It has been considered precious time away from studying English, math, and general subjects in order to pass their examinations. But whether they pass or fail, they must eat. They must grow food, and they must one day feed their families. To deny them the chance to learn something about food growing is not only to shorten their lives, but to destroy the nation.

Neither Iran nor any other country can remain a stable country without adequate food production. It is unfortunate, however, that agricultural education is far from popular. The colleges and the schools do not attract students; the pick of them apply to other professional institutions, and agriculture is chosen only as a last resort when admission to the other colleges cannot be had. The reason is, first, a degree or diploma in agriculture leads to no attractive government job, which forms the undoubted goal of all education in this country, however much one may deplore it. Applications to these colleges and schools are in direct proportion to the prospects for appointments. Now after revolution it is quite possible that the chances of employment in the agricultural sector will be increasing significantly. Correspondingly, there can be noted great increases in the numbers seeking admission, although the difficulty of gaining admission anywhere has also some bearing. Secondly, the fact that when all is said and done agriculture as a profession is looked down upon notwithstanding the lyrical praises of the husbandman and his role as the producer of the sustenance of mankind, and this feeling is reflected in a people's attitude toward agricultural education.

There is a scarcity of needed facilities such as laboratories, workshops, farm facilities, and agricultural land. Hardly any of the schools have libraries, and very few of the students have more than one or two books in Persian. Indeed, in many of the subjects, books in Persian do not exist. Indoor instruction consists of lecture notes entirely taken by students from the blackboard. Time devoted to outdoor instruction on the farm is not very considerable. There is a lack of boards of trustees or advisory councils in the agricultural centers. This need has been pointed out by officials of the Ministry of Agriculture supervising

the centers.

There is also a lack of administrative and financial flexibility. An unduly rigid and centralized system of administration and finance is probably harmful to efficient farm management.

Lack of coordination between the agricultural schools and the community, especially in planning the curriculum and in providing the students with practical experiences, is another problem confronting the authorities in agricultural education. The existing curriculum in the agricultural schools is still that of the Ministry of Education which was originally responsible for these institutions. Now that these schools are gradually being transferred to the Ministry of Agriculture, there is an urgent need and an opportunity for total revision of the curriculum.

Agricultural Extension in Iran

The Agricultural Extension Service was organized in 1953 under the Ministry of Agriculture. By 1956, all provinces operated extension offices with an average number of extension agents.

Agricultural Extension Service efforts are divided into three divisions: 1) the home economics division, working with farm women to improve food, clothing, and the home; 2) the agriculture division, working directly with farmers on better farming methods; and 3) the rural youth division, organized to work with farm boys and girls through work projects in their homes.

In 1965, 2,000 extension employees, agents, specialists, supervisors, and other staff members were engaged in extension work. This figure included 496 extension corps members. These corps members are

serving in the armed forces of Iran, and have educational backgrounds ranging from secondary school graduates to college and university graduates with Bachelor of Science to Doctor of Philosophy degrees in various fields.

Extension workers are not trained for any particular agricultural enterprise, but are trained to see the problems of agriculture as a whole, so as to be able to provide practical advice on most of the problems faced by the farmers in their local area.

The minimum education required for an agent attending extension education is secondary school; for a specialist, a Bachelor of Science degree; and for a supervisor, a Bachelor of Science degree with additional years of experience.

Colleges of agriculture do not as yet have the necessary intensive courses needed for preparation of extension personnel.

In the improved agriculture of the future, advising, persuading and helping farmers to adopt new techniques will be one of the most important responsible tasks. The need is recognized in Iran, and extension services exist in each province in the country. But they are seldom provided with the facilities which can make them really effective due to political, social, and economic conditions. The degree of agricultural development, local customs and traditions may all affect the particular pattern of the extension service required. Nonetheless, certain basic principles must be observed.

Extension services have often been government bureaucracies; many started with people who knew little about actual farming and who seldom ventured out in the hot sun to visit cultivators of two to five acres.

In Iran, the extension service continues to be severely handicapped

by shortages of funds and of trained personnel. Their effectiveness is further limited by lack of vehicles and travel funds, by the frequent need to work in different terrain, and by the fact that so many of the farmers with whom they are dealing are illiterate. Salaries of extension workers often remain too low to attract and retain suitably qualified personnel. Inadequate salaries, the low prestige of farming, and the lack of amentities in the rural areas combine to create a reluctance to work in the field with the farmers.

Home economics and rural youth work are now recognized as essential functions of the agricultural extension service. The development of home economics extension, however, has been relatively slow.

In the extension service of Iran, there is still generally an inadequate number of subject matter specialists dealing with extension problems of specific crops or animals to back up the work of the field agents. Such specialists have an important part to plan in the training of the field staff and also provide a useful link between the extension and research services.

Farm management and other economic aspects frequently tend to be neglected in agricultural extension work in Iran. Agricultural marketing extension is another neglected aspect.

Briefly in the past, the extension services of Iran received little if any response, particularly from food-producing farmers who tended to regard extension officers' suggestions and advice as suitable only for implementation with government money and therefore uneconomical for them to adopt. Sometimes the advice given to the farmer did not apply fully owing to insufficient experimentation. If the farmer realized this, it shook his confidence. The extension officer, due to insufficient

training, often seemed to lack some of the necessary attributes for his task. An extension officer must identify himself with the farmer. He should not only be able to speak the farmer's language but should understand the background and culture of the people he is advising. He should identify himself fully with their aspirations, social background and organizations. He must like people, possess integrity, industry, patience, be sincere, tactful, courageous, and possess a sense of humor. Above all, he must be technically competent and always be ready to make use of local knowledge. He must be willing to learn from the farmer as well as teach him. He must be ready to talk at the farmer's level and not "talk down" to him. He must always be ready to get his hands and clothes dirty and not behave as a "white collar" supervisor.

Relations Between Extension Services and Research Institutions, and Agricultural Colleges

A close relationship should exist between organizations for agricultural research and organization for extension work, but combining them in the same administrative branch may be undesirable. In some countries, such as the United States, coordination is sometimes achieved by placing both branches under the supervision of one technical administrative head. This helps to provide close agreement on general policy, and cooperation between the two distinct branches of service. Whatever the organization, it is desirable for the extension service administrators to be located geographically near a research institution, so that cooperation and consultation between the members of the two ser vices can be made easy.

A close working relationship between teachers in agricultural colleges, secondary agricultural schools, farm schools and extension services securing the same area is also highly desirable.

In Iran, teaching, research, and extension tend to be carried out by separate institutions.

In general, the communication among the three functions is quite weak. Researchers tend to work in isolation, with little or no dialogue with the extension agent as a basis for knowing what problems rural people are facing. And extension people are not always well informed about the latest research findings. The teaching tends to have little contact with current research.

In Iran, most of the excellent work carried out in the research station was published in foreign journals, to enhance the academic prestige of the researchers who could use these papers as springboards for higher academic appointment at universities. Much of the data were locked up in the files and the cabinets of the Director of the Research Station. Very little extension work was done, and very few of the results passed on to the farmers--to the people who actually matter in our agricultural economy--and no teaching was done by any of these researchers. And teaching has tended to be isolated from the other two functions. Substantial efforts will have to be made to integrate these three functions in order that maximum payoff can be obtained from the investments in this sector.

Nature and Extent of the Livestock Industry

Livestock production has been regarded as a side line farming in Iran agriculture. Animals serve several purposes. They are used for

motive power, and provide significant quantitites of milk products, meat, wool, mohair, hides, and skins.

The growing demand and the deep seated traditions of the Iranian people and the nature of the land in many of the provinces are such that animal production is destined to remain an important part of the agricultural economy. However, the livestock sector has received relatively little government support. In general, crop production dominates the agriculture of Iran, with livestock production decidedly in second place.

Livestock fulfills a role largely as residual users of land. In most of Iran, livestock are handled in the traditional village manner. Commercial pasturing is carried out on non-cropped land around the villages. In addition, the livestock graze on the residues of each year's crop. At present, very little supplemental feeding of forage is carried out, and there is virtually no feeding of grain. Available feed supply per animal unit appears to be actually below the mainentenance requirements for the animal population during much of the year.

Feeds are critical requirements in livestock development programs. They should not only be available and of the right kind and quality, but also at price levels within the reach of livestock raisers. Product output per animal unit is quite low compared to the product output per animal unit of many of the important animal-producing countries. The average yield of cows' milk in Iran is only around 2.73 kilograms per year, and has increased very little in the last decades (24). Death and other losses due to disease are limiting factors in the rapid growth of the animal science industry, and overcoming these problems should form a vital part of the livestock development programs. Environment, management practices, nutrition, and other conditions favoring the growth

and multiplication of disease-producing agents are ever present, while sera, vaccines and other biologies are generally beyond the purchasing power of small stock farmers. There are not enough adequately trained technicians to service the livestock industry. Production-management packages need to be developed from ongoing research and disseminated through a well structured training program.

Levels of Technology in Animal Husbandry

Levels of technology pertaining to animal husbandry are generally indicated by breeds, delivery interval, production performance, litter size, feed conversion ratio, resistance to environmental stress and disease, longevity, etc.

Poultry Occidental breeds have been introduced without much difficulty of acclimatization in most parts of the country, and their productivities seem high. In fact, commercial hybrids of poultry developed in the United States generally offer little problem regarding adaptability to local climate.

On the other hand, ruminants have not been improved as much. There have been crosses made of indigenous cattle with exotic breeds, and good results have been obtained (e.g., crossbreed of native cows, Sarabi and Golpayegani with Shueitz, has shown satisfactory results in temperate regions).

Cross-breeding is a rapid method of improving livestock, but it should be considered as a means for selection rather than for utilizing hybrid vigor. For selection and cross-breeding, performance testing is very important and this requires a great deal of work. Indigenous breeds of Sarabi, Galpayegani and probably buffaloes have adequate

potential, as exemplified by good results obtained in milk-producing capability tests in Iran (17).

Regarding reproduction, ruminants have been faced with some difficulties. According to studies done in Asian countires, these difficulties are shown especially in the case of water buffalo.

Many buffaloes show silent heat, which is probably a main reason for the long calving interval. Main causes for silent heat are malnutrition, exhausting field work as a draft animal, high temperature, and parasite infection. Deep frozen semen is an effective method of reproduction, but attention should be drawn to the fact that semen of individual bulls have different tolerances for freezing. Using deep frozen semen in Iran has been utilized since 1963. Table V shows the amount of frozen semen imported in different years.

Fertilized ova transfer needs to be studied as a useful new technique for the future.

Better management of animals in terms of shade, water splashing, wind, etc., also helps to increase animal productivity.

Feed conversion ration has been low. There is no question that if animals eat the same food as man (cereals) to produce milk or meat that efficiency of production is lower than if eaten directly by man.

Ruminant animals generally have been given the role of scavengers in arid parts of the country. They are fed those coarse fibrous feeds which cannot be utilized by man or chicken and graze land unsuitable for cultivation because of its topography or lack of water. Productivity under these conditions is low because the daily intake of digestible energy is low.

Feed efficiency can be increased by feeding readily digestible

TABLE V

IMPORTATIONS OF FROZEN SEMEN IN IRAN

Year	Amount Imported Frozen Semen
1963	500 Doz.
1964	1,478
1965	1,676
1966	1,122
1967	957
1968	97
1969	454
1970	1,000
1971	2,226
1972	4,000
1973	6,000
1974	17,500
1975	21,000
1976	31,000

Source : (37)

feeds because the energy intake per animal can be greatly increased. This allows a greater percentage of the daily intake to be used for production and a smaller percentage for maintenance. This is true, of course, only if the available animals have the genetic potential for rapid growth or high milk production. Further, we must assume freedom from disease and parasites (17).

The need for comprehensive research on nutritional requirements and chemical composition of different feedstuffs should be strengthened. To this end, collaborative research on the part of animal scientists, veterinarians, technicians, and economists appears essential.

Animal Health and Control of Pest and Disease

Much of the agricultural wealth of Iran is vested in livestock, and many breeds of domesticated animals well adapted to their natural environment are to be found throughout the country. Unfortunately, malnutrition, undernutrition, faulty animal breeding methods, unsatisfactory animal management and, in particular, the ranges of infectious disease and parasitic infestation cause unproductive, poor quality, waste, and heavy losses.

Not only do these losses and wastes represent a serious problem for large numbers of people whose welfare depends on livestock farming, but they also affect the country's economy adversely.

The importance of animal health in the development of the livestock industry in the country cannot be overemphasized. Animal health stands out as one of the major constraints of livestock production in the country. Animal health becomes ever more crucial as potentially more productive breeds of animals are introduced and as the level of nutrition

improves. Several studies have shown very high rates of return to animal disease control when nutrition is improved. To realize these potential gains from animal health measures, the training of workers in this field must be carefully matched to the technology relevant to village livestock production systems; furthermore, a sufficient number of workers must be made available so that programs covering wide areas can be instituted simultaneously. The work of a limited number of field workers is soon undone by the rapid spread of pests and from untreated areas.

Epidemic kinds of diseases such as foot and mouth diseases, rinderpest, etc., as well as respiratory types such as pneumonia, influenze, and others have caused serious losses in Iran.

In summary, there is a serious shortage of qualified veterinarians engaged in animal health within the government service, and this becomes a handicap in the progress of the development of the animal industry. There is only one veterinary medicine college in the country, with a small number of students graduated annually.

According to FAO recommendations, at least one veterinarian is needed per 15,000 head of animals.

Animal Feed Situation in Iran

The scale of animal feeding on ordinary cropping farms depends on the availability of various feed resources on the farm concerned which, in turn, is determined by the kind and yield level of grains and other crops. The availability of natural grass, the size of holdings, and the amount of grain milling byproducts returned to the farm are also associated factors.

On ordinary farms, both draft power and manure from livestock are

important for crop production, and most animals can usually be fed on roughages and byproducts available on the farm. So these two enterprises, i.e., livestock raising and crop production, complement each other.

The provision of feeding stuffs of adequate nutritional quality is likely to be the most limiting factor in increasing livestock production, provided there is a market demand for the livestock products. This is not to suggest that aspects such as breed improvement and disease control are unimportant. They should be considered concurrently. But in most situations, animal numbers and production will be controlled by feed supply and breed improvement and health measures will have little effect unless nutritional requirements are met.

Pasture and Rangelands

Rangeland productivity in Iran is far short of the potential, and the major cause is rangeland over-use.

In the last several years, the deterioration of rangelands has increased markedly. Geographers indicate that about 100 million hectares are available for grazing, including some low quality range classed as mountains and deserts (28).

Heavy overgraze occurring since 1970 has further damaged ranges. A conservative estimate is that today almost three-fourths of Iran's rangelands are in poor to very poor conditions.

The Production of Fodder Crops

Practically no fodder crops are grown under dryland conditions, but alfalfa, sanifoin and clovers are cultivated under irrigation. The large

territories of the country and the distances between the various irrigated areas have led to a natural isolation of various alfalfa strains and these developed strains have been named after the main town in which the seed is sold (Ahwaz, Hamodan, Isfahan, Bahm alfalfa, etc.). In the mountains, sanifoin and clovers are grown under irrigation and used for stall feeding, or dried and stored for the winter. Stacks of hay made from the spontaneous vegetation can often be seen beside the houses of mountain farmers (8).

The first and probably the most important difficulty in fodder crop production is psychological. The farmers who have been accustomed to growing cereals or cash crops have always felt that livestock fodder should be provided by nature. They would certainly not think of reducing their cereal production, which is essential for the maintenance of their families, in order to grow fodder legumes. Besides, farmers are very hesitant to change their farming practices. It would, therefore, be necessary, at least during the first year, to show to the cultivars the potential advantages of a legume for the subsequent cereal crop and recommend only those fodder species which are grown in a way similar to the crops with which they are familiar. The cultivars should be taught what the advantages of a fodder or grain legume are by being shown the increase in milk production brought about by adequate feeding.

Presently the staff includes 61 scientists and 48 technicians. It has training facilities in various subjects such as Immunology, Virology, Bacteriology, Parasitology, Histo, Pathology, Biochemistry, Tissue Culture and Vaccine Production Techniques, Laboratory Animal Breeding. Main activities of this institute involve Virology, Bacteriology, Parasitology, Biochemistry, Histo, Pathology, Immunology, Breeding of Laboratory

Animals, Production of Different Vaccines and Sera (10).

Safiabad Agricultural Research Center

This center is located at Safiabad in Khuzistan Province. It was established in 1965 and recognized in 1972. Presently, the staff includes 29 scientists and 43 technicians. Experimental fields are annual crops (irrigated) - 278 ha, phurionnual plantations - 15 ha, cultivated pastures - 30 ha, man-made forest - 1 ha, nurseries - 1 ha, others - 45 ha. The main activities of this center are research projects in the fields of crop testing, irrigation, soil fertility and plant nutrition, animal research, horticulture (trees, vegetable/fruit culture, plant protection, pest and disease control, weed control) (10).

Importance of Dairy Cattle in Iran

It is impossible to think of improving agriculture in Iran without having good cattle. Holdings are small, agricultural practices are old-fashioned, and marketing of produce continues to be done by bullock carts. Cattle are, therefore, indispensable for the rural economy. They provide the required motive power for various agricultural operations including rural transport, threshing, and also manure for the fields. Again, milk and milk products, which are the only source of animal proteins in the diet of the majority population of the country, come from them.

The farmer also supplements his meager resources through the sale of milk and milk products, especially during the wide gaps of time that occur between the sowing and marketing of agricultural crops. Thus, development of cattle, both in regard to their milk yield and drought

capacity, is very important for the country.

Dairy cattle are rather efficient converters of feed protein into food protein. The overall conversion of feed protein into milk protein can be more than 50 percent for high-producing dairy cows, but it is approximately 30 percent for cows of average productivity (47).

Generally, good cattle are found in areas where fodder crops are grown abundantly. It is, therefore, necessary that a balanced agricultural policy should be evolved in which the cultivation of fodder crops finds an appropriate place in the crop rotation program. Cultivation of leguminous fodder crops should be particularly encouraged, as these not only provide a highly nutritious and inexpensive cattle feed, but also supply very valuable green manure for the fields.

Iranian breeds of dairy cattle do not have a high reputation in foreign markets. There are a few dairy breeds of cattle in Iran which are named based on their origin but their producing ability is low. Development of cattle can be taken up successfully only if we know the quality and potentialities of the stock available in the country. The agricultural research stations and agricultural colleges could make a systematic study of the indigenous breeds and the more important breeds of recognized cattle and buffaloes in the country.

It is generally accepted that cattle of the large exotic dairy breeds, particularly the Holstein and Brown Swiss, are best suited to commercial dairying in Iran.

Most of the cattle of Iran are indigenous, often of nondescript character. Exotic breeds of the European dairy type have been brought in recently, especially since an interest in increasing milk production has developed.

The chief characteristics of the important recognized Iranian breeds of dairy cattle are given below:

Sarabi: The most popular breed of dairy cow in Iran is the Sarabi, originating from Sarab, a small town in eastern Azerbijan, which is a mountainous region. Sarabi is a breed which resembles the Jersey breed. Huskey (43) in his report of 1972 estimated the producing ability of this breed at 600-800 kg/lactation. Razi et al. (34) began a 5-year experiment in 1968 on milk production of Sarabi dairy cows, selecting 29 cows on a random basis. All milk records were adjusted on a mature equivalent basis, 4 percent fat corrected milk, 305 days' production, and twice daily milking. They concluded that 95 percent of the Sarabi dairy cows ranged from 1473 to 1637 kg of milk per lactation (28).

Kurdi: This indigenous breed of Kurdistan, which is located partly in northwestern Iran, has been the pack animal of the Kurds for countless generations. It is said to be of Brachyceros origin, and in Iran is found the farthest east of any of the nonhumped indigenous breeds of cattle. The breed is fine-boned and has a poor conformation by Western standards. Mature cows weigh less than 600 pounds--the small size apparently being the result of generations on very low levels of nutrition. Quite uniform in appearance, the Kurdi are small, black or nearly all black, and nonhumped. The legs frequently shade to a greyish color, and there is often a grey marking on the forehead and on the underline. The Kurdi are used for draft in areas where there is cultivation (35).

Golpayegani: The second most popular breed of dairy cow in Iran is the Golpayegani. This breed originated in Golpayegan, in the central area of Iran. Lactation period of the Golpayegani cows is 254 days (ranging from 166 to 310 days), and its annual milk yield is 1276 kg

(ranging from 852 to 2238 kg). The composition of milk is said to be 13.29 percent fat, 9.39 percent non-fat solids, 3.57 percent protein, 5.19 percent lactose, and 0.68 percent ash. Although Golpayegani cows are economical for intensive milk production, a small-size dairy breed suitable for rural conditions could probably be established by selection of cows for milk yield and quality (35).

Sistani: This breed belongs to humped Zebu cattle with some blood of Brachyceros cattle (according to the conformation characters). The animals are of medium size; they are completely black in color, but there are some black and white among them, similar in appearance to Holstein cattle. The head is rather long, the muzzle is broad, the jaw is rather strong, the eyes are bright, the bridge of the nose is straight. The horns are short, the neck is of medium length, the body is rather strong. The pin bones are rather narrow, the legs are rather short but strong, with straight forelegs. The feet are short with deep heel and level sole. In indoor-kept animals, the hoof is sufficiently worn out. The skin is of medium thickness, but the hair is rather coarse. The udder capacity is medium and moderately developed, and no rudimentary teats can be seen on the udder.

The mature cows and bulls should weigh about 250 to 400 kg and 350 to 500 kg, respectively. Milk production of Sistani cows varies significantly, depending on the level of feeding. The lactation normally lasts seven to eight months and in better managed animals, up to nine months. Butterfat percentage is about six percent or more (39).

Dashtyari: Dashtyari breed is from the same origin, i.e., Zebu cattle, with some Brachyceros blood. This breed is not so numerous as are the Sistani breeds. This breed exists mostly in Balutchestan,

especially around the Tchah-Bahar, Iranshahr, and Dashtyari. There are several thousands of these cattle in this area. The Dashtyari breed is smaller than the Sistani breed; its color is red and the fineness of skin and hair is more pronounced than in the Sistani breed.

The development of the udder is good and these cattle seem to be a good milk type. Milk production varies significantly, depending on the level of feeding. When the animals are offered more feed and concentrate, the milk yield is rather high, and there are some cows which give more than 12 kg milk per day during the first-half of lactation. But when the cows are fed on only the marshy grasses, the milk yield is very low and they give only up to three kg per day after calf weaning (39).

Nondescript Cattle: Over most of Iran, the mature cattle are usually of a nondescript character, humped, and varying considerably in size and color. Nearly solid black animals are seen, but a wide range of mixed color is common. The horns are of medium size and upturned, but often with a forward thrust. Mature animals range in weight from 500 to a maximum of 800 pounds. Village dwellers own most of these cattle.

In addition to the afore-mentioned indigenous breeds, Iran also has the native cow crossed with Brown Swiss or Holstein which produces about 7,800 pounds per year, and the Holstein, which is imported, giving about 9,200 pounds per year (22).

