A STUDY OF CAMEROON AGRICULTURAL

EDUCATION PRIORITY ISSUES

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CHAPTER I

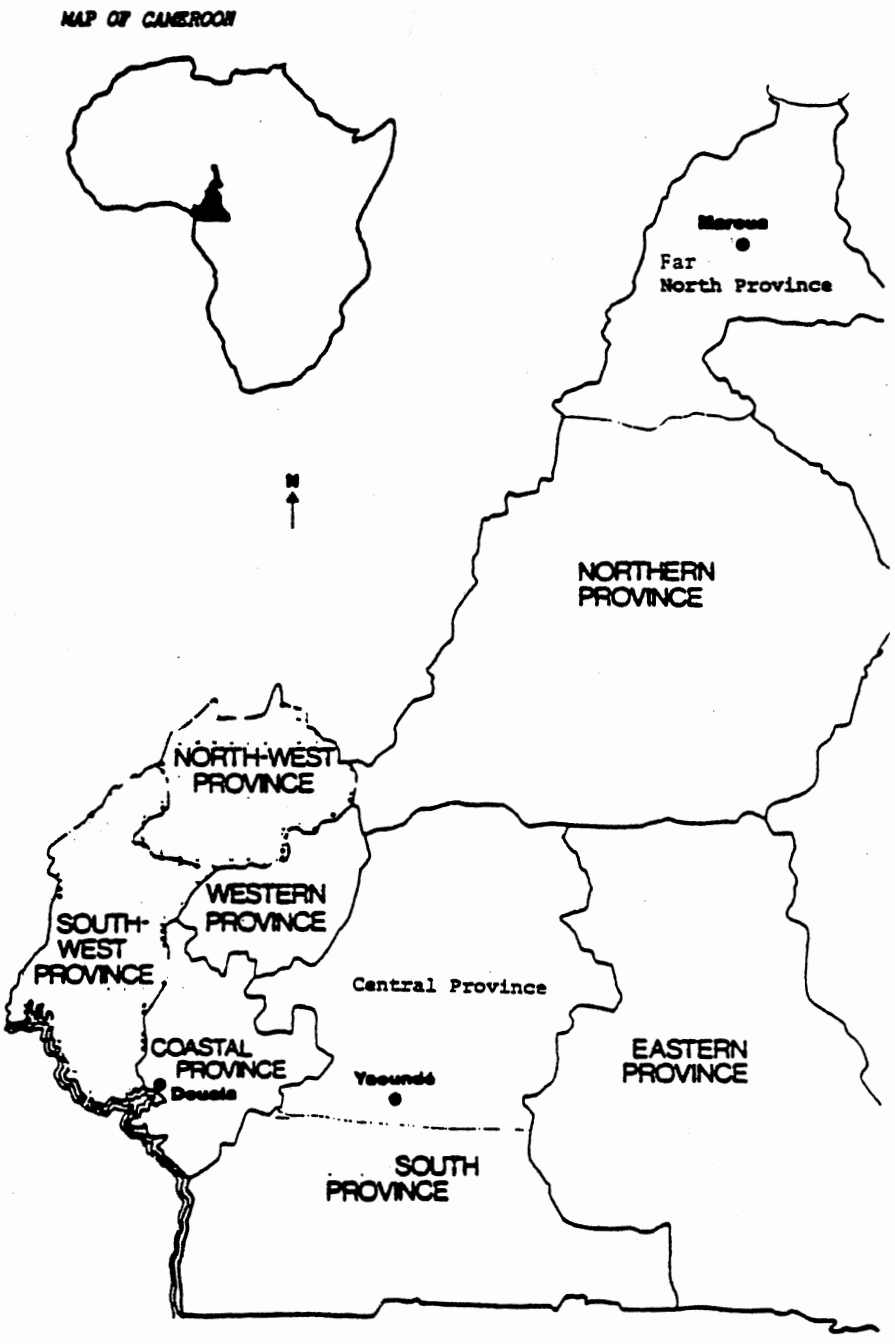
INTRODUCTION

Cameroon is a young, agricultural nation with a population of 8.5 million people, with more than 60 percent of the inhabitants living in the rural areas. Cameroon stretches across 15,000 kilometers from the equatorial forests in the South to the Savannah vegetation in the North. It is between latitude four and thirteen degrees north and between longitude eight and thirteen degrees east. The country has different climates, products and people.

Cameroon is an ex-German colony which was placed under the League of Nations after World War I, became a United Nations trust territory in 1945, gained independence from France in 1960 and from Britain in 1961, and became a republic in 1972. Cameroon has a stable political life.