Nearly 40,000 head of dairy cattle were imported by air during March 21, 1973, to March 20, 1978. In addition to the United States, other cattle suppliers included Israel, The Netherlands, Canada, West Germany, and Australia. Iran's Agricultural Ministry was expected to import 20,000 head of dairy cattle in 1978-1979, most of them from the

United States. The United States' exports of dairy breeding cattle to Iran in 1977 jumped 30 percent from the 1976 levels to 9,512. The United States accounted for 85 percent of the 13,500 dairy animals imported in 1977. The Iranian government paid the entire air transport cost of imported cattle (amounting to roughly $900 to $1,100 per head for bred heifers from the United States).

Iranian dairymen imported primarily Holstein. Specifications generally called for the animals to be first-calf heifers five to seven months pregnant, bred to a pedigreed bull of the same breed and with a minimum annual production potential of 6,000 liters of milk at the rate of 3.3 percent butterfat each. Bulls imported were registered, and from dams having a production of at least 10,000 liters (15). Among other breeds, the Swiss Brown, Friesian, Holstein, Friesian (imported from the United States), and Red Danish breeds are most prominent. In the temperate climate, all of these northern cattle do reasonably well with good care.

Existing Dairy Production Systems

The most important system of production is village herds. These are usually herded by small boys and old men during the day to graze the grasslands near the village, and brought back to the village at night to be distributed to their various owners.

Dairying in the traditional sense involves small-scale (one to four cows or milking buffaloes, mostly of indigenous breeds), producers milking for family consumption or with a small dairy. Equipment is limited to a shed, if any at all. If processing is done, it is on a small scale in centralized plants. Purchased feed may or may not be used. Feeding

of animals is not under any special balanced ration program, but depends on region, customs, climate and/or season. Animals are kept indoors or outdoors. Wheat straw, alfalfa hay, some fodder crops, beet pulp, and leaves of trees in addition to barley, corn and cottonseed hull as concentrates are fed, as well as grazing of natural pastures, and on the stubbles of wheat, barley, rice, etc. The levels of hygiene and technology are low; production costs are also low despite poor yields since return to labor (the major source other than animal) is low. Larger traditional systems soon run into feed supply problems, which necessitate the purchase of more feed and an increase in the firm's costs. Hand milking is the only procedure for milking animals among this group.

Private commercial dairy farms are located mostly around the large cities for the best market availability. They take advantage of many high performance imported dairy cattle, mainly of Holstein breeding. Cows are kept mostly in barns, and feeding systems are much more improved; they depend mainly on purchased feed concentrates. Animals are fed mainly in feedlots, being fed roughage (hay, silage, beet pulp, fodder crops, etc.), concentrates (corn, milo, barley, oat, etc.), and supplements.

Holstein-Friesen cattle are kept mainly at specialized dairy cattle farms, the number of which has fluctuated. On some farms, producers have encountered feeding as well as management problems. Unbalanced rations are fed, green roughage is scarce; grain straw is the sole roughage given on most of the farms. Under these conditions, the cattle cannot yield up to their potential. However, it seems that under proper feeding and management, the Holstein-Friesin cattle in Iran would have a milk yield comparable to that of other countries in the developed

countries.

Among the third group of producers are the large multiproducer enterprises which produce milk as well as meat, eggs, and other animal and agricultural products. In this group, the government formerly had a significant role in sharing or subsidizing. These complexes were usually incorporated with foreign companies. Here the imported dairy cattle were usually the only animals used for milk production.

Water Buffalo

It is difficult to obtain a reliable figure for the population of water buffaloes in Iran. Estimates vary from 200,000 to 740,000. Veterinary Department of the Ministry of Agriculture estimates for 1969 were 314,000 (40). Up-to-date estimates for the main buffalo raising provinces are shown in Table VI.

TABLE VI

WATER BUFFALO NUMBERS IN SELECTED PROVINCES

Province	Number (thousands)
Whole country	236,381
West Azarbijan	87,972
East Azarbijan	73,846
Khuzistan	44,553
Mazandaran	13,600
Gilan	9,214
Central Province	3,496

Source: (24)

Two distinct uses are made of water buffalo in the country--draft power and milking. The draft power breeds are the swamp buffalo and the river buffalo, while milking buffalo are of the Murrah type, although the Murrah buffalo are also good draft animals. The origin of the early stocks is obscure. Domestic buffaloes were probably kept in Iran many centuries before the Christian era. It is known that there were buffaloes in the Indus Valley to the east and in Mesopatemia to the west. In 538 B.C., the Medes and Persians overran the Iranian plateau. They may have used buffaloes. The expansion of Islam spread buffaloes to many lands, and it may be assumed that they were taken to Iran by the seventh century A.D. Murrahs have been imported from India in recent years. Nili-Rani characteristics can be noted in many of the nondescript buffaloes in the vicinity of Tehran.

Buffalo raising in Iran is concentrated mainly in the northwest and southern areas of the country. In northern regions, buffaloes are usually raised for mixed activities as well as for milk production. In southern regions, buffalo are raised in a cooperative system in which large herds are centralized in areas called Gavmish Abad (buffalo area), and some hired herdsmen take care of these animals.

Management Practices

The situation in Iran is somewhat similar to that of other northeast countries, in that buffaloes appear to be regarded with apathy in official quarters and there is little or no encouragement to improve breeding and management. Nevertheless, there are some excellent buffalo stocks and the animal continues to be popular with Muslim peasant farmers.

Overall, feeding and management are primitive, feeding depending mainly on grazing usually on inferior pastures. Straw and poor quality hay are fed seasonally. The rearing of buffalo calves is not carried out in accordance with any recommended system. The young suck naturally until the age of about six months, but are selcom allowed to have sufficient milk. They are weaned abruptly to dry roughage and concentrates; the amounts given vary widely between farms. No breeding system is followed. Males and females of different ages are allowed to graze together on common land, where matings occur haphazardly and no records are maintained.

Work

Agricultural practices in rural Iran are still for the most part quite simple, with much hand labor. Mechanization is not widely practiced, and there is still much reliance on the working animal. Livestock nutrition is poor and, although animal production is important as a source of income, feeding techniques are primitive, pastures are seriously overgrazed, and few forage crops are produced.

Many buffaloes are maintained exclusively as draught animals, used for plowing and pulling carts, road haulage, and threshing barley. McArthur (FAO) noted the importance of the buffalo in certain areas of Iran for draught purposes and milk production, and recommended that work should be initiated to increase milk production by breeding selectively.

Milk

On the whole, buffaloes in Iran are kept chiefly for milk production. Milk yields are higher than those of local dairy cows. Many

areas along the rivers are more suitable for buffaloes than for cattle. The average daily milk yield is about six liters in a lactation of approximately seven months, with butterfat content of nine percent. Some high individual milk performances are recorded. The estimated total annual production of buffalo milk is 55,000 tons (13).

A considerable number of buffaloes are maintained for milk production in Khuzestan. A survey of the Abadan area reported that the daily milk yield varied between four and ten liters per day, with an average of six liters, in a lactation period of approximately seven months (13). Butterfat content could be over nine percent. It was considered that in this particular area, buffalo raising was the most important aspect of agriculture and that it should be supported technically and financially, and it was felt that nutrition, breeding, and housing all required implementation of improved practices.

Khuzestan is one of the best areas for fodder crop production, but the market for fodder crops is poor and transport is costly and difficult, especially for the small farmer. There are about 76,000 buffaloes in Khuzestan, yielding between ten and fifteen liters of milk per day. Most of them usually are sent to the slaughterhouses of Abadan and Shushtar. The animals are given nine kg of a mixture of rice bran and rolled barley per day, with 12 kg of chopped straw and the same weight of alfalfa (13).

Much of the buffalo milk is used for the preparation of ghee. There is a good market for ice cream during the summer, and this causes a rise in the price of milk. Fresh milk is not popular, owing to its short storage life in local conditions. Soured milk, yoghurt, cheese, butter, and buttermilk are all made in various localities. One or two

buffaloes are often kept in herds of dairy cows to increase the butterfat content of milk in bulk. Table VII shows average daily milk production and total lactation periods of buffaloes in the chief buffalo raising provinces in Iran.

TABLE VII

DAILY MILK PRODUCTION AND LACTATION PERIODS FOR WATER BUFFALO IN SELECTED PROVINCES

Province	Average Daily Milk Production/Head (kilograms)	Average Lactation Period
Whole country	4.17	212
Zanjan	6.50	285
Khuzistan	6.50	203
Sistan and Baluchestan	6.17	323
Fars	5.70	204
Mazandaran	5.43	199
Central Province	4.00	180
Kurdistan		

Source: (24)

Meat

There are no official restrictions on the slaughter of buffaloes in Iran. Methods are usually wasteful. The number of buffaloes slaughtered has increased in recent years, but the average carcass eight has declined.

Buffalo Breed Characteristics

Northern types of buffaloes in Iran are different in shape and characteristics from those in the south. The size of the southern buffalo is larger, with longer legs and tail. The entire body is covered with a short and dark black hair, but usually there is white hair in the forehead and nose area, and a small hump between the long neck and back. Northern buffaloes have relatively smaller body size, with grey color hair covering most of the body. Some of the Azarbaijan and Khuzistan buffalo characteristics are discussed in Table VIII.

TABLE VIII

AVERAGE MEASUREMENTS OF TYPICAL BUFFALOES OF THE AZARBIJAN AND KHUZISTAN REGIONS

	Azarbaijan (cm)	Khuzistan (cm)
Height at withers	138	143
Height at hook bones	137	141
Girth	208	202
Head length	48	48
Body length	136	139
Forehead length	20	19
Chest depth	76	75
Chest width	50	56

Source: (40)

Statistical Trends in Cattle Population

Data on cattle are grouped in two categories where possible. The first is total cattle numbers (Table IX), the second is an estimate of the total number of milking cows (Table X). This breakdown is useful in lieu of actual data on animal use, as some simple ratios often give a good indication of the major economic use being made of a national cattle herd.

TABLE IX

TOTAL CATTLE POPULATION IN IRAN,
1948-1952 THROUGH 1973
(Unit: 1,000 HEAD)

Year	Number
1948-1952	3,388
1952-1956	4,410
1961-1965	5,459
1966	5,200
1967	5,350[F]
1968	5,500
1969	5,300[F]
1970	5,200*
1971	5,300[F]
1972	5,516
1973	5,640[F]

F = FAO estimates
* = unofficial estimates

Source: (12)

TABLE X

NUMBER OF MILKING COWS IN IRAN 1961-1965 THROUGH 1972

Country	1961-65	1970	1971	1972
Iran	1,310	1,248[F]	1,272[F]	1,324[F]

[F] = FAO estimates

Source: (12)

Cattle for either meat or milk (or both) represents an area of major emphasis in Iran. Cattle are seen as a key element in diversifying protein supplies through the provision of more meat and milk, and also as a means of more fully utilizing existing land resources in the country.

From Table IX it is obvious that these efforts have manged to boost cattle population in the country. A more relevant caomparison, however, is cattle population per capita. An index of cattle population over the 1948-1952, 1960, and 1972 periods as well as population indexes for these corresponding periods using 1948-1952 as the base of 100 is set out in Table XI. While it must be remembered that the supply of animal products is a function not only of the total number of animals but also the flow of animal products from a given stock (the efficiency factor), it could be said that the rates of increase of efficiency have been much less than the population increases. That is, for a given annual increase in animal product supplies in Iran, most of the increase would probably come from an increased number of livestock rather than from an increased

level of efficiency of the given stock of animals. In Iran, severe competition exists for grazing resources.

TABLE XI

INDEX NUMBERS OF CATTLE POPULATION AND HUMAN POPULATION, 1948-1952, 1960, and 1970 (1948-1952 = 100)

Country	Human Population			Cattle Population		
	1948-1952	1960	1972	1948-1952	1960	1972
Iran	100	123	184	100	159	163

Source: (12)

Due to the importance of cattle and water buffalo in Iranian economy, an attempt is made to see if any relationship could be identified which had a strong influence on bovine numbers. Cattle and water buffalo populations are thus regressed on human population and a simple time trend.

These results for cattle are given in Tables XII and XIII. Table XII indicates the simple correlation between the variables. There is a close movement between the two variables.

Artificial Insemination

Artificial insemination has been successfully adopted to improve livestock breeds in Iran. This method in cattle was first performed in Iran in 1950. Until 1954, a preparation for launching the program was

TABLE XII

REGRESSION COEFFICIENTS FOR THE VARIABLES IN THE CATTLE REGRESSION ANALYSIS

Country	Constant	Livestock-Human Population Coeffiecient	Livestock Time Coefficient	R^2
Iran	-14,909.0	836.46 (117.5)	-682.8 (106.1)	0.84

[2] = standard error of the regression coefficient.

Source: (13)

TABLE XIII

CORRELATION COEFFICIENTS BETWEEN THE VARIABLES IN CATTLE AND WATER BUFFALO REGRESSION ANALYSIS

	Correlation Between		
Country	Cattle Population and Human Population	Cattle Population and Time	Buffalo Population and Human Population
Iran	0.55	0.43	0.53

Source: (13)

limited to Tehran. Since 1954, artificial insemination activity was expanded to other cities (17).

An artifical insemination center at Mehrabad, near Tehran, is operated by the Ministry of Agriculture. It is adequately equipped and has several good Brown Swiss bulls. In 1964, 25,000 services were repeats. Conditions were such that the conception rate could not be determined. Lack of adequate communication made it necessary for the inseminator to visit his round of farms daily so that any cows detected in heat during the past 24 hours could be bred. There is some reluctance on the part of the small farmer to employ a procedure that is so foreign to his cultural background. If this unwillingness to change can be overcome, artificial insemination could be a most effective tool for the improvement of the small dairy herds. However, in 1976, nearly 53,212 cows had been bred artificially (17).

Deep frozen semen, which is now being introduced, is useful expecially in importing exotic breeds. It comes as ampoules, straw or pellet, and each preparation has its own special merits. To begin with, therefore, it is advisable to study these methods.

Sheep and Goats

Native breeds and types of sheep and goats developed over a period of many centuries under the harsh nutritional and environmental conditions of Iran are apparently well suited to survive and produce at low production levels under such conditions, even though overall production/unit of feed consumed is low.

Today, the number of sheep in Iran has reached a level of around 35,000,000, and goats around 14,600,000. Meat for human consumption in

Iran is derived mainly from sheep, goats, cattle, and poultry. The largest source of meat is from sheep and goats (Tables XIV and XV).

TABLE XIV

TOP COUNTRIES OF THE WORLD IN NUMBERS OF SHEEP AND PRODUCTION OF MUTTON AND LAMB - 1974

Number of Head[1]				Production of Meat[2]		
Rank		Total Numbers (1000s)	% of World Total	Rank	Total Production (1000 tons)	% of World Total
1	Australia	143,175	14.1	3	511	3.6
2	U.S.S.R.	142,634	13.8	1	1,111	18.7
3	China	72,967	7.1	4	360	6.0
4	New Zealand	55,883	5.4	2	542	9.1
5	Argentina	41,500	4.0	11	155	2.6
6	Turkey	40,093	4.0	9	179	3.0
7	India	40,000	3.9	13	129	2.2
8	Iran	35,000	3.5	7	208	3.5
9	South Africa	33,622	3.0	8	187	3.1
10	Brazil	26,500	2.6	29	41	0.7
11	U.K.	20,193	2.0	5	276	4.6
12	U.S.A.	16,394	1.6	6	234	3.9
13	Spain	16,306	1.6	10	156	2.6

Source: (42)

There is a wide variety of sheep found in Iran. There are fa t-tailed, fat-rumped or thin-tailed sheep. Sheep is the most numerous class of livestock in Iran. In Iran, sheep is not only a major source of meat, but it is also an important source of milk and wool. Sheep

are the second most important source of milk in Iran (30.6 percent of total milk from sheep) (17).

TABLE XV

TOP COUNTRIES OF THE WORLD IN NUMBER OF GOATS AND PRODUCTION OF GOAT MEAT - 1974

Number of Head				Production of Meat		
Rank		Total Number (1000s)	% of World Total	Rank	Total Production (1000 tons)	% of World Total
1	India	69,000	17.3	1	295	18.5
2	China	59,236	14.9	2	294	18.4
3	Nigeria	22,390	5.6	3	69	4.3
4	Turkey	18,007	4.5	7	46	2.9
5	Ethiopia	17,322	4.3	5	55	3.5
6	Brazil	16,000	4.0	15	24	1.5
7	Iran	14,600	3.7	4	57	3.6
8	Pakistan	12,749	3.2	8	44	2.8
9	Bangladesh	11,938	3.0	6	53	3.3
10	Mexico	9,200	2.3	23	15	1.0
15	U.S.S.R.	5,900	1.5	9	44	2.8
13	Yemen AR	5,100	1.0	10	42	2.6
21	Greece	4,400	1.1	12	36	2.3
31	Spain	2,207	0.6	24	14	0.9
41	U.S.A.	1,350	0.3			

Source: (42)

Most of the sheep are raised in small flocks by the small farmers and the landless villagers, grazing them on government lands and waste

lands in the villages. Village flocks are kept around the village and are given grain as feed supplement. About half of Iran's sheep and boats belong to nomadic groups.

Limited efforts have been made to do cross-breeding with exotic breeds to increase carcass weight and wool production. Their production performance and growth characteristics can be improved through upgrading by selection and with better feeding. Most of the Iranian sheep breeds are dual- or multi-purpose animals producing milk, meat, wool, etc. Their reproduction performance and growth characteristics can be improved through upgrading by selection and better feeding.

The characteristics and milk-producing ability of some of these breeds are discussed here.

Karakul

This is a fur-breeding type of sheep. Young lambs are slaughtered for their pelts, while more mature animals may be slaughtered and the meat eaten. They are not raised primarily for meat. Karakul yields Persian lamb skin used in the manufacture of women's very expensive coats. The Karakul thrives in very dry environments; most are produced in Iran and the skins are widely exported. The lactation period when the lamb is kept with the ewe is about 120 to 130 days, but for the ewe without a lamb, it does not exceed 100 days. The maximum production of milk is in the second month of lactation, and may reach one liter daily, but average production is around 450 to 500 gm daily (37).

Moghani

The lactation period of this breed is estimated at four to four

and one-half months, with maximum production usually in March and April reaching about 1-1.3 kg, but average daily production is about 0.6-0.65 kg. The milk fat percent is about 6.4 percent.

Makoii

Makoii is a wool breed which has a lactation period of 130 to 140 days with only 30 to 40 days used for lamb feeding and the rest to produce milk for human consumption. Average milk production of this breed is rather high and is estimated at 650 to 700 grams/daily, with total milk produced/lactation around 90 kg.

Zell

This is one of the more famous breeds of sheep in the country. This is a native breed found in the northern part of Iran, mostly in Mazandran, Gilan, and Gorgan. Zell is a small breed of sheep; with their long feet they climb the mountains easily and do a good grazing job. Feed intake of this breed is low, and their twinning rate is about 10 percent.

Goats

Goats tend to be more numerous in the w-rld in areas of subsistence or primitive agriculture where they are kept primarily for meat. This statistic is supported by the data presented in Table XII. There is no first or second world country in the top ten countries in numbers of goats. Likewise, nine of the top ten countries in the production of goat meat are third world or lower. Iran is ranked seventh in the world.

Goats make up over twenty percent of the total livestock in Iran;

they are valued primarily for their meat. However, they are also an important source of milk, supplying more than 10 percent of the milk produced in the country.

As to goat rearing practices, numbers may vary from a single animal in a household to a flock of 50 to 120 or more. Most of the goats are raised by the weaker sections of society--small farmers and the landless villagers who graze them on waste lands and forest lands.

The browsing habit of goats has a devastating effect on vegetation. The goat has often been severely critized as a major factor involved in the deterioration of land leading to desertification. In many cases, this criticism is undeserved. The problem is not the goat *per se* but man's mismanagement of the goat. The fact is that overgrazing by any group of animals, either wild or domesticated, hastens the deterioration of vegetative covering that is a part of the process of desertification. As a result of man's mismanagement, domesticated animals are more often the cause than are wild animals. Among the domesticated ruminants, sheep and goats are more damaging than are cattle. This is primarily so because they can graze much closer to the ground and, removing most of the vegetative cover, their small sharp hooves are more damaging to the roots of the plants (42).

Regardless of the real reasons for desertification, the goat is given much of the blame by government officials. As a result, they have attempted, usually with little success, to restrict the numbers and movements of goats. This is a step in the right direction, but must include control of grazing of sheep and cattle as well.

Breeds of Goats in Iran

Sanon and Najdi are two breeds of goats in Iran used for milk production. Average daily milk production of Iran's goats in 1974 was estimated at 0.57 kg.

In summary, sheep and goats are highly adaptable to a broad range of different environments. Both sheep and goats can utilize a wide variety of plant species. Goats appear to be more effective at grazing selectively than is any other domestic livestock species. There is evidence that, of the two species, goats utilize poor quality forage and browse better than do sheep. Certain breeds of goats have lower water requirements and greater heat tolerance than most domestic ruminants. Their relatively small carcasses and daily milk yields make an exceedingly important contribution to the nutrition of local population in Iran, where food presevation technology is still primitive. This contribution is often overlooked in estimates of production on a national basis, because the product is often consumed by the family without its ever entering the market. As the human population increases and pressure on land becomes greater, the need for small highly efficient livestock will also increase and the contribution of sheep and goat products to the well being of humanity must be expected to assume a major role.

The small size and early maturity of sheep and goats give them distinct economic advantages for use by the small holder. They yield a wide variety of products, including milk, meat, fiber, and skins.

The period of neglect that the sheep and goat industry have received from previous government, academic and research organizations must end. Techniques for involving small holders in the decision making

process should be tried and studied. In particular, a cooperative system for disseminating information introducing new technology, buying supplies and marketing products might be one answer. Feed resources are a major constraint in many areas. The selective grazing habits and intakes of sheep, goats, cattle, as well as indigenous wildlife need to be better understood before multi-species grazing systems can be developed for specific grazing habits. More information is needed on the nutritional value of crop residues of all types and on methods of utilizing these residues for sheep and goat production. Mobile milking, collecting, preservation, and processing systems for sheep and goat milk adaptable to transhuman and nomadic production systems are needed. Continuous research on infectious agents is needed. There is a need for the collation of existing data as well as the collection of additional information before recommended production systems and practices can be developed. The systems approach to decision making at all levels of research, planning, development and production programs for small holders must receive greater attention than it has in the past, and finally, the ultimate users of any development program should be actively involved in planning and decision making from the start. This is, perhaps, more important for small holders than for any other group.

CHAPTER III

REVIEW OF RELATED LITERATURE

This chapter presents a summary of the investigations and literature related to the identification of training needs of extension workers.

This review of factors related to the training needs of extension workers provided background information appropriate to the development of the study. Previous available extension studies in the United States and developing countries relating to the training of agents were reviewed, and pertinent facets of these studies are included in the sections which follow. In addition, books, research studies, and reports were reviewed. Only information that would help to support the objectives of this study was included.

A Concept of Training

Economic development makes increasing demands on trained extension personnel. There is need for training, not only at the university level but at other levels. In many developing countries, the cost of training professional manpower is expensive and therefore poses a choice. Should there be a few well trained staff or a larger partially trained staff? This is one of the major decisions confronting many countries today, and it especially concerns developing nations (4).

According to Hopper and Levin (23):

> The underdeveloped countries need high-level manpower

> just as urgently as they need new capital. Indeed, unless these countries are able to develop the reguired strategic human resources, they cannot effectively absorb capital. Of all the resources required for economic development, high-talent manpower requires the longest 'lead time' for its creation. Dams, power stations, textile factories, and steel mills can be constructed in a few years, but it takes 10 to 15 years to develop managers, engineers, and the administration to operate them (p. 30).

Gerry and Morse [as cited in (27)] make this statement:

> The demand for more effective education and training comes from all sides. It comes from government, which sees it as essential to the sound solution of key social problems. It comes from parents, who count it vital if their hopes for their children are to be fulfilled. It comes from the disadvantaged, who claim it is an all-too-often denied right and their most likely means of moving out of the backwaters of our society into its mainstream. And it comes from students, quietly or violently, but persistently, because they know it to be a major determinant of their future success or failure (p. 8).

Commenting on the concept of training as a concept of development or total training, Bienvenu (2) states:

> Training can no longer be simply teaching and learning, and it involves much more than just attaining competence in a particular task or skill . . . The concept of training, therefore, as held and implemented in many organizations, must give way to the concept of development, or total training . . . In addition to specific job or task effectiveness, the purpose of training becomes one of the developing and preserving ability to adapt to change, breadth of knowledge, conceptual understanding, self-motivation, creativity and imagination, self-confidence, and independence in work and instilling in the employee an attitude of confidence and security which permits concentration on superior job performance (p. 80).

A managerial concept of training was provided by Planty (32) who gave the following statement:

> Training is a vital activity, a remedy for past mistakes, and a tool for future achievements. Top management --the president, the chairman of the board, the directors --must understand this, and gain some clear conceptions of the nature, scope, and requirements of a successful training program. This will necessitate many hours of studying,

> administering, and following through on problems of individual education and the functions of the skilled training man (p. 20).

In order to train supervisors, McCord (32) offers yet another concept of training. He said:

> The purpose of supervisory training is not to teach but to create within the individual the desire to learn. The proper philosophy of training does not believe in spoon-feeding the trainee but encourages self-improvement, motivated from within (p. 15).

It is interesting to note the high degree of similarity appearing to exist among all of these concepts, and collectively they substantiate the concept that training is one of the most important factors that influences the effectiveness of workers, be they in extension, business, industry, or in other fields. It is a practice that is not new to mankind. Every time one one gets someone to do some work the way one wants it done, the necessity for providing training is a foremost factor.

In the past, there has existed a number of limitations, especially in developing nations, in that only few organizations or training specialists have formally approached the concept of training in depth. It is the intention of the author to synthesize a body of knowledge from the literature which can throw light on what training is all about. The logical place to start is to define training.

Varied Definitions

The word "training" has different meanings to different people, organizations, and institutions. Therefore, a clear definition of the word is considered appropriate for an understanding of the concept.

The verb "to train" is derived from the old French word "trainer,"

meaning "to drag." Hence, such English definitions may be found as, for instance, to drag along; to allure; to cause to grow in the desired manner; to prepare for performance by instruction, practice, exercise, etc. (27).

The dictionary's definition of training carries the connotations of specificity, proficiency, and discipline. An unfortunate additional connotation, perhaps derived from physical education or the military, is that of extreme rigidity and narrowness in objectives (26).

Webster's International Dictionary (20) defines training as "the teaching, drill, or discipline by which powers of mind or body are developed."

Morrow [as cited in (36, p. 60)] said

> . . . Training is defined as an educational situation or process by which the skill and ability of employees to perform specific jobs is increased. It also offers an opportunity for further development of the individual.

According to De Phillips et al. (7)

> Training is the process by which an organization seeks in a planned, coordinated and continuous manner to develop in all employees those understandings, skills and attitudes that will maximize an individual's present and future efficiency and the effectiveness of overall company (organization) operation (p. 24).

Kozoll (26) offers yet another definition of training. He said it was "a continuous process, activating, reinforcing and building the human elements of the organization" (p. 9). An authority from industry (32) proposes this definition for training:

> . . . To build continuously and systematically to the maximum degree and in proper proportions, that knowledge and those skills and attitudes which contribute to the welfare of the organization and the employees (32, p. 25).

It is interesting to note the high degree of similarity existing

in the meaning of training in industry and in the Cooperative Extension Service. Also, a high degree of similarity appeared to exist among all of the definitions, and they tended to indicate that the efficiency of any organization depends directly upon how well its workers are trained.

In the present study, training will be considered as any activity engaged in by extension professionals which improves their competencies. This includes induction, orientation, in-service training, workshops, and/or graduate study.

Concept of Change

It has been mentioned that one of the reasons for training is closely related to the concept of change. Those involved in this process of change are known as change agents.

Bienvenue (2) stated that failure to recognize change and take into account its impact on policies and on what needs to be given emphasis in the organization has, more than any other factor, resulted in difficulty in keeping up with the times. It has also brought about the diminution of competitive position and status, and it has often been the major cause of inability to survive.

Training is no exception to this axiom. As an effort or body of action, it must pursue objectives and be administered in accord with the changing demands on the organization and its personnel. This concept of change does not focus primarily on the workers within the organization, but includes everyone at all levels of the hierarchy.

Knudson (29) in a discussion of change, emphasized some general comments about change in order to provide a starting point for more extensive analysis.

The first general consideration of note is that the process of change is deceptively complex, largely because change does have many variables with even a larger number of interrelationships among these variables.

A second significant general factor regarding change is that it is indubitably a continous process.

Tracey (41) stated that changes in enterprise operations as well as in products and services, occur rapidly and continuously.

Many of these changes are caused by the growth of science and technology. No enterprise can maintain its competitive status, let alone rise to a higher position in its industry unless it keeps abreast of new developments, replaces obsolete equipment, introduces new procedures and techniques, and makes use of all advances in behavioral, social, and physical sciences as well as the developing technology. The relationships between scientific and technological change and employee training and development are, therefore, extremely close and vital. These changes must be reflected in training plans (41).

Denova (6) stated that:

> One need not be a prophet to predict the one thing that is certain for the future--CHANGE. There will be a constant change in information and technology. Constant changes in occupational life results in a need for constant changes in training procedures and programs. New courses constantly must be devised to meet changed job situations.
>
> One thing is certain, change will come, whether planned or not. But a piecemeal approach will no longer provide the kinds of solutions training programs need today. There must be a clear idea of the ultimate outcome of all training programs (p. 41).

Nicool Mahiavelli once wrote that "the causes of the successes or failures of men depend upon their manner of suiting their conduct to

the times" [as cited in (3, p. 8)] . To put the matter more simply, if an organization is to survive, it can do so only by orienting itself to changing circumstances.

To survive over a long period of time, an organization must return to a more functional relationship with society in the form of material accomplishment and human betterment. This return must always be in excess of that which society pays in human and material costs in order to perpetuate it. It must, therefore, adjust itself to changes in society's needs and wants (3).

One characteristic that most of the emerging nations have in common is the fact that they are and will be for some time to come agricultural economies. Built into such economies are the problems of limited vertical mobility; vested landed interests; and the staid, rigid mentality of tradition-bound societies everywhere. What these add up to is often suspicion and slow acceptance of change, and consequently a seemingly low degree of the necessary motivational drive (23).

Based on changing conditions and the challenges which lie ahead, the joint study committee of the USDA, Nasulgo (A People and a Spirit, 1968), predicted that extension staffs in the future will need more sabbatical leave, in-service training, workshops, and other staff-development activities [as cited in (21, p. 5)].

Identifying Goals and Establishing Objectives

To maximize the benefits of training, there has to be sound planning. Planning is crucial in training and development because, without careful and complete planning, resources are certain to be wasted. Without sound planning, training and development programs are not

likely to support the plans and objectives of the enterprise as a whole (41).

The planning for the training function involves many considerations. Among the more influential are the complexity of the social economy; the pace of the changing technology; and the nature or organization operations, planning and staffing. For the most beneficial results, proper planning must take place prior to the implementation of the training program (6).

Since a start of training programs should be made upon organization goals and objectives, the first general task is to identify needs. When this has been done, a policy has to be formulated to meet them. If this policy is acceptable to all concerned, detailed consideration must be given to its implementation, with special reference to providing optimum conditions for learning. Finally, methods must be found by which the effectiveness of the training can be measured. This test of effectiveness will also be a test of how well training policy was formulated, and of the accuracy of the earlier identification of training needs on which that policy was placed (4).

Determining Training Needs

Lectures, conferences, demonstration, and performance methods have been used in training and development from the beginning. Yet, firm criteria for the selection of the optimum method, technique, or medium to achieve training objectives have not been established. Selection of an instructional approach customarily has been dictated by expediency rather than by any other consideration. A sounder, more systematic, more objective method of making such important professional decisions

must be used.

In devising appropriate training methods King (27) stated:

> We must first identify the learning difficulties and basic skills. We must then construct training exercises and prepare training material to enable the learner to overcome the difficulties by developing the relevant skills. After this, we will meet to design the means for encouraging learning through the provision of targets and records of progress. Finally we must decide what teaching aids will be required to assist the acquisition of background knowledge (p. 204).

Tracey (41) indicates that the decision to use one stragegy or another must be made on the basis of careful analysis of the training situation from several standpoints: training objectives, course content, trainee population, instructional staff, space, facilities, equipment, instructional materials, time, and costs.

Barber (21) classified methods broadly into those suitable for group instruction, for individual instruction or for general use with groups or individuals. The choice will depend on such factors as subject matter, the location of the training (e.g., on or off the job), the numbers of trainees available at any one time and their age and previous experience.

De Phillips (7) and others recommended eleven background factors for selecting appropriate training methods. These include:

> . . . 1) pertinence, 2) effectiveness, 3) trainer's familiarity with the method, 4) factors of time and physical facilities, 5) cost, 6) size of the trainee group, 7) type of training program, 8) attitudes of the training group, 9) the trainer's motivation, 10) the trainer's personality, 11) company (organization) climate (p. 166).

In order to select training and development methods, Stockard (38) enumerates the following:

> . . . 1) Recognize individual differences in participants, and the training approach should accommodate such

differences.
2) Encourage a full response of the participants in the instructor/participant relationship. Ideally, the participant should be stimulated to interact with the instructor, the program content, and other participants.
3) Introduce a balanced (multimedia) approach to teaching, since people learn through different media and one medium reinforces another.
4) Correlate with the practices of technically qualified instructors, each of whom is part scholar, part showman, and part missionary.
5) Facilitate the use of the training program as a catalytic agent to disseminate the most current knowledge and the best known ways of performing the particular work methods and systems.
6) Encourage each participant to supplement the employer-sponsored training and development activity with self-education and self-training.
7) Include provision for upgrading communication skills, which are critical to career development.
8) Treat each training and development experience as a building block, not as an isolated happening in a total, continuing, soundly conceived system of human resource, development and utilization (p. 54).

With a review of the foregoing, it appears that training methods may take many forms, depending upon the needs of the individual employee, the organization, and the available facilities. Therefore, no *best* method can be proposed or used exclusively, but a variety of approaches must be developed and employed to meet the needs of the staff and the agency.

Methods of Identifying Training Needs

Several methods are available for identifying the training needs of professional extension employees. These methods provide guidelines for establishing training programs. Post-description (the detailed description of the duties and responsibilities of a position) is one way which has been much used by industry to select and train personnel. It helps identify training needs by indicating what the extension

officer should actually be doing to perform his duties successfully.

In many developing countries there appears to be a general reluctance to give post-descriptions. This may be due to the fact that extension work is complex and seasonal, and responsibilities of the various extension workers shift.

Jackson and McKinney (25) identify three methods of determining training needs. They are:

> Emotional methods in which the decisions to set up a particular training program are influenced by purely irrational considerations such as keeping up with the Joneses, habit, or ego involvement.
> Rational methods which, though not empirically based, to provide practical and useful data on training needs, e.g., opinion polls, interviews and group decisions.
> Empirical methods which involve a reasonably systematic attemtp to collect data on which judgment of training needs can be based, e.g., performance evaluation, job analysis, psychological tests, etc. (p. 61).

Edwin (25) listed several methods which could be used to determine training needs of employees. They included:

> . . . 1) the formal study of a job through job analysis.
> 2) a survey of training needs.
> 3) a listing by the supervisors of what they feel the training needs to be.
> 4) a review of materials, such as workshops, committee and other special reports on training needed for the job.
> 5) a review of research and studies from other states with related problems (p. 19).

McGhee and Thayer [as cited in (11)] have also identified three methods of determining training needs:

> . . . 1) Organization analysis. This determines where within the organization training emphasis should be placed. It focuses on the study of the entire organization, its objectives, its resources and their allocation.
> 2) Operations analysis. This determines the contents of training in terms of what an employee must do to perform a job effectively. The focus is on the task, not on the man.
> 3) Man analysis. This emphasizes the individual employee, determining the skills, knowledge and attitudes which he

must develop if he is to perform his work effectively (p. 5).

The three methods are closely related, and cannot be used separately. Another approach for identifying training needs is the critical incident technique. Williams (45) used this technique to determine the training needs of extension agents in Western Nigeria. This technique was developed by Flanagan [as cited in (45, p. 31)]. The "critical incidents" to be noted are those which reveal the qualities extension agent's exhibit with regard to their effectiveness or ineffectiveness in terms of observable behavior at work rather than generalized traits.

In conclusion, there is no one ideal method that can be used in identifying training requirements of extension workers. A combination of the methods described should be explored.

Training Requirements, Basic and Professional

The nature of extension education, like any profession, calls for special knowledge, skills, understanding and attitudes, knowledge of technical subject matter in agriculture, practical skill in applying technology in farming and living, skill in teaching farmers and villagers, an understanding of the human relationships in society in which teaching is carried on, of the people, their customs, values and attitudes toward change, and a belief in the ability of rural people to develop and carry out programs for their own benefit (23).

Developing countries, in particular, are faced with acute shortage of resources for development. They can ill afford any form of wastage. Therefore, there is a greater responsibility for these countries to

utilize all available resources in the most logical and effective manner. The identification of training needs of extension agents is not only a necessity for developing countries, but an absolute obligation that should be met.

The most complex problem facing administrators responsible for the training of extension workers is to identify the basic subject matter fields necessary for effective extension work. Unfortunately, training programs are sometimes established without sufficient analysis and planning. If they are to be effective, it is important to analyze carefully the needs of extension officers. This is not always an easy task. It is difficult because human needs are very diverse and no one single approach will be wholly successful.

Determination of training needs according to King (27) is a matter of:

> . . . 1) collecting information.
> 2) analyzing the information collected, and
> 3) identifying training factors; that is, sorting out from among the needs which have been found those which can be met through training (p. 335).

According to Williams [as cited in (11, p. 4)], training for extension work should cover the foloowing basic areas:

> . . . 1) understanding of technical subjects related to agriculture.
> 2) theory and principles of the teaching-learning process, methods of effectively reaching people with information and of motivating them to use it.
> 3) study of customs, values, and attitudes of the people concerned.
> 4) understanding of research techniques, the habit of searching for basic facts.
> 5) principles and methods of administration and supervision.

Research Studies Based on Training Needs

A thorough search for literature on a scientif study of professional training needs of extension agents in Iran has yielded little or nothing that could be used as reference material for this study. However, there have been studies done in the developing countries and the United States which can be used as a guide, on the assumption that extension principles tend to be universal. But adaptations of these principles to suit the culture of a country are necessary.

The several studies of identification of educational needs and interests of extension agents in the United States over the past years have been oriented toward general subject matter, job analysis, recommendations of the National Task Force Report on Extension In-Service Training. Such studies have been made by Price (33) in Wisconsin; Hubbard (21) in South Carolina; McCormick (31) in Ohio. Chiko (5) and Williams (45) have also analyzed the training needs of extension agents in northern and western states of Nigeria. Various procedures have been followed in these studies for identifying training needs.

McCormick (31) based his studies on the training needs of Ohio agents in the areas identified by the National Task Force on In-Service Training. The Ohio agents identified the nine areas of competencies in order of preference for training as follows:

1) program planning and development
2) effective thinking
3) communication
4) technical knowledge
5) human development

6) research and evaluation

7) the education process

8) understanding social systems

9) extension organization and administration.

Several studies found in this review of the literature also used these nine areas identified by the National Task Force as a basis for further investigation and program development. Three of the more detailed studies were conducted in Arkansas, Ohio, and South Carolina.

Table XVI shows a comparison of the expressed training needs as identified in these three studies. The National Task Force identified nine general areas of competency needed by extension workers. One of these areas was not used in one of the studies quote above, and, therefore, only eight competency areas are listed in Table XVI.

In analyzing the training needs of Wisconsin County extension personnel, Clark stated that the agents attached the highest importance to areas of leadership, program planning, and public affairs. The areas of conducting the programs, evaluation, family living, yough development and farm and home management were of medium importance. The areas with the lowest importance in the effectiveness of extension personnel were community and resource development, agricultural production, and marketing.

A significant study of the training needs of extension workers in developing countries was conducted by Williams in Nigeria in 1967. Using the critical incident technique, he concluded from this study that the extension worker in Western Nigeria required training in the areas of social and behavioral sciences in addition to technical agriculture. He identified eleven specific subject areas in which extension workers

TABLE XVI

COMPARISON OF THE RANK ORDER OF THE EXPRESSED TRAINING NEEDS OF EXTENSION AGENTS IN EIGHT AREAS OF COMPETENCY IN ARKANSAS, OHIO, AND SOUTH CAROLINA

Area of Competency	Arkansas	Ohio	South Carolina	
			Agents	Administrators
Program planning and development	1	1	1	1
Communication	3	3	2	6
Human development	2	4	3	2
Extension organization and administration	8	8	4	5
Research	4	5	5	7
Effective thinking	5	2	6	3
Educational process	6	6	7	4
Social systems	7	7	8	8

Compiled by researcher from theses completed in the respective states.

in Western Nigeria need training. These were listed as follows:

1) teaching - learning theory
2) program planning procedure
3) social systems, leadership selection and social action process
4) planning change and change process
5) principles of human relations
6) theory of motivation
7) communication process
8) theory and practice of administration
9) theory or organization
10) nature and importance of training
11) technical training related to agriculature.

Program planning procedures were the most important area of training needs, followed by staff relationships within agency and with outside agencies, and third, the teaching-learning situation.

Chiko (5) also analyzed and studied the training needs of extension workers in the northern states of Nigeria. He concluded that extension agents in the northern states of Nigeria required training in the seven areas of study. These areas in priority order were 1) technical knowledge in agriculture, 2) agricultural extension, philosophy, organization, and administration, 3) communications in extension, 4) program planning, 5) research and evaluation, 6) educational process and human development, and 7) sociological factors.

The most important areas in which agents needed intensive traijing were technical knowledge in agriculture, agricultural extension philosophy, organization and administration, and communications.

Summary

The foregoing review of literature outlines the training needs of extension workers in general ways. The writer has presented a theoretical concept for an understanding of "training." It points up the fact that continued improvement, thorough training, is essential to keep pace with the rapid social and technological changes in modern society. Extension services in developing countries, generally, have to emphasize training and base such programs on professional needs, evaluated in terms of subject matter, programs and job performance.

Limitations of funds and resources, especially in developing countries, and the need for prudent spending makes it imperative that every effort should be made to identify training needs of extension agents and to gear training programs to identify priority needs.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

Since data concerning description and status of the livestock industry in Iran was presented in some detail in Chapter II, Background Information for the Study, this chapter is largely confined to presentation and analysis of data collected through use of an interview questionnaire. As presented, these data comprise responses made by all extension workers, and all extension corps members who were located, at the time of the interview, in three towns of Western Azarbaijan Province of Iran. The questionnaire as developed contained four main parts with the first part being subdivided into nine different questions regarding certain desired personal and professional background information.

The second part of the questionnaire was comprised of four statements dealing with the judgments of the extension workers and corps members as to who, among selected community residents, can best serve as local leaders for promoting extension programs. This portion of the schedule allowed respondents to respond on a four point Likert type scale with a continuum from "continuously" through "none". Numerical values assigned to each category to permit statistical treatment were as follows:

Response Categories	Numerical Value	Range of Actual Limits of Categories
Continuously	3	2.50 and above
Often	2	1.50 - 2.49
Seldom	1	0.50 - 1.49
Never	0	0.00 - 0.49

The third and major portion of the questionnaire comprised 51 items directed toward various aspects of animal production. Extension workers and extension corps members were each ased to rank each of the items according to their perception:

1) "To what extent do you now have knowledge and skills about these subjects?"

2) "To what extent do you need knowledge and sills about these subjects?"

To facilitate recognifition of true differences in responses between groups in terms of a mean response, numerical values were assigned to a developed scale:

Response Categories	Numerical Value	Range of Actual Limits of Categories
Great	3	2.50 and above
Much	2	1.50 - 2.49
Some	1	0.50 - 1.49
None	0	0.00 - 0.49

A final portion of the instrument was comprised of 31 items, directly related to the nature and extent of selected factors of practices in livestock production. In order to determine the extent to which these selected items or practices tend to constitute limitations for the future development of the livestock industry, respondents were asked to judge their potency as possible limiting factors. For this part of the instrument, again a five-point Linkert type scale with a continuum from "great" through "none" was used. Numerical values

assigned to each category to permit appropriate statistical treatment were as follows:

Great = 4 and above
Much = 3 - 3.99
Some = 2 - 2.99
Little = 1 - 1.99
None = 0 - 0.99

Since the research effort was primarily of a descriptive nature, statistics such as percentages, rank orders, arithmetic averages, and mean responses were selected as appropriate means of describing the findings.

Population

The population of this study was comprised of all the extension workers and extension corps members serving in three towns--Urumiyieh, Khoy and Mako in West Azarbaijan of Iran.

There were a total of 18 extension workers and 22 extension corps members. A total of 40 (100 percent) of the questionnaires were completed and returned to the researcher.

Findings of the Study

Data secured as indicated above were collated, placed on tabular form and certain analyses attempted. Basically, the salient objective of the study--that of determining through self analyses the extent of present knowledge held by extension workers and extension corps members as well as the concommitant extent of training needed--was the focus of this chapter.

Background Information of Respondents

This section of the chapter presents the background information concerning demographic status of respondents as well as selected items of job function. Thirty-one respondents of the total group were married. Fifteen (83.33 percent) of the 18 responding extension workers group were married. Sixteen (72.73 percent) of the 22 extension corps group were married.

It was also found that extension workers' number of years experience in the extension service ranged from 0-5 years for six respondents, 6-10 years for 11, 11-18 years for none, and 19 years for one. Each member of the extension corps is required to stay in extension activities for one and one-half years.

With regard to level of education acquired, 16 of the extension workers said they finished agricultural high school, with the remaining two having finished secondary high school with a major in science. In the extension corps member group, 19 of the 22 respondents finished secondary high school with a major in science, and the remaining three reported having graduated from an agricultural high school.