Naturally, Cameroon can produce both tropical and temperate climate crops. Agriculture, although still peasantry, is the priority sector which produces 70 percent of the country's foreign exchange and employs 73 percent of the working population (Figure 1), (National Research Council, 1974).

Agriculture and Extension are under the Ministry of Agriculture and the Ministry of Animal Breeding and Fishery,



Source: The World Bank. World Bank Development Report. London: Oxford University Press, 1981.

Figure 1. Map of Cameroon Provinces

while agricultural research and institutions are under the Ministry of Higher Education and Research.

Although there has been a sincere effort by the government to develop the agricultural sector, improve the standard of living and increase rural income, crop production is on the decline while urban population increases 7.5% yearly.

Purpose of the Study

The purpose of this study was to identify and prioritize agricultural education issues.

Objectives of the Study

To accomplish the purpose of this study, the specific objectives were:

1. To determine Cameroon agricultural education issues and their priorities as perceived by Cameroon university students and educators.
2. To compare the differences between the groups' perceptions on the priority issues.

Rationale for the Study

The general consensus is that the failures in agricultural development are a result of lack of need prioritization. It is believed that the agricultural educators do not agree on what Cameroon agricultural education priorities should be. Therefore, there was a need to determine Cameroon agricultural education priority issues. Priori-

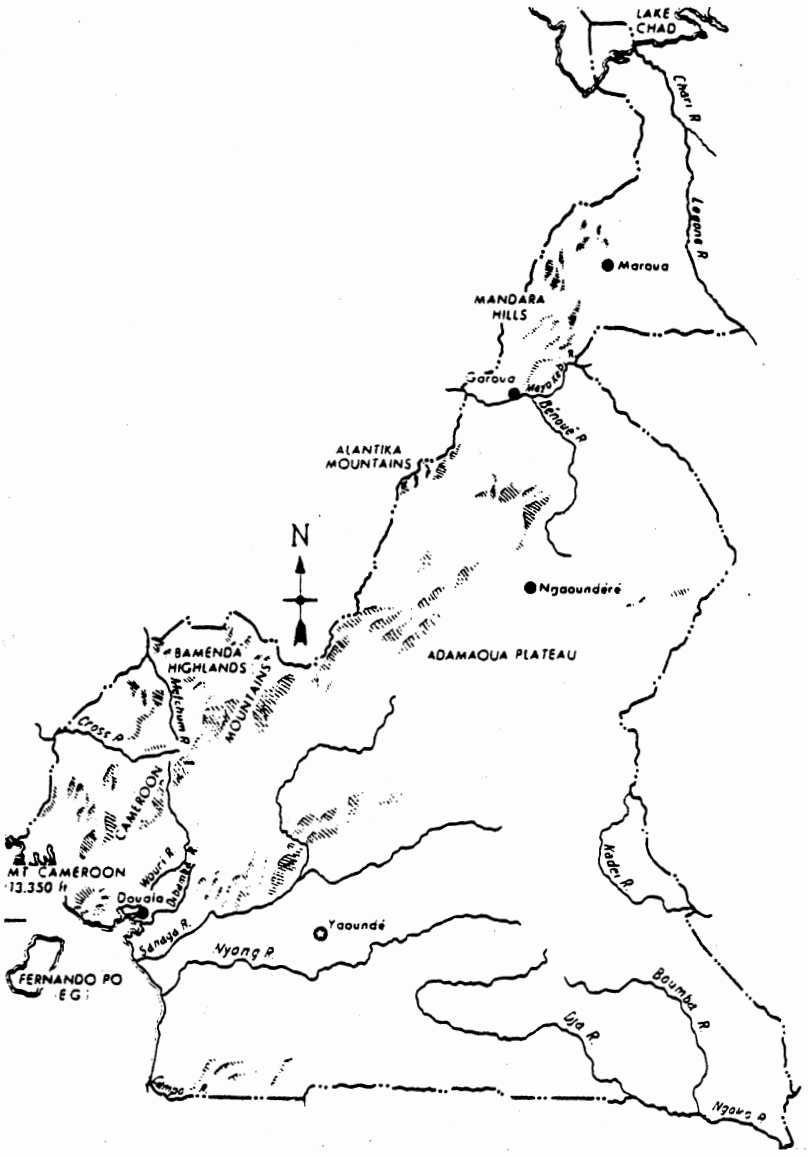
tization of these issues could focus resources, create involvement, avoid wastage and foster development at a much greater pace.

Background Situation

Cameroon is naturally an agricultural nation. The country is between latitude four and thirteen degrees east and between longitude eight and thirteen degrees north. It extends over an area of about 47,500 square kilometers and has more than eight million people. Forms of agricultural activities and farm economy are influenced in a large measure by relief, soil, climate and the customs of the people (Figure 2), (National Research Council, 1974).