It would seem of note that all of the extension corps members interviewed in the Western Azarbaijan received their training in Minstry of Agriculture in Tehran, while all of the extension workers (61.11 percent) received their training in the capital of the province, and seven (38.89 percent) had training in the Ministry of Agriculture in Tehran. One of the extension workers also had one year of training in Beirut. Data summarized in Table XVII shows judgments of respondent groups with regard to educational levels felt needed by extension workers.

TABLE XVII

JUDGMENTS OF RESPONDENT GROUPS WITH REGARD TO EDUCATIONAL LEVELS NEEDED BY EXTENSION WORKERS

Levels	N = 18 Ag. Ext. Workers		N = 22 Ag. Ext. Corps		N = 40 Combined	
	N	%	N	%	N	%
Elementary School	0	0	0	0	0	0
Secondary School	0	0	0	0	0	0
Secondary Ag. School	11	61.11	5	22.73	16	40
B.S. (general)	0	0	0	0	0	0
B.S. (Gen. Agri.)	4	22.22	3	13.63	7	17.5
B.S. (Spec. Agri.)	3	16.77	14	63.64	17	42.5
M.S. Agriculture	0	0	0	0	0	0
Total	18	100	22	100	40	100

Data reported in Table XVII indicate that the total of 17 (42.5 percent) of the respondents judge a B.S. degree in specialized agriculture to be an appropriate level of education for attainment by extension workers.

The difference noted between the two groups in terms of secondary agricultural high school being an approach level was a marked difference with 61.11 percent of extension workers agreing, compared to only 22.73 percent of extension corps members. This difference might well be understood when one reflects upon the fact that 16 of the total 18 extension workers were graduates only of an agricultural school.

Table XVIII summarizes the degree of cooperation and/or coordination that exists between the extension service and agricultural colleges in the province as perceived by extension workers and extension corps members.

TABLE XVIII

PERCEPTIONS OF RESPONDENTS AS TO THE RELATIVE DEGREE OF COOPERATION AND COORDINATION EXISTING BETWEEN AGRICULTURAL COLLEGES AND THE EXTENSION SERVICE

	Degree of Coordination									
	None		Little		Some		Much		Great Deal	
	N	%	N	%	N	%	N	%	N	%
Extension Workers	12	66.67	6	33.33	0	0	0	0	0	0
Extension Corps	12	54.55	10	45.45	0	0	0	0	0	0

It would appear quite evident that neither extension workers nor corps members perceived that desirable cooperation and/or coordination does exist between extension workers and the agricultural colleges, with two-thirds of extension workers and more than one-half of corps members alleging that no coordination exists.

Data collated in Table XIX show results of the schedule items asked both extension workers and corps members indicating the extension methods that they more frequently used in helping farmers to adopt new ideas and practices. At this point, as can be clearly seen in data

TABLE XIX

GROUP RESPONSES AS TO EXTENSION METHODS

Methods*	N = 18 Ext. Workers		N = 22 Ext. Corps		N = 40 Combined	
	N	%*	N	%	N	%
Method Demonstration	16	88.88	12	54.54	28	70
Result Demonstration	7	38.88	11	50	18	45
Radio	1	5.55	2	9.09	3	7.5
T.V.	0	0	0	0	0	0
Newspaper	3	16.66	2	9.09	5	12.5
Small group meetings	14	77.77	12	54.54	26	65
Ext. Bulletins	4	22.22	5	22.72	9	22.5
Individual Visits	12	66.66	10	45.45	22	55

shown in Table XIX, definitely identifies the methods most commonly used by both extension workers and extension corps members as method demonstration, result demonstration, and most group meetings. Radio, television, and newspapers in general are not often utilized as an institutional method by extension in Iran. This situation is at least partially explained in the high cost of radio and particularly television. Distribution of printed materials is useless, due to the fact that a great proportion of farmers are semi-illiterate.

According to the findings collated in Table XIX, it would seem to be obvious that the methods most used by both extension workers and extension corps members are those based on person-to-person contact, such as method demonstration, individual visits, and small group instruction.

Identification of Local Village Opinion Leaders

As initially stated, one of the objectives of the study was to secure judgments of extension workers and extension corps members as to who, among selected community residents, does best serve to promote and carry out agricultural extension programs. Tabular presentation of these data is constructed so as to show separately the responses of extension workers and extension corps members. Responses of the two groups were then combined, thus showing the mean score and ranking given by the entire 40 respondents.

The sum of the number of responses in each response category was multiplied by the value of the category and then these products were totalled. The cumulative rating was divided by the total number of responses to secure an average rating. Then the overall rank order was

established on the basis of the order of these average ratings.

The respondents were asked to indicate how often a list of selected persons should be used by agricultural extension workers, representatives in dealing with social and developmental problems.

Data presented in Tables XX, XXI, and XXII show that both respondent groups, as well as the total 40 respondents, rank the village headman first with an average rating of 2.45, which falls into the "often" category, compared to the chairman of farmer's group, who was ranked second with a 1.67 mean response, which was also in the "often" category.

An outstanding farmer and religious leader were ranked third and fourth, receiving a 1.37 and 1.27 mean response, respectively. Both of these mean responses were classified in the "seldom" category. The local teacher was ranked fifth by a mean response of 0.77, which also classified use of this leader in the "seldom" category. The least often used person to support and promote the work of agricultural extension agents were the middlemen, who had an average rating of only 0.45, thus falling into the "never" category.

Findings as presented in Tables XXIII, XXIV, and XXV show respondents' judgments as to how individuals classified into selected positions influence farmers to adopt new ideas and practices. The respondents felt that the person who would be rated highest and was so indicated by both groupw with a 2.5 mean score, was the outstanding farmer, followed by the village headman, with a 2.42 score, which were placed in "continuously" and "often" categories, respectively. The remaining categories, "chairman of farmer's group," "local teacher," "religious leader," and "middleman," received mean ratings of 1.8, 0.9, 0.57, and

TABLE XX

JUDGMENTS OF EXTENSION WORKERS AS TO THE FREQUENCY PERSONS IN SELECTED ROLE CATEGORIES GIVE ADVICE AND COUNSEL TO FARMERS WITH REGARD TO SOCIAL AND DEVELOPMENTAL PROBLEMS

Persons	Response by Category								Cumulative Rating	Average Rating	Rank
	None		Seldom		Often		Continuously				
	N	%	N	%	N	%	N	%			
Religious Leader	4	22.22	7	38.88	4	22.22	3	16.66	24	1.33	4
Village Headman	0	0	0	0	8	44.44	10	55.55	46	2.55	1
Chairman of Farmers Group	1	5.55	9	50	7	38.88	1	5.55	26	1.44	2
Local Teacher	7	38.88	9	50	2	11.11	0	0	13	.72	5
Outstanding Farmer	3	16.66	8	44.44	3	16.66	4	22.22	26	1.44	2
Middleman	10	55.55	7	38.88	1	5.55	0	0	8	.44	6

TABLE XXI

JUDGMENT OF EXTENSION CORPS MEMBERS AS TO THE FREQUENCY PERSONS IN SELECTED ROLE CATEGORIES GIVE ADVICE AND COUNSEL TO FARMERS WITH REGARD TO SOCIAL AND DEVELOPMENTAL PROBLEMS

Persons	Response by Category								Cumulative Rating	Average Rating	Rank
	Never		Seldom		Often		Continuously				
	N	%	N	%	N	%	N	%			
Religious Leader	7	31.8	6	27.3	6	27.2	3	13.6	27	1.23	4
Village Headman	0	0	3	13.6	8	36.3	11	50	52	2.36	1
Chairman of Farmer's Group	0	0	8	36.3	9	40.9	5	27.7	41	1.86	2
Local Teacher	6	27.2	14	63.6	2	9.09	0	0	18	0.82	5
Outstanding Farmer	3	13.6	12	54.5	4	18.1	3	13.6	29	1.32	3
Middleman	12	54.5	10	45.4	0	0	0	0	10	0.45	6

TABLE XXII

JUDGMENTS OF COMBINED GROUPS OF EXTENSION WORKERS AND EXTENSION CORPS MEMBERS AS TO THE FREQUENCY PERSONS IN SELECTED ROLE CATEGORIES GIVE ADVICE AND COUNSEL TO FARMERS WITH REGARD TO SOCIAL AND DEVELOPMENTAL PROBLEMS

Persons	Extension Workers N = 18			Extension Corps N = 22			Combined Group N = 40		
	Cumulative Rating	Average Rating	Rank	Cumulative Rating	Average Rating	Rank	Cumulative Rating	Average Rating	Rank
Religious Leader	27	1.23	4	24	1.33	4	51	1.27	4
Village Headman	52	2.36	1	46	2.55	1	98	2.45	1
Chairman of Farmer's Group	41	1.86	2	26	1.44	2	67	1.67	2
Local Teacher	18	0.82	5	13	.72	5	31	.77	5
Outstanding Farmer	29	1.32	3	26	1.44	2	55	1.37	3
Middleman	10	0.45	6	8	.44	6	18	.45	6

TABLE XXIII

JUDGMENTS OF EXTENSION WORKERS AS TO THE FREQUENCY PERSONS IN SELECTED ROLE CATEGORIES ASSISTED WITH THE INTRODUCTION OF NEW IDEAS AND PRACTICES AMONG FARMERS

Persons	Response by Category								Cumulative Rating	Average Rating	Rank
	None		Seldom		Often		Continuously				
	N	%	N	%	N	%	N	%			
Religious Leader	10	55.55	6	33.33	1	5.55	1	5.55	9	.5	5
Village Headman	0	0	1	5.55	8	44.44	9	50	43	2.38	1
Chairman of Farmer's Group	1	5.55	4	22.22	13	72.22	0	0	30	1.66	3
Local Teacher	6	33.33	9	50	3	16.66	0	0	15	.83	4
Outstanding Farmer	0	0	3	16.66	5	27.77	10	55.55	43	2.38	1
Middleman	10	55.55	8	44.44	0	0	0	0	8	.44	6

TABLE XXIV

JUDGMENTS OF EXTENSION CORPS AS TO THE FREQUENCY PERSONS IN SELECTED ROLE CATEGORIES ASSISTED WITH THE INTRODUCTION OF NEW IDEAS AND PRACTICES AMONG FARMERS

Persons	Response by Category								Cumulative Rating	Average Rating	Rank
	None		Sedom		Often		Continuously				
	N	%	N	%	N	%	N	%			
Religious Leader	13	59.09	5	22.72	3	13.63	1	4.54	14	0.64	5
Village Headman	0	0	0	0	12	54.54	10	45.45	54	2.45	2
Chairman of Farmer's Group	0	0	4	18.18	16	72.72	2	9.09	42	1.91	3
Local Teacher	3	13.63	18	81.8o	0	0	1	4.54	21	0.95	4
Outstanding Farmer	0	0	0	0	9	40.90	13	59.09	57	2.59	1
Middleman	14	63.63	6	27.27	2	9.09	0	0	10	0.45	6

TABLE XXV

JUDGMENTS OF THE COMBINED GROUPS AS TO THE FREQUENCY PERSONS IN SELECTED ROLE CATEGORIES ASSISTED WITH THE INTRODUCTION OF NEW IDEAS AND PRACTICES AMONG FARMERS

Persons	Extension Workers N = 18			Extension Corps N = 22			Combined Groups N = 40		
	Cumulative Rating	Average Rating	Rank	Cumulative Rating	Average Rating	Rank	Cumulative Rating	Average Rating	Rank
Religious Leader	9	.5	5	14	.64	5	23	.57	5
Village Headman	43	2.38	1	54	2.45	2	97	2.42	2
Chairman of Farmer's Group	30	1.66	3	42	1.91	3	72	1.8	3
Local Teacher	15	.83	4	21	0.95	4	36	.9	4
Outstanding Farmer	43	2.38	1	57	2.59	1	100	2.5	1
Middleman	8	.44	6	10	0.45	6	18	.02	6

.02, respectively.

The category "chairman of farmer's group" ranked third, with an average rating of 1.8, which fell into the "often" category. The "local teacher" and "religious leader" were ranked fourth and fifty, receiving 0.9 and 0.57 mean responses, respectively. Both of these mean responses were classified in the "seldom" category. The person in the last category ranking sixth and in the "never" category was the middleman.

Respondents were also asked to indicate how often a list of selected persons should be used for gaining information or advice by agricultural extension workers, representatives in dealing with certain agricultural topics such as agricultural technology (seed certification, soil testing, correct use of chemical fertilizers, pesticides, etc.) and agricultural production (production of field crops, horticulture crops and livestock). Findings as to responses to these items are presented in Tables XXVI, XXVII, and XXVIII. These data show responses dealing with the frequency with which respondents apprehended selected persons to be viable sources of information on agricultural technology. Both groups expressed somewhat similar opinions in ranking categories specified as village headman, chairman of farmer's group, outstanding farmer, and the middleman. There was a difference of opinion evident between the two groups in their ranking of the religious leader and the local teacher. The religious leader was ranked fourth with a mean score of 0.77, while the teacher ranked fifth, with a mean score of 0.61. These scores and rankings were provided by extension workers. By comparison, extension corps members ranked the local teacher fourth and the religious leader fifth, with mean scores of 1.09 and 0.72,

TABLE XXVI

JUDGMENTS OF EXTENSION WORKERS AS TO THE FREQUENCY PERSONS IN SELECTED ROLE CATEGORIES GIVE ADVICE AND COUNSEL TO FARMERS WITH REGARD TO AGRICULTURAL TECHNOLOGY PROBLEMS

Persons	Response by Category								Cumulative Rating	Average Rating	Rank
	None		Seldom		Often		Continuously				
	N	%	N	%	N	%	N	%			
Religious Leader	8	44.44	7	38.88	2	11.11	1	5.55	14	.77	4
Village Headman	0	0	1	5.55	7	38.88	10	55.55	45	2.5	1
Chairman of Farmer's Group	1	5.55	3	16.66	14	77.77	1	5.55	32	1.77	3
Outstanding Farmer	0	0	4	22.22	8	44.44	6	33.33	38	2.11	2
Local Teacher	8	44.44	9	50	1	5.55	0	0	11	.61	5
Middleman	10	55.55	8	44.44	0	0	0	0	8	.44	6

TABLE XXVII

JUDGMENTS OF EXTENSION CORPS MEMBERS AS TO THE FREQUENCY PERSONS IN SELECTED ROLE CATEGORIES GIVE ADVICE AND COUNSEL TO FARMERS WITH REGARD TO AGRICULTURAL TECHNOLOGY PROBLEMS

Persons	Response by Category								Cumulative Rating	Average Rating	Rank
	None		Seldom		Often		Continuously				
	N	%	N	%	N	%	N	%			
Religious Leader	10	45.45	9	40.90	2	9.09	1	4.54	16	.72	5
Village Headman	0	0	0	0	8	36.36	14	63.63	58	2.63	1
Chairman of Farmer's Group	0	0	1	4.54	16	72.72	5	22.72	48	2.18	3
Outstanding Farmer	1	4.54	3	13.63	8	36.36	10	45.45	49	2.22	2
Local Teacher	1	4.54	19	86.36	1	4.54	1	4.54	24	1.09	4
Middleman	12	54.54	9	40.90	1	4.54	0	0	11	.5	6

TABLE XXVIII

JUDGMENTS OF COMBINED GROUPS OF EXTENSION WORKERS AND EXTENSION CORPS MEMBERS AS TO THE FREQUENCY PERSONS IN SELECTED ROLE CATEGORIES GIVE ADVICE AND COUNSEL TO FARMERS WITH REGARD TO AGRICULTURAL TECHNOLOGY PROBLEMS

Persons	Extension Workers N = 18			Extension Corps N = 22			Combined Group N = 40		
	Cumulative Rating	Average Rating	Rank	Cumulative Rating	Average Rating	Rank	Cumulative Rating	Average Rating	Rank
Religious Leader	14	.77	4	16	.72	5	30	.75	5
Village Headman	45	2.5	1	58	2.63	1	103	2.57	1
Chairman of Farmer's Group	32	1.77	3	48	2.18	3	80	2.00	3
Outstanding Farmer	38	2.11	2	49	2.22	2	87	2.17	2
Local Teacher	11	.61	5	24	1.09	4	35	.87	4
Middleman	8	.44	6	11	.5	6	19	.47	6

respectively. These mean scores provided by each group were such as to classify both the use of local teachers and religious leaders into the "seldom" category. It was found that in the judgments of respondents, people in the villages "continuously" approached the village headman to seek advice and information on agricultural technology. This was evident in the mean score, 2.57, which was the highest score among the six identified possibilities.

Again, the opinion leader categorized "never" was identified with the use classification for the middleman. In the judgment of respondents' other sources used in order of frequency of use were 2) outstanding farmer, 3) chairman of farmer's group, 4) local teacher, and 5) religious leader. An outstanding farmer and the chairman of a farmer's group were ranked second and third, receiving mean scores of 2.17 and 2.00, respectively. In terms of frequency of use, mean scores given were such as to result in assignment in the "often" level classificationfrom the response of the total group of respondents. In like manner, local teachers and religious leaders were ranked fourth and fifth, with average ratings of 0.87 and 0.75, respectiviely, which were in both such as to place them in the "seldom" category.

Data collated and presented in Tables XXIX, XXX, and XXIII indicate responses on the frequency with which respondents consulted selected people for advice on agricutural production. It can be seen from Table XXIX that extension workers ranked village headman as most important source of advice on agricultural production. A mean score of 2.5 rated the receiving of advice on agricultural production from the village headman as on the "continuously" level of use. An outstanding farmer was ranked second with a mean score of 2.11, thus in

TABLE XXIX

JUDGMENTS OF EXTENSION WORKERS AS TO THE FREQUENCY PERSONS IN SELECTED ROLE CATEGORIES GIVE ADVICE AND COUNSEL TO FARMERS WITH REGARD TO AGRICULTURAL PRODUCTION PROBLEMS

Persons	Response by Category								Cumulative Rating	Average Rating	Rank
	Never		Seldom		Often		Continuously				
	N	%	N	%	N	%	N	%			
Religious Leader	8	44.44	7	38.88	1	5.55	1	5.55	12	.66	5
Village Headman	0	0	1	5.55	7	38.88	10	55.55	45	2.5	1
Chairman of Farmer's Group	1	5.55	4	22.22	12	66.66	0	0	28	1.5	3
Outstanding Farmer	1	5.55	2	11.11	9	50	6	33.33	38	2.11	2
Local Teacher	6	33.33	9	50.00	3	16.66	1	5.55	18	1.00	4
Middleman	11	61.11	7	38.88	0	0	0	0	7	.38	6

TABLE XXX

JUDGMENTS OF EXTENSION CORPS MEMBERS AS TO THE FREQUENCY PERSONS IN SELECTED ROLE CATEGORIES GIVE ADVICE AND COUNSEL TO FARMERS WITH REGARD TO AGRICULTURAL PRODUCTION PROBLEMS

Persons	Response by Category								Cumulative Rating	Average Rating	Rank
	None		Seldom		Often		Continuously				
	N	%	N	%	N	%	N	%			
Religious Leader	9	40.90	10	45.45	3	13.63	0	0	16	.72	5
Village Headman	0	0	0	0	11	50	11	50	55	2.5	2
Chairman of Farmer's Group	0	0	2	9.09	17	77.27	3	13.63	45	2.04	3
Outstanding Farmer	13	59.09	9	40.90	0	0	1	4.54	57	2.59	1
Local Teacher	4	18.18	1	4.54	14	63.63	3	13.63	28	1.27	4
Middleman	0	0	1	4.54	7	31.81	14	63.63	9	.40	6

TABLE XXXI

JUDGMENTS OF COMBINED GROUPS OF EXTENSION WORKERS AND EXTENSION CORPS MEMBERS AS TO THE FREQUENCY PERSONS IN SELECTED ROLE CATEGORIES GIVE ADVICE AND COUNSEL TO FARMERS WITH REGARD TO AGRICULTURAL PRODUCTION PROBLEMS

Persons	Extension Workers N = 18			Extension Corps N = 22			Combined Group N = 40		
	Cumulative Rating	Average Rating	Rank	Cumulative Rating	Average Rating	Rank	Cumulative Rating	Average Rating	Rank
Religious Leader	12	.66	5	16	.72	5	28	0.7	5
Village Headman	45	2.5	1	55	2.5	2	100	2.5	1
Chairman of Farmer's Group	28	1.5	3	45	2.04	3	73	1.82	3
Outstanding Farmer	38	2.11	2	57	2.59	1	95	2.37	2
Local Teacher	18	1.00	4	28	1.27	4	46	1.15	4
Middleman	7	.38	6	9	.40	6	16	0.4	6

the "often" category. However, responses secured from extension corps members reversed these rankings. They ranked outstanding farmer first with an average rating of 2.59, thus falling into the "continuously" category. Extension corps members also reversed the ranking and rating given for the village headman, ranking persons in this cage-gory second, with an average rating of 2.50, which was also in the "continuously" category. The rmaining role categories, chairman of farmer's group, local teacher, religious leader, and middleman received the same ranking by both extension workers and extension corps members. Chairman of farmer's group and local teacher were ranked third and fourth by receiving 1.82 and 1.15 mean response, respectively. Both of these mean responses classified in the "often" category. In this instance, the religious leader was ranked fifth with average rating of 0.70, which placed this person in the "seldom" category. In the opinion of combined groups, the least often used per-son was the middleman, who had an average rating of 0.4, thus falling in the "never" category.

Self-assessment of Present Knowledge Held and Knowledge Needed in Animal Science

This section of the chapter is devoted to analyses of self-assessment of the present knowledge and the training needs as viewed through self-assessment by extension workers and by extension corps members relating to specific areas of service in the animal science industry.

Present Knowledge and Training Needs in the Area of Animal Feeding

The relative present knowledge and training needs of extension workers and extension corps members in the area of animal feeding is shown through data collated and presented in Table XXXII. Findings indicate that in all of the fine selected specific items relating to animal feeding, extension workers provided a mean scores indicated they felt they had slightly more knowledge than extension workers. Mean responses of extension workers ranged from a low of 0.88 to a high of 1.11, which places all items into the "some" classification. The two items which received the highest rating by extension workers in terms of extent of their present knowledge were "feed nutrients" and "functions of nutrients." In like manner mean responses for self-assessment of the extension corps members ranged from a low of 0.17 to a high of 0.72. These data indicated that extension corps members felt strongly that present knowledge held was quite limited in each of the selected items related to animal feeding.

In fact, the mean response from the extension corps group indicated three items in the "some" category, with the remaining two yielding a mean score placing them in the "none" category. The items of "feed nutrients," "feed additives," and "functions of nutrients," with mean scores of 0.86, 0.77 and 0.77 respectively, placed these items in the "some"classification with remaining two items, "selection and preparation of feeds," and "balancing rations" with mean scores so low as to place them in the "none" level of knowledge classification.

TABLE XXXII

SELF-ASSESSMENT BY EXTENSION WORKERS AND BY EXTENSION CORPS MEMBERS AS TO PRESENT KNOWLEDGE AND KNOWLEDGE NEEDED IN THE FIELD OF LIVESTOCK FEEDING AND NUTRITION

Item	Present Knowledge				Knowledge Needed				
	N=18	N=22		N=40	N=18	N=22		N=40	
	Mean Extension Worker	Mean Extension Corps	Mean Difference	Present Combined Mean	Mean Extension Worker	Mean Extension Corps	Mean Difference	Needed Combined Mean	Present Versus Needed Combined Mean Difference
Feed Nutrients	1.11	.86	.25	0.98	2.00	2.36	-.36	2.20	-1.22
Feed Additives	.94	.77	.17	0.85	1.88	2.22	-.34	2.08	-1.23
Functions of Nutrients	1.05	.77	.28	0.90	1.83	2.45	-.62	2.18	-1.28
Selection of Feeds, Preparation of Feeds and Essentials of Balanced Diet	.94	.22	.72	0.80	2.11	2.36	-.25	2.38	-1.58
Balanced Rations	.88	.45	.43	0.65	1.72	2.31	-.59	2.05	-1.40

The combined group's present knowledge was expressed in means ranging from a low of 0.65 to a high of 0.98, with all of them thus falling within the limits of the "some" classification.

Judgements of Extension Workers and Extension Corps Members as to Knowledge Needed

Data regarding self-assessment as performed by respondents on the five specific items of animal feeding in which knowledge was needed are presented and compared to Table XXII. Both extension workers and extension corps members rated all of the five specific items of training relatively high indicating they considered each of them as important in the training of extension workers and extension corps members. However, extension corps members apparently felt such a need a bit more keenly, this in all five items. With the extension worker ratings ranging from a low of 1.72 to a high of 2.11, all classified in the "much" classification, concomitant extension corps member ratings ranged from a low mean of 2.22 to a high of 2.45, consequently also placing all of five items within the "much" classification. Thus, while no differences were revealed by category classification assignment, all items carry some higher mean scores from extension corps members.

In terms of ranking, three items in which the extension corps members felt the greatest need for knowledge were identified as:

1) Functions of nutrients
2) Feed nutrients
3) Selection of feed, preparation of feeds and essentials of balanced diet

On the other hand, the three specific items which extension workers rated most important for knowledge needed determined as:

1) Selection of feeds, preparation of feeds and essentials of balanced diet

2) Feed nutrients

3) Feed additives

When data secured from the combined group respondents relative to combined needed knowledge is analyzed it is found that items fell within the "much" classification, ranging, from a low of 2.05 to a high of 2.38. Based on combined mean responses the rank order of three more important items were:

1) Selection of feeds, preparation of feeds and essentials of balanced diet

2) Feed nutrients

3) Functions of nutrients

When data were analyzed comparing perceptions of the extent of present knowledge held with knowledge needed, it was quite evident that almost all respondents felt a substantial need for acquiring considerable more knowledge about all selected items dealing with livestock feeding and nutrition. Mean score differences ranged from -1.22 to a -1.58, indicating that both respondent groups were agreed that substantial additional knowledge was needed if they were to perform at a highly efficient level.

Present Knowledge and Training Needs in the Area of Animal Breeding

Judgements constituting self-assessment by extension workers and extension corps members as to present knowledge held and knowledge

TABLE XXXIII

SELF-ASSESSMENT BY EXTENSION WORKERS AND EXTENSION CORPS MEMBERS AS TO PRESENT KNOWLEDGE AND KNOWLEDGE NEEDED IN THE FIELD OF ANIMAL BREEDING

Item	Present Knowledge				Knowledge Needed				
	N=18	N=22		N=40	N=18	N=22		N=40	
	Mean Extension Worker	Mean Extension Corps	Mean Difference	Combined Present Mean	Mean Extension Worker	Mean Extension Corps	Mean Difference	Combined Needed Mean	Present vs. Needed Combined Mean Difference
Artificial Insemination	1.27	1.13	.14	1.20	1.72	2.68	- .96	2.25	-1.05
Selection in Livestock Breeding	1.11	.81	.30	.95	1.66	2.45	- .79	2.10	-1.15
Systems of Breeding	1.33	.95	.38	1.13	1.55	2.50	- .95	2.08	- .95
Fundamentals of Heredity	.94	.68	.26	.80	1.33	2.40	-1.07	1.93	-1.13
Identifying Breeds of Livestock	.94	1.09	- .15	1.03	1.50	2.50	-1.00	2.05	-1.02

needed in five specific items of animal breeding are compared in Table XXXIII.

Responses of both extension workers and extension corps members were such as to indicate present knowledge held was admittedly such as to fall in the "some" classification. Extension workers mean responses varied from a low of 0.94 to a high of 1.33. Extension wokers had the higher mean scores for the items "artificial insemination" and "systems of breeding." The extension corps members felt that their present knowledge in five specific items of animal breeding ranged from a low of 0.68 to a high of 1.13. Their greatest knowledge was in the area of "artificial insemination" and "identifying breeds of livestock." As expressed by data in all items except in the item "identifying breeds of livestock" the extension workers mean scores was more than extension corps members. The combined present knowledge mean scores ranged from a low of 0.80 to a high of 1.20, which all were within the "some" classification.

Knowledge Needed by Extension Workers and Extension Corps Members in Animal Breeding

Means for the five specific training areas in animal breeding ranged from a low of 1.5 to a high of 1.72 for extension workers and from a low of 2.05 to a high of 2.25 for extension corps members. This indicated that extension corps members perceived a considerable need for training in all the items listed. The least training needed area perceived by extension workers was the item "fundamentals of heredity," which received a mean score of only 1.33 placing this item in the "some" classification. The remaining items all were classifed

as within the "much" classification. Examinations of data relative to self-recognized needs for training by extension corps members show artificial insemination as falling with the "great" classification. Perceived needs by extension corps members in order of importance were "systems of breeding," "identifying breeds of livestock," "selection in livestock breeding," and "fundamentals of heredity." Two items had equal rating with mean scores of 2.5 in the "great" classification. These items were "systems of breeding" and "identifying breeds of livestock." The remaining items "selection in livestock breeding" and "fundamentals of heredity," fell in the "much" classification. Considering all five items, it would seem apparent that extension corps members felt more intensive about future training than did their contemporary extension workers.

It is interesting to note that both groups perceived the greatest need for training in the area of artificial insemination, even though both groups rated this item higher with regard to present knowledge held. Both groups perceived less need for training in "fundamentals of heredity." When responses of both groups are combined, expression of training needed in terms of mean scores ranged from a low of 1.93 to a high of 2.25 placing their all in the "much" classification. The three areas which were ranked as being most important for the training needs of both groups combined are the following:

1) Artificial insemination
2) Selection of livestock breeding
3) Systems of breeding

Again, for each of the items in animal breeding a comparison of presently held knowledge versus training needed shows that both groups recognize a definite need for receiving more training in each of the five items.

Judgements of Extension Workers and Extension Corps Members as to Present Knowledge and Training Needed in the Area of Livestock Building and Equipment

Judgements of the two groups of resondents as to present knowledge held and training needed with the regard to selected items in livestock building and equipment are shown by data presented in Table XXXII.

These data indicate that mean scores of extension workers expressing self-assessment of present knowledge ranged from a low of 1.11 to a high of 1.61. Except for the item "manure handling" which received the comparatively high score of 1.6 and thus fell within "much" classification, the remaining three items were classified into the "some" classification. By comparison mean scores received from extension corps members ranged from a low of 0.81 to a high of 1.63. And again, the item "manure handling" received the high score of 1.63, thus advancing to the "much" classification. The remaining three items all were within the "some" level of present knowledge held. It is interesting to note that the item of "manure handling" was ranked first by both groups and that also with regard to this item, extension corps members indicated they had as much knowledge as did extension workers. The combined groups show mean scores which range from a low of 0.95 to a high of 1.63. As might be expected the item "manure handling"

TABLE XXXIV

SELF-ASSESSMENT BY EXTENSION WORKERS AND BY EXTENSION CORPS MEMBERS AS TO PRESENT KNOWLEDGE AND KNOWLEDGE NEEDED IN THE FIELD OF LIVESTOCK BUILDING AND EQUIPMENT

Item	Present Knowledge				Knowledge Needed				
	N=18	N=22		N=40	N=18	N=22		N=40	
	Mean Extension Worker	Mean Extension Corps	Mean Difference	Combined Present Mean	Mean Extension Worker	Mean Extension Corps	Mean Difference	Combined Needed Mean	Present vs. Needed Combined Mean Difference
Space Requirements for livestock	1.27	1.13	.14	1.20	1.66	2.45	-.79	2.10	-0.90
Type (kind) of building needed for different types of livestock and types of barn roofs	1.11	.81	.3	0.95	1.72	2.27	-.55	2.03	-1.08
Manure handling	1.61	1.63	-.02	1.63	2.00	2.36	-.36	2.20	-0.57
Structures for preservation and storage of feeds	1.33	.95	.38	1.13	2.33	2.36	-.03	2.35	-1.22

is firmly with the "much" classification, which remaining three items falling within "some" classification of present knowledge held. Within the "some" classification "type of building needed for different types of livestock and types of barn roofs," yielded the lowest score indicating recognition of a lock in present knowledge.

Knowledge Needed by Extension Workers and Extension Corps Members in Livestock Building and Equipment

Responses of all extension workers and extension corps members to the training need in the four specific areas of training are shwon in Table XXXII.

Items rated by extension workers ranged from a low mean of 1.66 to a high mean of 2.33, which placed all items within "much" classification. Mean scores from responses of extension corps members ranged from a low of 2.27 to a high of 2.45, and again all fell in the "much" classification. In spite of similar rating, however, the findings might be interpreted as showing that the extension corps and members indicated somewhat higher mean scores than did extension workers.

There was disagreement between the extension workers and extension corps members as to topic of greatest training need. The extension corps members gave the highest ranking in items of knowledge needed to the item "space requirement for livestock," whereas the extension workers indicated that this item was such as to indicate the least need for training among the four selected items listed. The greatest training need expressed by extension workers was in the area of "structure for preservation and storage of feeds."

When responses from both extension workers and extension corps members are combined, the mean scores ranged from a low of 2.27 to a high of 2.45, thus all falling into the "much" classification. Difference between the high and low mean scores was only 0.32, indicating little discrimination between the items. The greatest need for training was indicated by both groups in:

1) Structure for preservation and storage of feeds
2) Manure handling
3) Type (kind) of building needed for different types of livestock and types of barn roofs
4) Space requirement for livestock

Judgements of Extension Workers and Extension Corps Members as to Present Knowledge and Training Needed in the Area of Animal Health, Disease and Prevention

Self assessment of present knowledge held and training needs based on responses received from extension workers and from extension corps members with regard to the general area of animal health, disease and prevention are presented in Table XXXIII. It should be noticed by examination of data that the present knowledge held expressed in terms of mean responses of extension workers range from a low of 0.94 to a high of 1.38, with each of five selected items falling into the "some" classification. By contrast, mean scores for extension corps members ranged from a low of 0.63 to a high of 1.22, thus as was again true of extension workers all were classified within the "some" classification. In two of the five items in this area, the extension corps members

TABLE XXXV

SELF-ASSESSMENT BY EXTENSION WORKERS AND EXTENSION CORPS MEMBERS AS TO THE PRESENT KNOWLEDGE AND KNOWLEDGE NEEDED IN THE FIELD OF ANIMAL HEALTH, DISEASE, PREVENTION AND PARASITE CONTROL

Item	Present Knowledge				Knowledge Needed				
	N=18	N=22		N=40	N=18	N=22		N=40	
	Mean Extension Worker	Mean Extension Corps	Mean Difference	Combined Present Mean	Mean Extension Worker	Mean Extension Corps	Mean Difference	Combined Needed Mean	Present vs. Needed Combined Mean Difference
Signs of Good Health	1.33	1.13	.20	1.23	1.55	2.18	-.63	1.90	-0.67
Recognizing Animal Diseases	.94	1.18	-.24	1.08	1.83	2.09	-.26	1.98	-0.90
Animal Health (Immunity, Vaccination)	1.16	1.22	-.06	1.20	1.72	2.31	-.59	2.05	-0.85
General Animal Sanitation and Disease Prevention	1.38	1.13	.25	1.25	1.72	2.36	-.64	2.08	-0.83
Disease Control	1.11	.63	.48	0.85	1.88	2.18	-.30	2.05	-1.20

did indicate they perhaps possessed slightly more knowledge than did extension workers. These two items were "animal health (immunity, vaccination)" and "animal disease." The combined mean responses were ranged from a low of 0.85 to a high of 1.25, thus all falling within the "some" classification.

Knowledge Needed by Extension Workers and Extension Corps Members in Animal Health, Disease and Prevention

Felt training needs as expressed through extension worker responses show that in the specific areas of animal health, disease and prevention each and all of the items for both extension workers and extension corps members were classified into the "much" classification. In spite of similar ranking category by both groups, in analyzing the data one immediately notices that each of the five specific areas of training, extension corps members indicated feeling a somewhat greater need for training than was similarily expressed by extension workers.

Means for the five specific training areas for extension workers ranged from a low of 1.55 to a high of 1.88, and for extension corps members from a low of 2.09 to a high of 2.36.

The two areas which were ranked as being most important for the training of extension workers were:

1) Disease control
2) Animal disease

Data indicated that the extension corps members felt the greatest need for training in the areas of "general animal sanitation," "disease prevention" and "animal health (immunity, vaccination)." Combined mean responses for both groups expressing the extent of desire for additional instruction in the five specific items were also all such as to place each in the "much" classification.

Through ranking of means of the combined groups it was determined that the three areas of training most needed were:

1) General animal sanitation and disease prevention
2) Animal health (immunity, vaccination)
3) Disease control

It should be noted that both second and third order received equal mean score of 2.05.

The one area which received the lowest rating was "signs of good health."

When scores are compared to determine differences between present knowledge held and knowledge needed a ranking of the items beginning with the one showing the greatest difference is as follows:

1) Disease control
2) Recognizing animal disease
3) Animal health (vaccinations, etc.)
4) General animal sanitation and disease prevention
5) Signs of good health

TABLE XXXVI

SELF-ASSESSMENT BY EXTENSION WORKERS AND BY EXTENSION CORPS MEMBERS AS TO THE PRESENT KNOWLEDGE AND KNOWLEDGE NEEDED IN THE FIELD OF LIVESTOCK MARKETING

Item	Present Knowledge				Knowledge Needed				
	N=18	N=22		N=40	N=18	N=22		N=40	
	Mean Extension Worker	Mean Extension Corps	Mean Difference	Combined Present Mean	Mean Extension Worker	Mean Extension Corps	Mean Difference	Combined Needed Mean	Present vs. Needed Combined Mean Difference
Importance and Method of Livestock Marketing	1	.90	0.10	0.95	1.66	2.18	-.52	1.95	-1.00

Judgements of Respondents as to Present Knowledge Held Compared to Knowledge Needed in the Area of Marketing

Data presented in Table XXXVI show that the extension workers and extension corps members both recognized their present knowledge for the only one item "the importance and method of livestock marketing," under the "some" classification. However, in spite of the same rating by both groups, the extension corps members provided a mean score indicated they felt they had slightly less knowledge than extension workers.

In contrast to their rating on present knowledge, their needed training placed under the "much" (1.166-2.18) classification. Again the extension corps provided a mean score indicated they felt they need more training than extension workers. An overall combined mean response of both groups ranked in the "much" (1.95) classification.

When score are compared to determine differences between present knowledge held and knowledge needed, the difference was such to indicate that they were in agreement that additional knowledge is needed.

Present Knowledge and Knowledge Needed in the Area of Poultry Production

Data presented in Table XXXVII show judgments of extension workers and extension corps members of present knowledge held and knowledge needed in the general area of poultry production of the seven specific items considered in this area each was classified into the "some"

TABLE XXXVII

SELF-ASSESSMENT OF EXTENSION WORKERS AND EXTENSION CORPS MEMBERS AS TO PRESENT KNOWLEDGE AND KNOWLEDGE NEEDED IN THE FIELD OF POULTRY PRODUCTION

Item	Present Knowledge				Knowledge Needed				Present Vs. Needed Combined Mean Difference
	N=18	N=22		N=40	N=18	N=22		N=40	
	Mean Extension Worker	Mean Extension Corps	Mean Difference	Present Combined Mean	Mean Extension Worker	Mean Extension Corps	Mean Difference	Needed Combined Mean	
Breeds and Breeding	.94	.59	0.35	0.75	1.72	2.59	-0.87	2.20	-1.45
Systems of Breeding	.55	.54	0.01	0.55	1.72	2.00	-0.28	1.87	-1.32
Principles of Incubation	1.27	.77	0.50	1.00	1.88	2.54	-0.66	2.25	-1.25
Factors Involved in Formulating Poultry Rations	1.11	.90	0.21	1.00	1.83	2.31	-0.48	2.10	-1.10
House and Equipment	1.22	1.22	0.00	1.22	2.05	2.45	-0.40	2.27	-1.05
Parasite Control for Poultry	1.44	.90	0.54	1.15	2.11	2.40	-0.29	2.27	-1.12
Disease and Prevention in Poultry	1.16	.95	0.21	1.05	2.16	2.36	-0.20	2.27	-1.22

level of knowledge held, this by both groups. However, in consideration of the item "housing and equipment" each group of respondents had same mean scores of 1.22 and in each of the remaining six items, extension workers indicated possessing a somewhat greater knowledge than did extension corps members. The first ranked item in this area for extension workers was "parasite control for poultry" while item "housing and equipment" was ranked first by extension corps member.

Relatively less knowledge was indicated by the two groups in the area of "systems of breeding." The mean score of this item was 0.55 and 0.59 respectively for extension workers and extension corps members. Combined group mean score for present knowledge held ranged from a low of 0.55 to a high of 1.22, all falling within the "some" classification. There was agreement between workers and extension corps members on the two items in which they possessed the lowest knowledge. These were:

1) Breeds and breeding
2) Systems of breeding

Data collated in Table XXXVII reveal that all of the extension workers indicated a need for "much" training in each of the seven items. Mean scores ranged from a low of 1.72 to a high of 2.16. Three items ranking highest by extension workers in need for training were:

1) Disease and prevention in poultry
2) Parasite control for poultry
3) House and equipment

Two topics were ranked equally in the least training need by extension workers. These were "breeds and breeding" and "systems of breeding," each yielding a mean score of 1.72.

One item ranked above all other with mean score of 2.59 by extension corps members, and thus fell into the "great" classification. This item was "breeds and breeding." Each of the remaining six items attained the "much" classification with mean scores ranging from 2.00 to 2.54.

The three items ranked by extension corps members as most needed in terms of future learning experiences were as follows:

1) Breeds and breeding
2) Principles of incubation
3) House and equipment

It should be noted in each of six items extension corps member indicated somewhat higher mean scores than did extension corps members. Because the score given by extension corps members placed in the "great" classification for "breeds and breeding," this must be accepted at truly greater need expressed.

Combined training mean scores ranged from a low of 1.87 to a high of 2.27, which all fell into "much" classification. Three greatest needed areas for training were ranked equally by both groups together. These were:

1) House and equipment
2) Parasite control for poultry
3) Disease and prevention in poultry

The difference between the high and low mean scores was 0.40 certainly indicated little discrimination between the items. The

result of would indicate that both groups felt all items were important in their preparation and training.

Again for each of the items in poultry production a comparison.

Present Knowledge and Training Needs in the Area of Dairy Industry

The relative present knowledge and training needs of extension workers and extension corps members in the area of dairy industry is shown through data collated and presented in Table XXXVIII.

It should be noticed by examination of data that the present knowledge held expressed in terms of mean responses of extension workers range from a low of 0.77 to a high of 1.44, with each of eleven selected items falling in the "some" classification. By contrast, mean scores for extension corps members ranged from a low of 2.00 to a high of 2.42. Except for the item "importance and use of milk" which received the comparatively high score of 1.50 and thus fell within "much" classification, with the remaining six items in "some" and four items in "none" classification. Two of the eleven items in this area, the extension corps members did indicate they perhaps possessed slightly more knowledge than did extension workers. These two items were "importance and use of milk" and "common dairy health problems."

The combined groups, present knowledge was expressed in means ranging from a low of 0.62 to a high of 1.47, with all of them thus falling within the limits of the "some" classification.

TABLE XXXVIII

SELF-ASSESSMENT OF EXTENSION WORKERS AND EXTENSION CORPS MEMBERS AS TO PRESENT KNOWLEDGE AND KNOWLEDGE NEEDED IN THE FIELD OF DAIRY INDUSTRY

Item	Present Knowledge				Knowledge Needed				Present Vs. Needed Combined Mean Difference
	N=18	N=22		N=40	N=18	N=22		N=40	
	Mean Extension Worker	Mean Extension Corps	Mean Difference	Present Combined Mean	Mean Extension Worker	Mean Extension Corps	Mean Difference	Needed Combined Mean	
Importance and Use of Milk	1.44	1.50	-.06	1.47	1.83	2.14	-.31	2.00	-.53
Factors to Consider in Establishing the Herd	1.11	0.77	0.70	.92	1.88	2.82	-.94	2.40	-1.48
Breeding Dairy Cattle	.88	0.41	.47	.62	1.72	2.82	-1.10	2.32	-1.70
Systems of Breeding	1.00	0.41	.59	.67	1.83	2.91	-1.08	2.42	-1.75
Breeds of Dairy Cattle	.94	0.58	.36	1.00	1.94	2.32	-.38	2.15	-1.15
Physiology of Reproduction	.88	0.27	.61	.55	1.88	2.55	-.67	2.25	-1.70
Formulating a Ration	.77	0.41	.36	.57	1.94	2.77	-.83	2.40	-1.83
Management of Dairy Calves	.94	0.50	.44	.70	1.83	2.77	-.94	2.35	-1.65

TABLE XXXVIII (Continued)

Item	Present Knowledge				Knowledge Needed				Present Vs. Needed Combined Mean Difference
	N=18	N=22		N=40	N=18	N=22		N=40	
	Mean Extension Worker	Mean Extension Corps	Mean Difference	Present Combined Mean	Mean Extension Worker	Mean Extension Corps	Mean Difference	Needed Combined Mean	
Common Dairy Health Problems	.94	0.95	-.01	.95	1.88	2.36	-.48	2.15	-1.20
Care of Sick Animals	1.05	0.73	.32	.87	1.77	2.64	-.87	2.25	-1.38
Management of Dry and Milking Cows	.77	0.55	.22	.65	1.94	2.82	-.88	2.42	-1.77

Judgements of Extension Workers and Extension Corps Members as to Knowledge Needed

Data regarding self-assessment as performed by respondents on the eleven specific items of dairy industry in which knowledge was needed are presented and compared in Table XXXVIII.

Mean for eleven specific training areas for extension workers ranged from a low of 1.75 to a high of 1.94, all classifed in the "much" classification.

In terms of ranking, three items in which the extension workers felt the greatest need for knowledge were identified as:

1) Management of dry and milking cows
2) Formulating a ration
3) Breeds of dairy cattle

The means for eleven specific training areas ranged from a low of 2.14 to a high of 2.91 as rated by extension corps members. Except for three items "importance and use of milk," "breeds of doing cattle" and common dairy health problems" which were rated in "much" classification, with the remaining eight items classified under "great" classification. This suggests that, in most of the eleven specific areas of training in the future, the extension corps members perceived a greater need for training than did extension workers.