Relief

The relief is an important element of the ecological setting directly influencing land use and farming. Relief also affects ease of cultivation and the degree of accessibility. The effect of altitude is felt through climate and soil. The terrain and altitudinal differences have their stamp on the agricultural landscape and are reflected in the cropping systems. The relief types are the sharp surfaces, the plateau, the lowlands between the hills, the coastline and river valleys. Two-thirds of the country is more than 500 meters above sea level (National Research Council, 1974).



Source: The World Bank. World Bank Development Report. London: Oxford University Press, 1981.

Figure 2. Physical Features of Cameroon

Physical Features

From a physical viewpoint, Cameroon is an ancient plateau marked in east-west transect with mountains rising from the plateau. The Cameroon Mountain, 13,350 feet, is the highest point on the plateau.

The relief of the lowland is dominated by the alternation of the escarpments, spurs and river valleys running in north-south direction.

All drainage is carried by fast-running streams which have carved out deep valleys on the plateau. Most of these rivers run a north-south direction (Figure 2), (The Sahel, 1975).

Climate

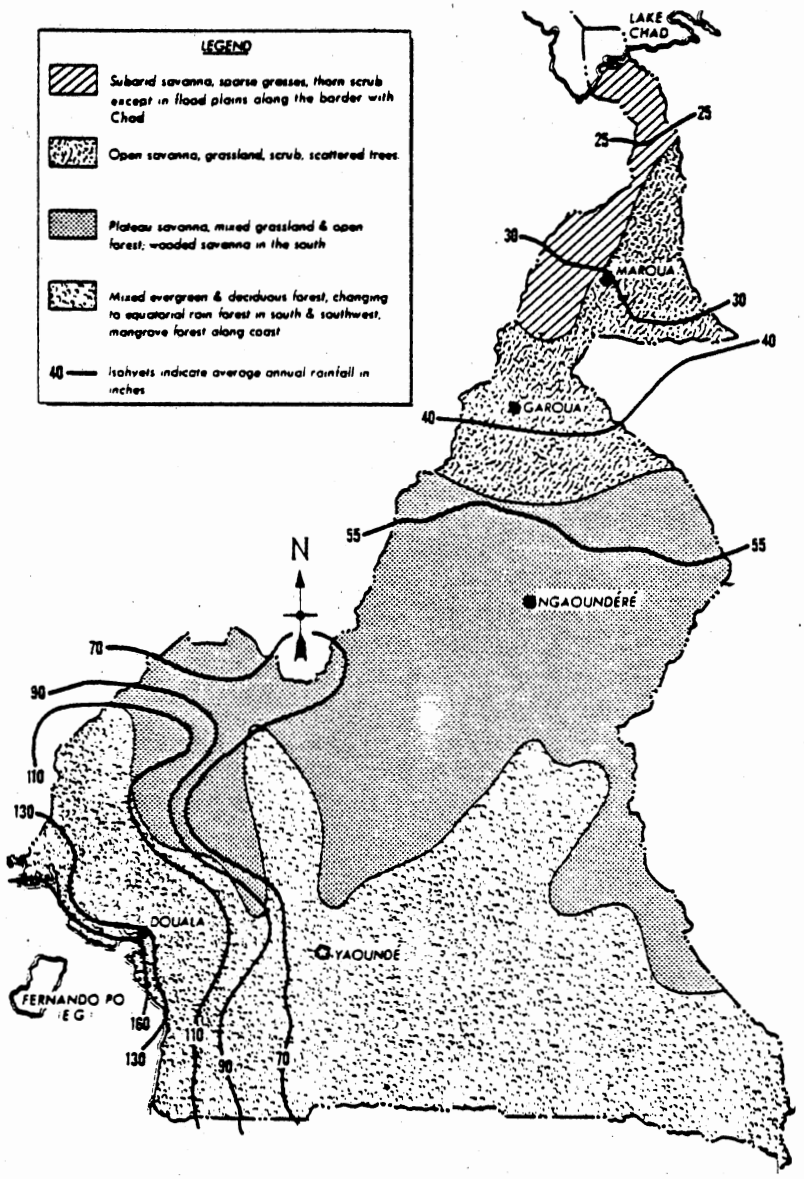
Climate plays an important role in affecting the characteristics of the agricultural economy in Cameroon. Climate influences the choice of the farming system through the impact on the soil formation, length of the growing season, and availability of moisture for crop growth. Cameroon´s climate is greatly influenced by the country´s geographical position and relief; hence, it provides a major physical control in land use. Distinctive climatic features affecting agriculture include mildness and moistness of the climate, the seasonality of the rainfall which accentuates the uncertainties of farming and the differences in local climates which affect crop husbandry. The inter-

tropical front brings annual rain ranging from 20 inches in the north to 400 inches in the south. The heavy rainfall is responsible for the equatorial conditions and the two rainfall maximas, one from April to May and the other from September to October. The seasonality and distribution of the rain regime exercises a fundamental influence in crop production and lays down the agricultural activity seasons (The Sahel, 1975) (Figure 3).