The eight specific items which extension corps members rated msot important for knowledge needed determined as:

1) Systems of breeding
2) Factors to consider in establishing the herd
3) Breeding dairy cattle

4) Management of dry and milking cows

5) Formulating a ration

6) Management of dairy calves

7) Care of sick animals

8) Physiology of reproduction

When data secured from the combined group respondents relative to combined needed knowledge is analyzed it is found that all items fell within the "much" classification, ranging from a low of 2.00 to a high of 2.42. Based on combined mean responses the rank order of four more important items were:

1) Systems of breeding

2) Management of dry and milking cows

3) Formulating ration

4) Factors to consider in establishing the herd

When data were analyzed comparing perceptions of the extent of present knowledge held with knowledge needed, it was quite evident that almost all respondents felt a substantial need for training about all selected items dealing with the dairy industry. Mean score differences ranged from a -0.53 to a 1.83, indicating that both groups agreed that additional knowledge was needed if they were to perform at a highly efficient level.

Judgements of Respondents as the Present Skills Held Compared to Skills Needed in the Area of Animal Science

Data in Table XXXIX attempt to show the result of self-assessment made both by extension workers and by extension corps members. A

TABLE XXXIX

SELF-ASSESSMENT BY EXTENSION WORKERS AND EXTENSION CORPS MEMBERS AS TO PRESENT SKILLS AND SKILLS NEEDED IN THE FIELD OF ANIMAL SCIENCE

Item	Present Skills Held				Skills Needed				
	N=18	N=22		N=40	N=18	N=22		N=40	
	Mean Extension Worker	Mean Extension Corps Members	Mean Difference	Present Combined Mean	Mean Extension Worker	Mean Extension Corps Members	Mean Difference	Needed Combined Mean	Present Vs. Needed Combined Mean Difference
Artificial Insemination	1.23	0.94	0.29	1.10	2.45	1.78	0.67	2.15	-1.05
Formulation of the Rations and Ability to Prepare Herd	1.18	0.94	0.24	1.10	2.32	2.00	0.32	2.18	-1.08
Dehorning	0.95	0.61	0.34	0.80	2.27	1.23	1.04	1.93	-1.13
Castration	1.45	1.17	0.28	1.33	2.32	1.28	1.04	1.85	-0.52
Vaccination	1.55	1.11	0.44	1.35	2.32	1.56	0.76	1.88	-0.53
Disinfecting	1.32	1.22	0.10	1.20	2.41	1.61	1.80	2.10	-0.90
Debeaking Poultry	0.73	0.86	-0.13	0.85	2.18	1.44	0.74	1.85	-1.00
Poultry Vaccination	1.59	0.94	0.65	1.55	2.36	1.17	1.19	1.83	-0.28

TABLE XXXIX (Continued)

Item	Present Skills Held				Skills Needed				
	N=18	N=22		N=40	N=18	N=22		N=40	
	Mean Extension Worker	Mean Extension Corps Members	Mean Difference	Present Combined Mean	Mean Extension Worker	Mean Extension Corps Members	Mean Difference	Needed Combined Mean	Present Vs. Needed Combined Mean Difference
Spraying	1.18	1.23	-0.05	1.23	2.32	1.17	1.15	1.80	-0.57
Incubation Poultry	0.86	1.00	-0.14	0.95	2.14	1.33	0.81	1.78	-0.83
Construction of Poultry House	0.77	0.68	0.09	0.80	2.32	1.67	0.65	2.03	-1.23
Shearing Sheep	1.32	0.94	0.38	1.15	2.18	1.50	0.68	1.88	-0.73
Docking Lambs	0.50	0-61	-0.11	0.55	2.14	0.89	1.25	1.58	-1.59

comparison of responses of the two groups is also given. In general, respondents tended to rate skills needed much higher than present skills held. For msot items extension corps members tended to recognize a somewhat lower level of skills attainment presently possessed than did extension workers. However, for the specific skills, "debeaking poultry," "incubation of poultry," "spraying," and "docking lambs" extension corps members indicated through self-assessment a score higher than that given by extension workers. The distribution of mean scores for extension workers response ranged from a low of 0.50 to a high of 1.59. With the exception of two specific items, remaining items rated in the "some" classification. These items were "poultry vaccination" and "vaccination (livestock)," with mean scores of 1.59 and 1.55 respectively placing in the "much" classification. Extension corps members ratings of skills now held ranged from a low mean of 0.61 to a high of 1.23, thus falling within the "some" classification.

An agreement was evident between extension workers and extension corps members on the one item identified by both groups as lowest in terms of self-assessment of skilled presently possessed. This item was "docking lambs." Perhaps this may be explained, in part, by the fact that this practice is quite uncommon in Iran, since the predominant breeds are the "fat tails."

Each of the combined means indicating extent of skills presently held except those classifying one item fell within the "some" level of skills held classification. This item was "poultry vaccination" with mean score of 1.55 under "much" classification. The distribution of mean scores for extension workers with regard to their self-assessment of skills training needed ranged from a low 2.14 to a high of 2.45

thus depicting a spread of 0.31. This could indicate little differentation between the individual training items in terms of skills needed. Extension workers tended to express a feeling of greater need for training than did their contemporary extension corps members. This was a reverse of the findings regarding knowledge held and needed. A comparison of mean scores for each item showed that extension workers regarded each item as being within "much" classification and thus quite important in the training of extension workers. This obviously implied that extension workers desired more intensive training program in acquisition of practical skills.

The following specific areas of training were those in which the greater number of extension workers strongly indicated a need for further skill training.

1) Artificial insemination
2) Disinfection
3) Poultry vaccination

Extension corps members indicated a lesser need for training in each of the specific 13 items for which self assessment of the two groups. Thus it can be concluded that extension workers are more concerned about these skill items. Extension corps members ratings ranged from a low of 0.89 to a high of 2.00, showing a greater spread between high and low items that expressed by extension workers. Six of the 13 items fell into the "much" classification.

The remaining were classified under "some" classification. These six items considered to be of "much" training needed by extension corps members in rank order were determined as:

1) Formulation of the rations and ability to prepare feed

2) Artificial insemination

3) Construction of poultry house

4) Disinfecting

5) Vaccination

6) Shearing sheep

Training in "formulation of the rations and ability to prepare feed" appeared to be of major concern to extension corps members based on high mean score of 2.00. Analyses of data revealed no particular desire for training of extension corps members in the area of "docking lambs."

Analyses of data showed that extension corps members tended to place lower emphasis on each of the two items "poultry vaccination" and "spraying." This may reflect the effect of the orientation program given all new extension corps members during their first few months employment. Much of this month long program centers around the vaccination of poultry and extension corps members may very well feel that this period of exposure meets most of their felt needs in this area.

There were similarities in the patterns of self-assessment of extension workers and extension corps members in the topics in which they needed more training. Comparing assessments among skill items, both wanted considerable training in "artificial insemination" and "formulation of the rations and ability to prepare feed."

When data from both groups are combined, each of the resulting mean scores fell within the "much" classification. Mean scores of

the combined groups ranged from 1.58 to 2.18. The four top ranked items indicating training needed in the skills area were:

1) Formulation of the rations and ability to prepare feed
2) Artificial insemination
3) Disinfecting
4) Construction of poultry house

When scores of present skills possessed were compared with score given for skill training needed as expressed by the combined grouping, all items were found to have greater scores for skill training needed than for skills presently possessed. The greatest spread was found to be in the item "docking lambs." Other items showing substantial spread were: "construction of poultry house," "dehorning," "formulation of the rations and ability to prepare feed," and "artificial insemination."

Judgements of Respondents as to Possible Major Limitations Encountered by Producers in Animal Production

One objective of the study was to identify major problems encountered by producers in the animal industry. This was accomplished by analyses of respondent data covering 31 selected possible limitations. Findings related to this objective are presented in Table XXXX. A cumulative rating for each of the suggested possible limitations was calculated by multiplying the number of responses in each rank order category by the value of the category and then totaling these products. Cummulative ratings were divided by the total number of responses to secure an average rating. The overall rank order was

TABLE XXXX

JUDGEMENTS OF EXTENSION WORKERS AND EXTENSION CORPS MEMBERS AS TO THE EXTENT OF POSSIBLE LIMITATIONS OF SELECTED FACTORS UPON ANIMAL PRODUCTION

Item	N=18		N=22			N=40	
	Mean Extension Worker	Rank	Mean Extension Corps Member	Rank	Mean Difference	Combined Mean	Rank
1. Combination of Many Factors	4.27	2	4.40	2	-0.13	4.35	1
2. Low Level of Knowledge Held By Farmers and Their Families	4.33	1	4.13	4	0.20	4.22	2
3. Lack of Adequate Capital and Credit in the Agricultural Sector	4.27	2	4.00	8	0.27	4.12	3
4. Low Priority Given to Animal Science Industry By Government Agencies	4.16	4	4.59	1	-0.43	4.12	3
5. Illiteracy Among Farmer Families	3.88	10	4.13	4	-0.25	4.02	5
6. Lack of Effective Research in the Area of Animal Science	3.83	12	4.13	4	-0.30	4.00	6
7. Lack of Adequate Winter Feeds	4.00	7	3.90	13	0.10	3.95	7
8. Lack of Technical Knowledge in the Area of Animal Science by Extension Workers	3.66	15	4.13	4	-0.47	3.95	7
9. Lack of Cooperation and Coordination Between Agricultural College, Extension Services and Experiment Stations	3.94	9	3.95	10	-0.01	3.95	7
10. Lack of Innovative Management	4.00	7	3.90	13	0.10	3.95	7
11. Small Farming System	3.88	10	4.00	8	-0.12	3.90	11
12. Availability of Ready Market	4.16	4	3.63	17	0.53	3.87	12
13. Lack of Adequate Feed Stuffs	3.66	15	4.04	7	-0.38	3.87	12

TABLE XXXX (Continued)

Item	N=18 Mean Extension Worker	Rank	N=22 Mean Extension Corps Member	Rank	Mean Difference	N=40 Combined Mean	Rank
14. Lack of Cooperation Between Different Agencies Serving Agriculture	3.05	24	3.95	10	-0.90	3.80	14
15. Poor Quality Processing and Packaging of Products	4.16	4	3.70	19	0.46	3.80	14
16. Scarcity of Water	3.55	18	3.90	13	-0.35	3.75	16
17. Overgrazing	3.33	21	3.91	12	-0.58	3.65	17
18. Continuing of Poverty	3.00	25	4.18	3	-1.18	3.65	17
19. Lack of Effective Extension Programs	3.44	20	3.77	16	-0.33	3.62	19
20. Conditions of Roads	3.72	14	3.50	19	0.22	3.60	20
21. Unadapted Livestock Kinds and Breeds	3.27	22	3.40	24	-0.13	3.60	20
22. Low Prices for Animal Product	3.50	19	3.36	27	0.14	3.42	22
23. Lack of Trained Personnel in Animal Science	3.77	13	3.40	24	0.37	3.57	23
24. Low Unit Production in Yields	3.66	15	3.36	27	0.30	3.50	24
25. Storage	3.27	22	3.45	21	-0.18	3.37	25
26. Low Soil Fertility	2.89	27	3.59	18	-0.70	3.27	26
27. Curtailed Availability of Trucks	3.00	25	3.45	21	-0.45	3.25	27
28. Spread of Contagious Disease	3.05	28	3.40	24	-0.35	3.25	27
29. Climatic Factors	2.38	31	3.18	30	-0.80	2.92	29
30. Availability of Fertilizer	2.83	28	3.44	23	-0.61	2.82	30
31. Salt Content	2.61	30	2.59	31	0.02	2.60	31

established on the basis of the order of these average ratings. A zero value assigned to the "none" classification, a one value to the "little," a two value to the "some," a three value to the "much" and a four value was assigned to the "great" classification. Equal distance between the successive classifications was assumed. If an agent failed to respond to an item, the agent was not included in the total number of respondents for that particular item.

Extension workers responses were such that eight of the 31 selected items were classified in the "great" classification, and 19 in the "much" classification, with the remaining four classified as "some." Extension corps members recognized ten items as "great," 20 as "much" with only one classified as "some." Neither of the responding groups showed mean scores low enough to be classified as "little" or "none."

Reference to the combined group scores show the following items as considered as limitations of the first order or "great" in terms of their limiting capacity:

1) The combination of many factors listed.

2) A continuing low level of knowledge held by farmers and their families.

3) Low priority given the animal science industry by governmental agencies.

4) Lack of adequate capital and credit in the agricultural sector.

5) Illiteracy among farmers families.

6) Lack of effective research in the area of animal science.

Those items which, in the judgement of respondent combined groups, were of second order in terms of possible limitation or of a "much" level in limiting capacity were:

7) Lack of innovative management.

8) Lack of cooperation and coordination between agricultural college, extension services and experiment stations.

9) Lack of technical knowledge in the area of animal science by extension workers.

10) Lack of adequate winter feeds.

11) Small farming system.

12) Availability of ready market.

13) Lack of adequate feed stuffs.

14) Lack of cooperation between different agencies serving agriculture.

15) Poor quality processing and packaging of products.

16) Scarcity water.

17) Overgrazing.

18) Continuing of poverty.

19) Lack of effective extension programs.

20) Conditions of roads.

21) Unadapted livestock kinds and breeds,

22) Low prices for animal product.

23) Lack of trained personnel in animal science.

24) Low unit production in yields.

25) Storage.

26) Low soil fertility.

27) Curtailed availability of trucks.

28) Spread of contagious disease.

Only three of the suggested limiting factors or items were judged by the combined groups as of "some" importance in terms of possible limiting capacity.

29) Climatic factors.

30) Availability of fertilizer.

31) Salt content.

In terms of rank order of the entire array of possible limitations the combined group ranked "combination of many factors" in first place. When ranking each group separately is determined, it is interesting to note that each of the two groups ranked this item second. The combined ranking further revealed "how level of knowledge held by farmers and their families" in second place. Extension workers as a group ranked this in first place with extension corps members ranking it in fourth. Analyses of data further revealed that the combined groups listed "lack of adequate capital and credit in the agricultural sector" in third place. While the extension workers gave a second place ranking, extension corps members placed this item into eighth place. Another item was also ranked third by combined group. This item was "how priority given to animal science industry by governmental agencies." Extension workers as a group ranked this in fourth place with extension corps members ranking it in fourth.

In the medium ranked array covering the middle one-third, the following are to be found:

1) Small farming system.

2) Availability of ready market.

3) Lack of adequate feed stuffs.

4) Lack of cooperation between different agencies serving agriculture.

5) Poor quality processing and packaging of products.

6) Scarcity water.

7) Overgrazing.

8) Continuing of poverty.

9) Lack of effective extension programs.

10) Conditions of roads.

11) Unadapted livestock kinds and breeds.

At the lower end of the ranking array or the lower one-third are to be found the following:

1) Low prices for animal product.

2) Lack of trained personnel in animal science.

3) How unit production in yields.

4) Storage.

5) How soil fertility.

6) Curtailed availability of trucks.

7) Spread of contagious disease.

8) Climatic factors.

9) Availability of fertilizer.

10) Salt content.

When rankings of the two groups were compared the greatest differences between groups are determined to be:

1) Continuing of poverty.

2) Lack of effective research in the area of animal science.

3) Lack of cooperation and coordination between agricultural college, extension services and experiment stations.

4) Availability of ready market.

5) Lack of adequate feed stuffs.

6) Lack of cooperation between different agencies serving agriculture.

7) Poor quality processing and packaging of products.

8) Overgrazing.

9) How prices for animal products.

10) Lack of trained personnel in animal science.

11) How unit production in yields.

12) How soil fertility.

A wide discrepancy was observed in ranking item "continuing of poverty." While the extension corps members gave a third place ranking, extension workers placed this item down into 25th place. This extreme difference in ranking may be at least partially explained by the fact that, compared to extension workers, extension corps members, largely originated from the cities and from somewhat more affluent families, were shocked to come face to face with the object poverty common among farm families. While assignments to the extension corps members are temporary and short term with rather abrupt assignments, extension workers are more likely to have been on the job longer and thus have become more accustomed to viewing the financial plight of farmers. Perhaps, too, they look beyond the limiting factor of poverty per se, and try to recognize other associated factors which themselves pose a part of the viscious cycle of low production, poverty, etc.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents a summary and review of the study within the context of the problem, the design and the conduct of the study, with emphasis upon major findings. Also presented are conclusions and recommendations which are based upon analysis and synthesis of data secured. In this context, considerable weight was given to judgment and opinions expressed by respondents. Recommendations were attempted with full consideration of the aspects posed through design and conduct of the study.

The Purpose of the Study

The major purpose of the study was to identify, describe, and analyze responses secured from extension workers in selected portions of the West Azarbaijan Province of Iran. These responses dealt with limitations imposed upon possible future improvement and development of the animal science industry in the provind. More specific categorization of these limitations were 1) limitations imposed by present conditions and status of animal enterprises, and 2) limitations imposed by the present functioning of agricultural extension workers at the local level.

Objectives of the Study

The primary objectives of this study were as follows:

1) To identify major problems which may presently limit the productivity of the livestock industry.

2) To obtain judgments from agricultural extension workers with regard to needed improvements in livestock production and management.

3) To obtain judgments from agricultural extension workers with regard to needed improvements in the programs of preparation for extension workers, more specifically with regard to training needed in animal science.

4) To determine judgments of extension workers as to who, among selected community residents, can best serve as local leaders for promoting extension programs.

Design and Conduct of the Study

Following a review of research literature pertinent to the problems, the major tasks involved in the design and conduct of the study were as follows: 1) determining the population of the study; 2) developing an instrument for data collection; 3) developing a procedure for data collection; and 4) determining methods of data analysis.

The study population consisted of 40 extension workers and extension corps members working in selected portions of West Azarkaijan Province in Iran. A research questionnaire was developed for collecting data. There were, in all, 40 questionnaires; 40 (100 percent) were returned. Since a total population was used, only descriptive statistical techniques were appropriate. So analysis of data involved calculaing percentage, rank orders, and weighted mean scores.

Findings of the Study

Background Information

A summary of findings of the study is presented in the following categories: 1) background information; 2) judgment as to identification of village leaders; 3) self-assessment of respondents as to knowledge needed; 4) judgments of respondents as to possible limiting factors affecting livestock production.

For extension workers, number of years of experience in the Extension Service fell into the following categories: 0-5 years, 6 respondents; 6-10 years, 11 respondents; 11-18 years, no respondents; and one respondent reporting 19 years of experience. By contrast, extension corps members serve short periods of only one and one-half years, with non serving a second time.

Of the extension workers who responded, 16 finished agricultural high school. This was in contrast to the extension corps members group, where 19 finished secondary high school with a major in science.

Each of the 22 extension corps members received his training in the Ministry of Agriculture in Tehran, while 11 of the extension workers received their training in the capital of the Province of Urumiyieh. Seven had training in the Ministry of Agriculture in Tehran. For both groups, a lotal of 17 (42.5 percent) of the respondents indicated a B.S. degree in specialized agriculture to be an appropriate level of education for attainment by extension workers.

With regard to cooperation between extension workers and the agricultural college, two-thirds of the extension workers and more than one-half of the extension corps members indicated that they feel little,

if any, cooperation exists.

Both extension workers and extension corps members reported using the same methods when helping farmers to adopt new ideas and practices. Methods based on person-to-person contact such as method demonstration, result demonstration, small group meetings, and individual visits are those most commonly used. No appreciable difference existed between the groups in terms of methods used.

Judgments as to Identification of Village Opinion Leaders

In order to determine if there were observable patterns of opinion leadership among the villagers, an effort was made to determine the comparative extent to which certain selected people filled the role of functioning as sources of advice or information for farmers.

Data presented in Table XXXXI summarize combined responses of extension workers and extension corps members' judgments as to the relative or comparable function of selected individuals as sources of advice for farmers within four areas of agricultural production and village living. It was found that people in the villages "often" approach the village headman and chairman of farmer's group to seek information and assistance on social and developmental problems. It was further determined that the outstanding farmer was recognized as the most sought after person to assist in introducing new ideas and practices among villagers. This fact was evidenced by the average rating by combined groups of extension workers and extension corps members which for outstanding farmer was 2.5, thus reaching as high as the "continuously" category. However, the village headman was the second person so ranked

TABLE XXXXI

RELATIVE FREQUENCY WITH WHICH FARMERS SEEK COUNSEL AND ADVICE FROM SPECIFIED INDIVIDUALS IN FOUR AREAS OF AGRICULTURAL PRODUCTION AND VILLAGE LIVING

Areas	Religious Leader		Village Headman		Chairman of Farmers Group		Outstanding Farmer		Local Teacher		Middleman	
	Mean Score	Classification	Mean Score	Classification	Mean Score	Classification	Mean Score	Classification	Mean Score	Classification	Mean Score	Classification
Social and Developmental	1.27	Seldom	2.45	Often	1.67	Often	1.37	Seldom	0.77	Seldom	0.45	Never
Introducing New Ideas and Practices	0.57	Seldom	2.42	Often	1.80	Often	2.50	Continuously	0.90	Seldom	0.20	Never
Agricultural Technology	0.75	Seldom	2.57	Continuously	2.00	Often	2.17	Often	0.87	Seldom	0.47	Never
Agricultural Production	0.70	Seldom	2.50	Continuously	1.82	Often	2.37	Often	1.15	Seldom	0.40	Never

by both groups for this same purpose. A mean score of 2.42 resulted in the slightly lower classification of "often."

Somewhat more specific than "new ideas and practices" was the area "agricultural technology." In the judgment of respondents, the people "continuously" consulted the village headman for advice. The mean score was 2.57. Remaining sources allegedly used by villagers were "outstanding farmer," and"chairman of farmer's group" who were consulted "often."

It was also found that for advice and counsel in the area of agricultural production, respondents felt that farmers more often consulted the village headman. A mean score of 2.50 was classified use of this individual as "continuously," while the source next most used was the "outstanding farmer" with a mean score of 2.37 resulting in an "often" classification.

It would seem significant that individuals with role designations as "local teacher" and "religious leaders" were each classified as "seldom" used in each of the four areas. In like manner, the individual filling the role of "middleman" was, according to the judgment of respondents, "never" used.

Self-assessment of Respondents as to Knowledge Presently Held and Knowledge Needed

Data presented in Table XXXXII summarizes combined responses of extension worker and extension corps member with regard to responses regarding knowledge they now have concerning selected animal science items and knowledge needed in this area.

The self-assessment by respondents definitely shows that with each selected item, both extension workers and extension corps members

TABLE XXXXII

A SUMMARY OF THE SELF-ASSESSMENT OF RESPONDENTS AS TO KNOWLEDGE PRESENTLY HELD AND KNOWLEDGE NEEDED

Item	Present Knowledge N=40		Knowledge Needed N=40	
	Combined Present Mean	Classification	Combined Needed Mean	Classification
A. Livestock Feeding and Nutrition				
1. Feed Nutrients	0.98	(Some)	2.20	(Much)
2. Feed Additives	0.85	(Some)	2.08	(Much)
3. Function of Nutrients	0.90	(Some)	2.18	(Much)
4. Selection of Feeds, Preparation of Feeds, and Essentials of Balanced Diet	0.80	(Some)	2.38	(Much)
5. Balanced Rations	0.65	(Some)	2.05	(Much)
B. Animal Breeding				
6. Artificial Insemination	1.20	(Some)	2.25	(Much)
7. Selection in Livestock Breeding	0.95	(Some)	2.10	(Much)
8. Systems of Breeding	1.13	(Some)	2.08	(Much)
9. Fundamentals of Heredity	0.80	(Some)	1.93	(Much)
10. Identifying Breeds of Livestock	1.03	(Some)	2.05	(Much)
C. Livestock Building and Equipment				
11. Space Requirements for Livestock	1.20	(Some)	2.10	(Much)

TABLE XXXXII (Continued)

Item	Present Knowledge N=40		Knowledge Needed N=40	
	Combined Present Mean	Classification	Combined Needed Mean	Classification
C. (Continued)				
12. Type (Kind) of Building Needed for Different Types of Livestock and Types of Barn Roofs	0.95	(Some)	2.03	(Much)
13. Manure Handling	1.63	(Much)	2.20	(Much)
14. Structures for Preservation and Storage of Feeds	1.13	(Some)	2.35	(Much)
D. Animal Health, Disease, Prevention and Parasite Control				
15. Signs of Good Health	1.23	(Some)	1.90	(Much)
16. Recognizing Animal Disease	1.08	(Some)	1.98	(Much)
17. Animal Health (Immunity, Vaccination)	1.20	(Some)	2.05	(Much)
18. General Animal Sanitation and Disease Prevention	1.25	(Some)	2.08	(Much)
19. Disease Control	0.85	(Some)	2.05	(Much)
E. Livestock Marketing				
20. Importance and Method of Livestock Marketing	0.95	(Some)	1.95	(Much)
F. Poultry Production				
21. Breeds and Breeding	0.75	(Some)	2.20	(Much)
22. Systems of Breeding	0.55	(Some)	1.87	(Much)
23. Principles of Incubation	1.00	(Some)	2.25	(Much)

TABLE XXXXII (Continued)

Item	Present Knowledge N=40		Knowledge Needed N=40	
	Combined Present Mean	Classification	Combined Needed Mean	Classification
F. (Continued)				
24. Factors Needed in Formulating Poultry Rations	1.00	(Some)	2.10	(Much)
25. House and Equipment	1.22	(Some)	2.27	(Much)
26. Parasite Control for Poultry	1.15	(Some)	2.27	(Much)
27. Disease and Prevention in Poultry	1.05	(Some)	2.27	(Much)
G. Dairy Industry				
28. Importance and Use of Milk	1.47	(Some)	2.00	(Much)
29. Factors to Consider in Establishing the Herd	0.92	(Some)	2.40	(Much)
30. Breeding Dairy Cattle	0.62	(Some)	2.32	(Much)
31. System of Breeding	0.67	(Some)	2.42	(Much)
32. Breeds of Dairy Cattle	1.00	(Some)	2.15	(Much)
33. Physiology of Reproduction	0.55	(Some)	2.25	(Much)
34. Formulating a Ration	0.57	(Some)	2.40	(Much)
35. Management of Dairy Calves	0.70	(Some)	2.35	(Much)
36. Common Dairy Health Problems	0.95	(Some)	2.15	(Much)
37. Care of Sick Animals	0.87	(Some)	2.25	(Much)
38. Management of Dry and Milking Cows	0.65	(Some)	2.42	(Much)

recognized that they presently possessed somewhat limited knowledge, and also each group clearly indicated that they felt considerable need for further training.

Respondents as a combined group placed all of the present knowledge items except one in the "some" classification rating. Only one was placed in the "much" classification--"manure handling." On the other hand, as contrasted to expressions of knowledge held, each of 38 listed specific items produced a rating of "much" in terms of knowlege needed by respondents.

Moreover, mean scores given by extension corps memers were almost consistently higher than those given by extension workers in terms of "knowledge needed." For 12 of the 38 items, the mean score given by extension corps members was great enough to place these in the "great" classification as contrasted with a "much" classification by extension workers.

Present Skills Held Compared to Skills Needed

In general, respondents tended to rate skills needed higher than present knowledge held. For most items, extension corps members and extension workers recognized a lower level of skills presently possessed.

Most of the skills reported by extension corps members and extension workers were rated "some" for those present skills held and "much" for needed knowledge. Of the 13 specific sills, one had "much" as classification ratings for the present knowledge. The rest had "some" classification ratings.

"Skills needed" ratings were all within the "much" classification.

Judgments of Respondents as to Possible Limiting Factors Affecting Livestock Production

Of the 31 selected items submitted to respondents requesting judgments as to the extent each might be a possible limitation on livestock production, six were classified as "great" and the remaining 22 as "much." These are shown according to classification in Figure 2.

Differences in Judgments Made Between the Two Groups of Respondents

In terms of judgments as to identification of specified individual roles in consulting and giving advice to local farmers, treatment of data yielded only slight differences between groups in rankings given and even less in terms of classification change. In the area of agricultural production, extension corps members ranked "outstanding farmer" first while extension workers ranked this category role second. For the area of social and developmental problems, extension corps members ranked outstanding farmers second, while extension workers ranked the category third. In neither instance was the difference in mean scores sufficient to result in a classification change. Similar differences in ranking of the village headman occurred. In both areas, introducing new ideas and practices and agricultural production, ranking given by extension corps members were second for both categories contrasted with first place rankings given by extension workers. Again the slight differences in mean scores were not sufficient to cause a classification

I. "Great" Classification

A. Combination of many factors
B. Low level of knowledge held by farmers and their families
C. Lack of adequate capital and credit in the agricultural sector
D. Low priority given to animal science by governmental agencies
E. Illiteracy among farmer families
F. Lack of effective research in the area of animal science

II. "Much" Classification

A. Lack of adequate winter feeds
B. Lack of technical knowledge in the area of animal science by extension workers
C. Lack of cooperation and coordination between agricultural colleges, extension services, and experiment stations
D. Lack of innovative management
E. Small farming systems
F. Availability of ready market
G. Lack of adequate feedstuffs
H. Lack of cooperation between different agencies serving agriculture
I. Poor quality processing and packaging of products
J. Scarcity of water
K. Overgrazing
L. Continuing poverty
M. Lack of effective extension programs
N. Condition of roads
O. Unadapted livestock kinds and breeds
P. Low prices for animal product
Q. Lack of trained personnel in animal science
R. Low unit production in yields
S. Storage
T. Low soil fertility
U. Curtailed availability of trucks
V. Spread of contagious disease

III. "Some" Classification

A. Climatic factors
B. Availability of fertilizer
C. Salt content

Figure 2. Judgments of Combined Respondents' Groups as to Possible Limitations for Livestock Production

change. In terms of low rankings the only differences between the two groups occurred in the area of agricultural technology. Here extension workers ranked the religious leader fourth and the local teacher fifth with reverse ranking given by extension corps members. Again, the slight difference in mean scores was sufficient to bring about a classification change.

Finally, the only data yielding in change classification was that regarding the area agricultural production in which the role outstanding farmer was given a classification of "often" by extension workers but "continuously" by extension corps members.

Differences in responses between the two groups, in terms of self-assessment of present knowledge, was characterized by consistently higher mean scores given by extension workers contrasted with lower mean scores given by extension corps members. However in only one case were difference in scores great enough to bring about different classification. This was "importance and use of milk". Which resulted in much classification by extension corps members as contrasted to extension workers that indicated in "some" classification.

Differences in responses between groups as to self-assessment of knowledge needed was characterized by consistently larger scores for extension corps members but again different scores were great enough to cause difference in classification in only 12 of the total 38 items.

Differences in responses between groups in terms of skills presently held and skill training needed was somewhat in reverse to responses concerning knowledge held and knowledge needed. While mean scores for both skills held and skill training needed were consistently higher for extension workers, change in classification was found in

only two items of skills held and one item of skill training needed.

Conclusions

Continued professional improvement, through different kinds of training, is essential to keep pace with the rapid social and technological changes in modern society. Extension services in Iran generally has to emphasize training and base such programs on professional needs evaluated in terms of subject matter, programs, and job performance.

Special training for both extension workers and extension corps members in the area of animal science industry is more important. However, in most areas of training extension corps members felt more training need than did extension workers. There is an apparent reason for the differences in training needed in this area. An extension corps member had worked only a short time, whereas none of the extension workers had less than two years of service.

The conclusion is inescapable that both extension workers and extension corps members definitely feel that both present knowledge held and skills possessed in livestock production is somewhat limited and that more knowledge and skill training is needed.

It may be further concluded that in the judgements of these same groups many factors can be recognized as definitely limiting the advancement of the livestock industry in Iran and that these factors seem to be concentrated in the economic and educational sectors of the industry.

Recommendations

The following recommendations are made based upon analysis and

interpretation of data, including background information.

Recommendations Related to Extension Service Function

1. Analysis of data secured indicated little, if any, perceived coordination between research, extension, and the agricultural college. It is, therefore, recommended that the authorities of the Ministry of Agriculture and Ministry of Education to which these three institutions belong constitute by design a coordinating body for these vital activities.

2. Since methods involving face-to-face or personal contact rated more effective as means of diffusion of new ideas and practices, an increase of the number of these methods per year is recommended in order to be of great benefit to the livestock producer.

3. The College of Agriculture at Urumiyieh in the province could undoubtedly play an important role in furthering extension activities. Therefore, on the basis of the consistent agreement that more knowledge and skill training is needed, it is strongly recommended that the authorities of the university urge the College of Agriculture to continue their efforts toward such achievement. With available trained manpower and technical know-how, educational institutions are in a much better position to promote and conduct extension type activities in their perspective regions.

4. In the extension service of Iran there is still generally an inadequate number of subject matter specialists dealing with extension problems of specific crops or animals to back up the work of the field agents. Such specialists have an important part to play in the training

of the field staffs and also provide a useful link between the extension and research services. Since analysis of data in this study clearly show that both extension workers and extension corps members are aware of this need it is recommended that more agricultural college graduates with majors in animal science be employed as extension specialists to work closely with both extension workers and extension corps members.

5. In Iran the extension service continue to be severely handicapped by a shortage both of funds and of trained personnel. Worker effectiveness is further limited by lack of vehicles and of travel funds, as well as by the frequent need to work in situations with difficult terrain, for transversing. An additional handicap is the fact that so many of the farmers with whom they are dealing are illiterate or semi-illiterate. Salaries of extension workers often remain too low to attract and retain suitably qualified personnel. Not only because of inadequate salaries but also because of the low prestige of farming and the lack of amenities in the rural areas, there is a reluctance to work in the field with the farmers. Since in this study the background information as well as findings of factors of limitations support the statement immediately above, it is therefore recommended that as rapidly as possible extension programs should be expanded and strenghtened in the following manner:

(a) The role of and functions of agricultural extension should be modified with the aim of promoting self-reliance in rural communities;

(b) To increase the effectiveness of the present extension programs a problem oriented approach should be adopted and part of the field staff should be reorganized into small mobile

extension units fully backed by various subject matter specialists; and

(c) The extension service should be strengthened both in terms of personnel and resources and the working, travel, and training conditions of extension officers should be improved throughout the country.

Recommendations Related to Use of Local Leaders

1. The role of the local leaders in livestock extension activities is very important in Iran. In optimum situations they support extension activities at the local level, report the reactions of the farmers when these latters are exposed to new ideas and/or practices, and make suggestions to improve the working techniques, besides these important leadership activities, they also could participate in planning livestock extension programs. Analyses of study data identfy appropriate individuals and support their roles as indicated above. It is therefore recommended that all courses of extension training include studies regarding the assistance given by opinion leaders.

2. In program planning and implementation it has been proven that when farmers and their local leaders are involved in planning extension programs, they are more motivated and usually perform better in achieving the goals and objectives they set for themselves. Since background information, literature reviewed and data analyses support this statement, it is strongly recommended that attention should be given to securing greater involvement of farmers and local leaders in planning local programs of livestock improvement.

Recommendations Related to Training of Extension Personnel

Since analyses of findings show some lack of knowledge of appropriate measures in terms of extension application, it is therefore recommended that the following be accomplished:

1) Develop a well organized systematic induction training program for all new agents.

2) Give emphasis in the induction training program to the technical subjects related to agriculture which are appropriate to their needs and those of the rural people with whom they work.

3) Give emphasis in future service programs to the items identified by extension workers and extension corps members as being the areas of most pressing need but not overlooking lower ranked items which were indicated as areas of need by a sizeable number of agents.

4) Conduct a research study similar to the current study on the needs of specialists. This study was limited to extension workers and extension agents. The training needs of the entire staff must be considered if the overall professional status of the organization is to be advanced. The effectiveness functioning of an organization is dependent upon well trained personnel at all levels in the organization.

5) Great emphasis should be given to the importance of practical experience for extension workers. There are two recommendations which would seem particularly expedient:

a) That an explicit demand should be enforced requiring candidates who do not come from an agricultural background be compelled to undergo a practical term of probation in order

to become familiar with the work and with agricultural surroundings.

b) Also, there is a demand that all future extension workers, including those with an agricultural background, during, as well as at the end of their studies, undergo practical terms of probation. In this case, in order to become acquainted with the direction of work, and with the management of agricultural understanding.

Recommendations Related to the Development of Livestock Production

Since certain factors and a combination of factors were identified as possible limitations to the animal science industry, and since considerable identification of needs was given in the background information, it can be safely assumed that

1) Livestock improvement work is fundamental to the improvement of agriculture in the country, both to ensure proper balance in the diet of the people and to ensure adequate humus for soil maintenance and improvement. Experimentation and improvement programs with livestock are inherently long-term and relative expensive in relation to other types of agricultural research and improvement activities; further, such work types must be continuous and if they are to be effective, have adequate provision for technical laboratories for servicing the experimental and field work. Therefore it is recommended that the Government should attempt to provide the necessary financial and moral support to maintain concrete, long-term schemes required to bring about livestock improvements in the country.

2) It is recommended that the Government take urgent steps to arrange for small farmers to have satisfactory access to institutional credit, both so as to facilitate their development and to reduce the burden of chronic debt owed to non-institutional sources, and the financial hardship caused by natural and political calamities, associated with this sector. The Government must provide adequate financial and other support to agricultural credit institutions to enable them to meet all of the legitimate credit needs of potentially viable as well as viable small farmers. Basic to this recommendation, it is further recommended that the Government assist in strengthening extension services by providing competent technical assistance to train and support national staff, and that effective extension be regarded as a crucial prerequisite for credit operations.

3) From a regional standpoint, the greatest need at the present time would appear to be to strengthen the research system of the West Azarbaijan Province. Population density is high in that region; income levels are quite low; dependence on agriculture is high; and the research infrastructure is quire limite. It is therefore recommended that high priority should be given to developing at least one very strong research center in this region, and to the application of science and technology to the solution of problems in the region.

4) Although data secured in this study did not treat directly on land reform, certain implications would appear evident in such findings as adequate capital and credit needs, which ranked third among 31 selected possible limitations on livestock production. It is therefore recommended that a more detailed study of the rank and file farmers be made directed toward securing information regarding land tenure and its

effect upon animal production. This study should be made by a commission directed by the Ministry of Agriculture, but having representation from other agricultural groups.

5) The technical efficiency of the farmer should be improved through the assistance of the extension and advisory service which should receive technical instruction on appropriate techniques from the competent specialists in the field of cattle husbandry, pasture improvement, and forage crop production. Therefore, it is strongly recommended that additional training in these fields should be provided for extension workers.

6) A comprehensive survey will be necessary to understand better the basic nutritional requirements and to determine the chemical composition, digestibility, and utilization of different feedstuffs. Therefore, it is recommended that local feeds should be studied to determine the feeding value. It appears desirable to establish feeding standards studied in local conditions so as to help utilize available feed sources more efficiently.

7) The improvement of fodder production should be an integral part of the program for the modernization of agriculture and animal husbandry in West Azarbaijan Province. Nevertheless, an increase in the fodder resources is an indispensable part of any program for the improvement of animal husbandry. Therefore, it is recommended that an extension program centering upon the production and utilization of fodder crops be established as soon as possible in each area. For this purpose, close cooperation needs to be established beteen the representatives of the Director of Agriculture, the research services, and the extension services. Special meetings could be held at which the representatives of these different services would be invited to formulate

a working program on the basis of the means available to the extension service and the results obtained by the research services (and, in partucular, the divisions dealing with field crops and animal husbandry). The production or purchase of seed of improved fodder species as well as the purchase of small tools for cutting, drying, or conservation of fodder should be planned from the beginning. The research service would indicate the most recent results obtained and an order of priority for the species and techniquest to be disseminated should be established with due regard to the urgency of the various problems. Because of the great importance of production and utilization of fodder crops to animal production, and since the efficiency and the effect of an extension program depend almost entirely upon staff and facilities, attention is called to previous recommendations. It should again be emphasized that the Government should increase as much as possible the number of technicians and funds available for extension service. The services could thus devote a considerable part of their activities to the demonstration of fodder crops.

Local training centers for technicians of extension services could be organized jointly by the research and extension services. Such centers would be excellent, but would remain ineffe-tive if the lectures and demonstrations were too theoretical and unsuitable for application in the field. Special attention should be given at such centers to an indication of the general outline of the extension program and also to giving extension agents sufficient information on the techniques and species to be demonstrated. In order to contribute substantially to these efforts of the extension service, the research services should carefully review, consolidate findings, and contribute to the publishing

of technical bulletins on the cultivation of the best fodder crops. These pamphlets would be intended mainly for extension agents and should give practical information on cropping techniques, types of cultivation, and the area for which the crop is recommended. As an effective method, the extension service should establish demonstration plots in carefully selected localities. In choosing sites for such plots, the factors considered should include possibilities of cultivating the species, receptiveness of cultivars, and interest of cultivators in attempting proposed improvements, as well as the quality and type of animal husbandry and the material facilities most productive and carrying the greatest potential for future improvement in animal production.

8) Water buffaloes play an important part in milk production and in meeting draft needs in West Azarbaijan Province. Therefore, the exact position of this class of livestock in the agricultural economy of this province should be examined in order to be fully understood, and the attention devoted to its improvement and development should be equal to its relative importance in relation to other classes of livestock.

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APPENDIX

DATA COLLECTION INSTRUMENT

BACKGROUND INFORMATION

1. Please check your job title:

   a. Extension worker.
   b. Extension corp. member.

2. Name of the city where you are presently working?

   City _____ Province _____

3. Are you married? Yes _____ No _____

4. How many years have you worked in your present job? (years of experience in extension) _____

5. What is your level of education acquired? _____ Elementary School _____ Secondary School _____ Secondary Agricultural School _____ B.S. (general) _____ B.S. (Agriculture) _____ M.S. (Agriculture)

6. Please check the name and place of the organization from which you acquired extension training.

   _____ Agricultural department in provincial capital
   _____ County agricultural department
   _____ Ministry of Agriculture (Tehran)
   _____ College of Agriculture in Provincial Center
   Others _____

7. In your opinion extension workers should have completed preparation in: General High School _____ Agricultural High School _____ B.S. in General Agriculture _____ B.S. (Specialized Agriculture)_ _____ M.S. in Agriculture _____ General High School with minimum of 6 months training in extension _____ Others _____

8. At present, what degree of coordination and/or cooperation is there between extension services and agricultural colleges? None _____ Little _____ Some _____ Much _____ Great Deal _____

9. Please check the following methods that you use in helping farmers to adopt new ideas and practices. Method demonstration _____ Result demonstration _____ Radio _____ T.V. _____ Newspaper _____ Small group meeting _____ Extension bulletins _____ Individual Visits _____

INSTRUCTIONS. Draw a circle around one of the four numbers following each item to show your answer to each item.

10. In terms of problems related to social and development affair, how often are the following the resource person for farmers?

	Never	Seldom	Often	Continuously
Religious Leader	0	1	2	3
Village Headman	0	1	2	3
Chairman of Farmer's Group	0	1	2	3
Local Teacher	0	1	2	3
Outstanding Farmer	0	1	2	3
Middleman	0	1	2	3

11. In terms of persons listed below, who usually introduces the new ideas that villages tend to follow?

	Never	Seldom	Often	Continuously
Religious Leader	0	1	2	3
Village Headman	0	1	2	3
Chairman of Farmer's Group	0	1	2	3
Local Teacher	0	1	2	3
Outstanding Farmer	0	1	2	3
Middleman	0	1	2	3

12. What is the relative frequency with which farmers seek advice from the persons listed below?

a. Concerning Agricultural Technology (Seed Certified, Soil Test, Chemical Fertilizer, Pesticide, etc.)?

	Never	Seldom	Often	Continuously
Religious Leader	0	1	2	3
Village Headman	0	1	2	3
Chairman of Farmer's Group	0	1	2	3
Local Teacher	0	1	2	3
Outstanding Farmer	0	1	2	3
Middleman	0	1	2	3

12. b. Concerning Agricultural Production (production of field crops, horticulture crops and livestock).

	Never	Seldom	Often	Continuously
Religious Leader	0	1	2	3
Village Headman	0	1	2	3
Chairman of Farmer's Group	0	1	2	3
Local Teacher	0	1	2	3
Outstanding Farmer	0	1	2	3
Middleman	0	1	2	3

INSTRUCTIONS. Please consider each of the subject areas listed in the center column and react to it concerning your knowledge in the subject area. The left column of rating is for you to indicate the amount of knowledge you have in that subject area at the present time by circling the number.

The right hand column is for you to indicate the amount of additional knowledge or training you need about that subject area.

Please circle two ratings for each subject area (present and desired).

To what extent do you now have knowledge about these subjects?					To what extent do you need more knowledge about these subjects?			
Great	Much	Some	No	Subject Area	Great	Much	Some	No
				A. Livestock Feeding and Nutrition				
3	2	1	0	1. Feed Nutrients	3	2	1	0
3	2	1	0	2. Feed Additives	3	2	1	0
3	2	1	0	3. Functions of Nutrients	3	2	1	0
3	2	1	0	4. Selection of Feeds, Preparation of feeds, essentials of balanced diet	3	2	1	0
3	2	1	0	5. Balanced Rations	3	2	1	0
				B. Animal Breeding				
3	2	1	0	6. Artificial Insemination	3	2	1	0

To what extent do you now have knowledge about these subjects?				Subject Area	To what extent do you need more knowledge about these subjects?			
Great	Much	Some	No		Great	Much	Some	No
3	2	1	0	7. Selection in Livestock Breeding	3	2	1	0
3	2	1	0	8. Systems of Breeding	3	2	1	0
3	2	1	0	9. Fundamentals of Heredity	3	2	1	0
3	2	1	0	10. Identifying Breeds of Livestock	3	2	1	0
				C. Livestock Building and Equipment				
3	2	1	0	11. Space Requirement for Livestock	3	2	1	0
3	2	1	0	12. Type (kind) of Building Needed for Different Types of Livestock & Types of Barm Roofs	3	2	1	0
3	2	1	0	13. Manure Handling	3	2	1	0
3	2	1	0	14. Structures for Preservation and Storage of Feeds	3	2	1	0
				D. Animal Health, Disease, Prevention and Parasite Control				
3	2	1	0	15. Signs of Good Health	3	2	1	0
3	2	1	0	16. Animal Disease	3	2	1	0
3	2	1	0	17. Animal Health (immunity, vaccination)	3	2	1	0
3	2	1	0	18. General Animal Sanitation and Disease Prevention	3	2	1	0
3	2	1	0	19. Disease Control	3	2	1	0
				E. Marketing				
3	2	1	0	20. Importance of Livestock Marketing, Methods of Marmeting Livestock & Marketing Livestock Products	3	2	1	0

To what extent do you now have knowledge about these subjects?					To what extent do you need more knowledge about these subjects?			
Great	Much	Some	No	Subject Area	Great	Much	Some	No
				F. Poultry Production				
3	2	1	0	21. Breeds and Breeding	3	2	1	0
3	2	1	0	22. Systems of Breeding, Selection	3	2	1	0
3	2	1	0	23. Principles of Incubation	3	2	1	0
3	2	1	0	24. Factors Involved Informulating Poultry Rations	3	2	1	0
3	2	1	0	25. House and Equipment	3	2	1	0
3	2	1	0	26. Parasite Control for Poultry	3	2	1	0
3	2	1	0	27. Disease and Prevention in Poultry	3	2	1	0
				G. Dairy Industry				
3	2	1	0	28. Importance and Use of Milk	3	2	1	0
3	2	1	0	29. Factors to Consider in Establishing the Herd	3	2	1	0
3	2	1	0	30. Breeding Dairy Cattle	3	2	1	0
3	2	1	0	31. Systems of Breeding	3	2	1	0
3	2	1	0	32. Breeds of Diary Cattle	3	2	1	0
3	2	1	0	33. Physiology of Reproduction	3	2	1	0
3	2	1	0	34. Nutrients Requirements, Feeds for Dairy Cows and Feed for Dairy Calves	3	2	1	0
3	2	1	0	35. Management of Dairy Calves	3	2	1	0
3	2	1	0	36. Common Dairy Health Problems	3	2	1	0
3	2	1	0	37. Care of Sick Animals	3	2	1	0
3	2	1	0	38. Management of Dry and Milking Cows	3	2	1	0
				H. Technology and Operation				
3	2	1	0	39. Artificial Insemination	3	2	1	0
3	2	1	0	40. Formulation of the Rations and Ability to Prepare Feed	3	2	1	0

To what extent do you now have knowledge about these subjects?					To what extent do you need more knowledge about these subjects?			
Great	Much	Some	No	Subject Area	Great	Much	Some	No
3	2	1	0	41. Dehorning	3	2	1	0
3	2	1	0	42. Castration	3	2	1	0
3	2	1	0	43. Vaccination	3	2	1	0
3	2	1	0	44. Disinfecting	3	2	1	0
3	2	1	0	45. Debeaking Poultry	3	2	1	0
3	2	1	0	46. Poultry Vaccination	3	2	1	0
3	2	1	0	47. Spraying Poultry House and Equipment	3	2	1	0
3	2	1	0	48. Incubation Procedures	3	2	1	0
3	2	1	0	49. Poultry House Design & Construction	3	2	1	0
3	2	1	0	50. Shearing Sheep	3	2	1	0
3	2	1	0	51. Docking Lambs	3	2	1	0

To what extent are these limitations for animal science improvements?

	Great	Much	Some	Little	No
1. Low Soil Fertility	5	4	3	2	1
2. Overgrazing	5	4	3	2	1
3. Salt Content	5	4	3	2	1
4. Availability of Fertilizer	5	4	3	2	1
5. Lack of Water	5	4	3	2	1
6. Conditions of Roads	5	4	3	2	1
7. Storage	5	4	3	2	1
8. Availability of Trucks	5	4	3	2	1

		Great	Much	Some	Little	No
9.	Availability of Ready Market	5	4	3	2	1
10.	Low Prices for Animal Product	5	4	3	2	1
11.	Poor Quality Processing and Packaging of Products	5	4	3	2	1
12.	Lack of Trained Personnel in Animal Science	5	4	3	2	1
13.	Low Unit Production Yields	5	4	3	2	1
14.	Climatic Factors	5	4	3	2	1
15.	Small Farming System	5	4	3	2	1
16.	Unadopted Livestock Kinds and Breeds	5	4	3	2	1
17.	Lack of Adequate Capital and Credit in the Agricultural Sector	5	4	3	2	1
18.	Serious and Contagious Disease	5	4	3	2	1
19.	Lack of Affective Extension Programs	5	4	3	2	1
20.	Lack of Cooperation Between Different Agencies Serving Agriculture	5	4	3	2	1
21.	Low Level of Knowledge Held by Farmers and Their Families	5	4	3	2	1
22.	Lack of Adequate Winter Feeds	5	4	3	2	1
23.	Illiteracy Among Farm Families	5	4	3	2	1
24.	Lack of Adequate Feed Stuffs	5	4	3	2	1
25.	Lack of Affective Research in the Area of Animal Science	5	4	3	2	1
26.	Lack of Tehcnical Knowledge in the Area of Animal Science by Extension Workers	5	4	3	2	1
27.	Lack of Cooperation and/or Coordination Between Agricultural College, Extension Services and Experiment Stations	5	4	3	2	1

	Great	Much	Some	Little	No
28. Lack of Innovative Management	5	4	3	2	1
29. Problems of Poverty	5	4	3	2	1
30. Combination of Many Factors	5	4	3	2	1
31. Low Priority Given to Animal Science Industry by Governmental Agencies	5	4	3	2	1

بنـــام خـــــدا

بـــــرادر مســـئول

سلام وارادت اینجانب علی اقازاده دانشجوی رشته کشاورزی (ترویج دامپروری)را بپذیرید .

نظر به اهمیت کشاورزی وپایه بودن آن در اقتصاد اینده کشور وقرار گیری این امر مهم حیاتی در برنامه دولت انقلابی اسلامی خواهشمند است در پر کردن فرم های ارسالی که برای تحقیق ونوشتن تز دکترای خویش آماده کرده ام همکاری فرمائید . قبلا با تشکر ازلطف شما امید اینکه بتوانیم باهمکاریهای برادرانه در خدمت بـــه وطن عزیز وبهبود کشاورزی گامهای موثری برداشته باشیم .

با تقدیم احترامات

علـــــی اقـــا زاده

پرسشنامه

الف:

۱ـ محل تولد _____

۲ـ محل خدمت: شهرستان _____ استان _____

۳ـ لطفا نوع پست اداری خود را مشخص کنید.

رئیس اداره ترویج ☐ کارشناس ☐ سرپرست و مسئول فنی ☐ مروج ☐ سپاهی ترویج و ا دانی

٤ـ ازدواج کرده اید ☐ بله ☐ خیر

۵ـ طول سابقه خدمت _____

٦ـ میزان تحصیلات رسمی : تحصیلات عمومی یا ششم ابتدائی سیکل اول متوسطه

دیپلم متوسطه (غیر کشاورزی) ☐ دیپلم کشاورزی ☐ لیسانس کشاورزی ☐ فوق لیسانس کشاورزی

لیسانس در سایر رشته ها

۷ـ رشته تخصصی خود را نام ببرید _____

۸ـ آیا به زبان ترکی اشنائی دارید. ☐ خیلی خوب ☐ خوب ☐ کمی ☐ نه

۹ـ لطفا محل و نام موسسه ای را که در انجا اموزش نظری و عملی ترویج را دیده اید مشخص کنید.

اداره کشاورزی درمرکز استان ☐ اداره کشاورزی شهرستان ☐ وزارت کشاورزی (تهران)

دانشکده کشاورزی در مرکز استان ☐ پیشنهاد های دیگر _____

۱۰ـ به نظر شما حداقل میزان تحصیلات مورد نیاز مروج کشاورزی باید در چه حدی باشد

لطفا مشخص کنید: ☐ دیپلم متوسطه ☐ دیپلم کشاورزی ☐ لیسانس کشاورزی تخصصی

لیسانس کشاورزی (عمومی) ☐ فوق لیسانس کشاورزی ☐ دیپلم متوسطه با حداقل شش ماه اموزش

نظری و عملی در رشته ترویج پیشنهاد های دیگر _____

۱۱ـ لطفا میزان همکاری موجود بین اداره ترویج و دانشکده کشاورزی در مرکز استان را مشخص کنید.

اصلا همکاری وجود ندارد ☐ کم ☐ متوسط زیاد ☐ خیلی زیاد

۱۲ـ لطفا روش های اموزشی ترویجی را که بیشتر استفاده می کنید مشخص کنید ☐ متدنمایش طریقه ای

متدنتیجه ای ☐ رادیو ☐ تلویزیون ☐ روزنامه ☐ کلاسهای کوتاه مدت ☐ نشریات ترویجی

ب - راهنمائی: دراین قسمت جواب مورد نظر خود را با کشیدن دایره ای روی یکی از اعداد ۱ تا ٤ برای هریك از افراد ذکر شده مشخص کنید .

۱۳- در صورت بر خورد با مشکلات عمرانی واجتماعی زارعین با کدامیك از افراد زیر معمولا تماس می گیرند .

	هیچوقت	کم	اغلب	همیشه
رهبرمذهبی	۱	۲	۳	٤
کد خدا	۱	۲	۳	٤
رئیس انجمن ده	۱	۲	۳	٤
معلم ده	۱	۲	۳	٤
کشاورز نمونه	۱	۲	۳	٤
رابط(سلفخر)	۱	۲	۳	٤
دیگران ————				

۱٤-کدامیك از افراد زیر در معرفی نظرات وروشهای نوین کشاورزی در روستا پیش قدم اند.

	هیچوقت	کم	اغلب	همیشه
رهبرمذهبی	۱	۲	۳	٤
کد خدا	۱	۲	۳	٤
رئیس انجمن ده	۱	۲	۳	٤
معلم ده	۱	۲	۳	٤
کشاورز نمونه	۱	۲	۳	٤
رابط(سلفخر)	۱	۲	۳	٤
دیگران————				

۱۵ـ در صورت بر خورد با مشکلات کشاورزی زارعین با کدامیک از افراد زیر تماس می گیرند ۰

تکنولوژی کشاورزی		هیچوقت	کم	اغلب	همیشه
(ازمایش خاک،بذر اصلاح شده، دفع افات کوشیمیائی۰)	رهبرمذهبی	۱	۲	۳	٤
	کد خدا	۱	۲	۳	٤
	رئیس انجمن ده	۱	۲	۳	٤
	کشاورز نمونه	۱	۲	۳	٤
	معلم ده	۱	۲	۳	٤
	رابط(سلف خر)	۱	۲	۳	٤
	دیگران				

تولیدات کشاورزی		هیچوقت	کم	اغلب	همیشه
(تولید محصولات زراعی ، دامداری ، باغبانی)	رهبر مذهبی	۱	۲	۳	٤
	کدخدا	۱	۲	۳	٤
	رئیس انجمن ده	۱	۲	۳	٤
	کشاورز نمونه	۱	۲	۳	٤
	معلم ده	۱	۲	۳	٤
	رابط(سلف خر)	۱	۲	۳	٤
	دیگران				

ج ـ راهنمائی ـ درجدول ذیل سه ناحیه مشخص شده است (ناحیه ۱ـ عنوان مطالب ـ ناحیه۲)خواهشمند استبا مطالعه‌هر یك از عناوین ذکر شده نظر شخصی خود را با کشیدن دایره ای روی‌یکی ازاعداد ۱ تا ٤ برای هریك از مطالب در هردوناحیه ۱ و ۲ مشخص کنید ۰

ناحیه ۱ لطفا اطلاعات‌نظری مورد نیازتان را در اینده در مورد مطالب ذکرشده مشخص کنید۰						ناحیه ۲ لطفا اطلاعات نظری(غیر عملی) خودرا درمورد هریك ازمطالب ذکر شده مشخص کنید۰			
هیچ	مقداری	زیاد	خیلی‌زیاد		عنوان مطالب	هیچ	مقداری	زیاد	خیلی‌زیاد
۱	۲	۳	٤			۱	۲	۳	٤
					۱٦ـتغذیه دام				
۱	۲	۳	٤	×	کیفیت‌مواد غذائی(پروتئین ،انرژی پروتئین ،مواد معدنی ،۰۰۰ ۰۰)	۱	۲	۳	٤
۱	۲	۳	٤	×	مصرف انتی‌بیوتیکها بعنوان مکمل در غذای طیور ودام۰	۱	۲	۳	٤
۱	۲	۳	٤	×	ساختمان ووظائف پروتئین ها ، ویتامینها ،مواد معدنی۰	۱	۲	۳	٤
۱	۲	۳	٤	×	جیره بندی	۱	۲	۳	٤
۱	۲	۳	٤	×	طرز اندازه گیری پروتئین،انرژی مواد معدنی موجود درمواد غذائی۰	۱	۲	۳	٤
					۱۷ـ اصلاح‌نژاد				
۱	۲	۳	٤	×	تلقیح مصنوعی	۱	۲	۳	٤
۱	۲	۳	٤	×	سلکسیون	۱	۲	۳	٤
۱	۲	۳	٤	×	متدهای مختلف اصلاح نژاد	۱	۲	۳	٤
۱	۲	۳	٤	×	اصول وراثت	۱	۲	۳	٤
۱	۲	۳	٤	×	شناخت نژادهای مختلف دام	۱	۲	۳	٤

ناحیه ۱					ناحیه ۲			
هیچ	مقداری	زیاد	خیلی‌زیاد		هیچ	مقداری	زیاد	خیلی‌زیاد
۱	۲	۳	٤	عنوان مطالب	۱	۲	۳	٤
				۱۸- تاسیسات دامداری				
۱	۲	۳	٤	× فضای مورد نیاز برای دام ۰	۱	۲	۳	٤
۱	۲	۳	٤	× طرح ساختمان دامداری برای دامهای مختلف (نقه ،ممالح۰۰۰۰)	۱	۲	۳	٤
۱	۲	۳	٤	× نحوه استفاده از فضولات دامی در کشاورزی ۰	۱	۲	۳	٤
۱	۲	۳	٤	× طرز تهیه سیلو	۱	۲	۳	٤
				۱۹- بهداشت دام ،امراض دامی،کنترل				
۱	۲	۳	٤	× مشخصات دام سالم	۱	۲	۳	٤
۱	۲	۳	٤	× امراض بومی ۰	۱	۲	۳	٤
۱	۲	۳	٤	× راههای درمان وپیشگیری امراض (واکسیناسیون،مصونیت۰۰۰۰)	۱	۲	۳	٤
۱	۲	۳	٤	× بهداشت دام ۰	۱	۲	۳	٤
۱	۲	۳	٤	× کنترل امراض ۰	۱	۲	۳	٤
				۲۰- بازاریابی ۰				
۱	۲	۳	٤	× بازاریابی محصولات دامی	۱	۲	۳	٤
				۲۱-پرورش طیور				
۱	۲	۳	٤	× اصلاح نژاد طیور	۱	۲	۳	٤
۱	۲	۳	٤	× سلکسیون	۱	۲	۳	٤
۱	۲	۳	٤	× اصول جوجه کشی۰	۱	۲	۳	٤
۱	۲	۳	٤	× جیره بندی غذائی	۱	۲	۳	٤
۱	۲	۳	٤	× تاسیسات مرغداری	۱	۲	۳	٤
۱	۲	۳	٤	× بهداشت طیور ۰	۱	۲	۳	٤
۱	۲	۳	٤	× امراض وافات طیور ۰	۱	۲	۳	٤

ناحیه ۱					ناحیه ۲			
هیچ	مقداری	زیاد	خیلی‌زیاد		هیچ	مقداری	زیاد	خیلی‌زیاد
۱	۲	۳	٤	عنوان مطالب	۱	۲	۳	٤
				۲۲- گاوهای شیری				
۱	۲	۳	٤	× اهمیت و موارد استفاده شیری	۱	۲	۳	٤
۱	۲	۳	٤	× عوامل موثر در تاسیس یك واحد دامداری	۱	۲	۳	٤
۱	۲	۳	٤	× اصلاح نژاد گاوهای شیری ۰	۱	۲	۳	٤
۱	۲	۳	٤	× متدهای اصلاح دام ۰	۱	۲	۳	٤
۱	۲	۳	٤	× نژادهای گاوهای شیری	۱	۲	۳	٤
۱	۲	۳	٤	× فیزیولوژی دام (دستگاه گوارش، دستگاه تناسلی)	۱	۲	۳	٤
۱	۲	۳	٤	× جیره بندی غذائی	۱	۲	۳	٤
۱	۲	۳	٤	× پرورش گوساله	۱	۲	۳	٤
۱	۲	۳	٤	× امراض بومی	۱	۲	۳	٤
۱	۲	۳	٤	× مراقبت دامهای بیمار	۱	۲	۳	٤
۱	۲	۳	٤	× مدیریت گاو در دوره شیردهی	۱	۲	۳	٤

د- راهنمائی - در این قسمت با کشیدن دایره ای روی یکی از اعداد ۱ تا ٤ در دو ناحیه ۱ و۲ میزان اطلاعات عملی ونیاز خودتان را درمورد هریك از مطالب ذکر شده مشخص می کنید .

ناحیه ۱ میزان اطلاعات عملی مورد نیاز خودرا درمورد مطالب ذکرشده مشخص بفرمائید . هیچ	مقداری	زیاد	خیلی‌زیاد		ناحیه ۲ میزان اطلاعات عملی خودرا درمورد مطالب ذکر شده مشخص کنید. هیچ	مقداری	زیاد	خیلی‌زیاد
۱	۲	۳	٤	عنوان مطالب	۱	۲	۳	٤
۱	۲	۳	٤	۲۳- تلقیح مصنوعی	۱	۲	۳	٤
۱	۲	۳	٤	۲٤- جیره بندی غذائی	۱	۲	۳	٤
۱	۲	۳	٤	۲۵- شاخ زنی	۱	۲	۳	٤
۱	۲	۳	٤	۲٦- اخته کردن دامها	۱	۲	۳	٤
۱	۲	۳	٤	۲۷- واکسیناسیون دامها	۱	۲	۳	٤
۱	۲	۳	٤	۲۸- ضد عفونی ،گند زدائی وجلوگیری از امراض دامی.	۱	۲	۳	٤
۱	۲	۳	٤	۲۹- چیدن نوك جوجه .	۱	۲	۳	٤
۱	۲	۳	٤	۳۰- واکسیناسیون طیور	۱	۲	۳	٤
۱	۲	۳	٤	۳۱- سمپاشی مرغدانها	۱	۲	۳	٤
۱	۲	۳	٤	۳۲- کاربا ماشین جوجه کشی مصنوعی	۱	۲	۳	٤
۱	۲	۳	٤	۳۳- ساختن مرغدان	۱	۲	۳	٤
۱	۲	۳	٤	۳٤- بشم چینی گوسفند	۱	۲	۳	٤
۱	۲	۳	٤	۳۵-بریدن دم گوسفند	۱	۲	۳	٤

۳٦- لطفا انواع دامهائی را که در منطقه شما پرورش داده می شوند مشخص کنید.

گاو گوشتی گاوشیری گوسفند بز گاومیش طیور وغیره_____

و- مطالب ذکر شده در ذیل تا چه اندازه در ایجاد مشکلات وموانع برای پیشرفت دامداری در ناحیه شما دخالت دارند. نظر خودرا با کشیدن دایره ای دور یکی از اعداد ۱ تا ۵ برای هرکدام از مطالب زیر مشخص کنید.

	هیچ	کم	مقداری	زیاد	خیلی زیاد
	۱	۲	۳	٤	٥
٤٠- خاک					
× حاصلخیزی خاک	۱	۲	۳	٤	٥
× چرای بیش از حد	۱	۲	۳	٤	٥
×شوری خاک	۱	۲	۳	٤	٥
× دسترسی به کودهای شیمیائی	۱	۲	۳	٤	٥
٤١- آب	۱	۲	۳	٤	٥
٤٢- حمل ونقل					
× شرائط ووضع جاده ها	۱	۲	۳	٤	٥
× انبار	۱	۲	۳	٤	٥
× وسائل حمل ونقل (کامیون.....)	۱	۲	۳	٤	٥
٤٣- بازاریابی					
× فقدان سیستم صحیح بازاریابی وثبات قیمتها	۱	۲	۳	٤	٥
× پائین بودن قیمت محصولات کشاورزی ودامی	۱	۲	۳	٤	٥
× وضع بسته بندی وعرضه محصولات دامی	۱	۲	۳	٤	٥
٤٤-نیروی انسانی					
× فقدان متخصصین دامداری ودامپروری	۱	۲	۳	٤	٥
٤٥- پائین بودن سطح بهره برداری وکمی به علت تراکم جمعیت وپائین بودن سطح تولید کشاورزی	۱	۲	۳	٤	٥
٤٦- عوامل اب وهوائی	۱	۲	۳	٤	٥
٤٧- کوچکی وپراکنده بودن واحدهای کشاورزی	۱	۲	۳	٤	٥

دنباله ازصفحه ۹ ۰

عنوان مطالب	هیچ ۱	کم ۲	مقداری ۳	زیاد ٤	خیلی زیاد ٥
٤٨ـ عدم تطابق وتناسب نوع حیوانات با وضع کشاورزی و کمبود نیروی کار زراعت	۱	۲	۳	٤	٥
٤٩ـ کمبود سرمایه دربخش کشاورزی بالاخص درامور دامداری	۱	۲	۳	٤	٥
٥٠ـ امراض مسری وواگیر دامی	۱	۲	۳	٤	٥
٥١ـ کمبود اجرای برنامه های ترویجی	۱	۲	۳	٤	٥
٥٢ـ عدم همکاری سائر سازمان های عمرانی در روستا	۱	۲	۳	٤	٥
٥٣ـ پائین بودن سطح اطلاعات روستائیان درزمینه های کشاورزی و اجتماعی	۱	۲	۳	٤	٥
٥٤ـ مشکل تدلیف درزمستان	۱	۲	۳	٤	٥
٥٥ـ بیسوادی دهقانان	۱	۲	۳	٤	٥
٥٦ـ کمبود علوفه	۱	۲	۳	٤	٥
٥٧ـ فقدان تحقیقات کشاورزی بالاخص درامور دامداری	۱	۲	۳	٤	٥
٥٨ـ کافی نبودن تعلیمات مروجین کشاورزی درامور دامداری	۱	۲	۳	٤	٥
٥٩ـ عدم همکاری سازمان ترویج دانشکده کشاورزی ومراکز تحقیقات کشاورزی ۰	۱	۲	۳	٤	٥
٦٠ـ دامداری طبق اصول قدیمی	۱	۲	۳	٤	٥
٦١ـ مشکلات اقتصادی	۱	۲	۳	٤	٥
٦٢ـ ترکیبی از تمام موارد فوق	۱	۲	۳	٤	٥
٦٣ـ پیشنهادات وتوصیه های دیگر_____					

VITA

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