Temperatures determine the limits, north or south of the equator within which crops can grow, while rainfall and atmospheric humidity determine the distribution. In Cameroon, temperature is not an impediment to cropping, although it is important in the choice of crops. Plant growth continues throughout the year as the mean monthly maximum and minimum temperatures remain above 24^{o}C (National Research Council, 1974; The Sahel, 1975) (Figure 3).

Soils

Soils constitute the physical basis of our agricultural enterprise and play a very important role in the agricultural economy of the country. Differences in soil texture, drainage, and fertility are important in explaining the contrast in agriculture. Unlike climate, soil differs within short distances. In many parts where there are sharp irregularities in the topography of the land, it is not uncommon to find bare rocks adjacent to depressions covered



Source: The World Bank. World Bank Development Report. London: Oxford University Press, 1981.

Figure 3. Cameroon Vegetation and Rainfall

with deep soil, while in between them there may be hill slopes or plateau covered with stones. Cameroon soils have not yet been surveyed and classified. Broadly speaking, Cameroon has two soil types which are closely related to the climatic condition than to the parent soil material. To the northern end of the Adamawa plateau are the ferruginous soils which have developed in the area where the rainfall is lower and evaporation prevents the total removal of mineral bases and the silica. Kaolinite is dominant in these soils. Under poor drainage conditions, montmorronite clay forms. These soils are gray in color and do not crack or shrink during the dry season. South of the northern part of the plateau are the fernallitic soils, mostly kaolinitic as in the north, but well drained and of adequate depth for agriculture. These soils cover more than one-third of the area of the country. In the steppe Savannah zone of the far north, the soils vary, although sandy soils predominate (National Research Council, 1974).

Vegetation

Closely related to the climate is the vegetation. Cameroon has two main vegetation belts in the equatorial rain forest or evergreen forests. These forests extend from the coast to the Adamawa plateau (all of the southwest, southern parts of the litoral, central and south provinces are in the evergreen forests). Characteristics of the evergreen forests include thick evergreen undergrowth, tall huge

trees and heavy moisture conditions. Along the coast are the mangrove forests. The wooded Savannah or mountain vegetations are mostly found on the plateau. In these forests, the trees shed their leaves during the dry season. Parts of the Northwest and the West Provinces are located in the deciduous forests. North of the Adamawa plateau is the true Savannah vegetation. Savannah vegetation is characterized by tall, short and stunted grass. There may also be sparse trees in some areas (The Sahel, 1975) (Figure 3).

Agricultural Systems

Closely related to climate and vegetation and dictated by rainfall and altitude are the cropping systems. The economy of Cameroon revolves around agriculture, which is the main occupation of over 70 percent of the inhabitants. In fact, farming is a way of life. The Cameroon dream is to own a farm and a house (The Sahel, 1975).

Cameroon agriculture is mainly subsistence farming, where the farmer grows a single dominant crop, usually cocoa or coffee, on the same piece of land in patches or in a mixture with other crops which are usually food crops. This system of agriculture requires a large human labor force and little or no capital to produce mainly for the subsistence of the farmer and his family. Very high man-land ratio with high degree of human labor in agricultural operations and small farms usually less than five acres are typical. As the use of chemical fertilizers, pesticides

and hybrid seeds are beyond the resources of the farmer, his yields and output per acre are usually low. In general, these conditions have been prevalent until the implementation of the Green Revolution five years ago when government policy increased pressure to stimulate and maintain crop yields.

Based largely on variations in the environment, socioeconomic settings and land use pattern, the cropping system from one part of the country to another is dominated by the cash crop system. Agriculture may also be determined by socioeconomic patterns which may favor or restrict agricultural activities. The social system sets its imprint on landholding and the field system. Differences between communities also affect the scale, type of farming operation, choice of the type of enterprise, farm size, farm implements, market system, and the value system.

Food crops grown include plantains, cocoyams, yams, rice, cassava, millet, corn and potatoes. Cabbage, lettuce, various types of beans, bitter-leaf, egusi, and Njanga ganga are grown as vegetable crops. Oranges, grapefruits, tangerines, plums, mangoes, cashew, and pawpaw or papaya are also grown as fruit crops (National Research Council, 1974).

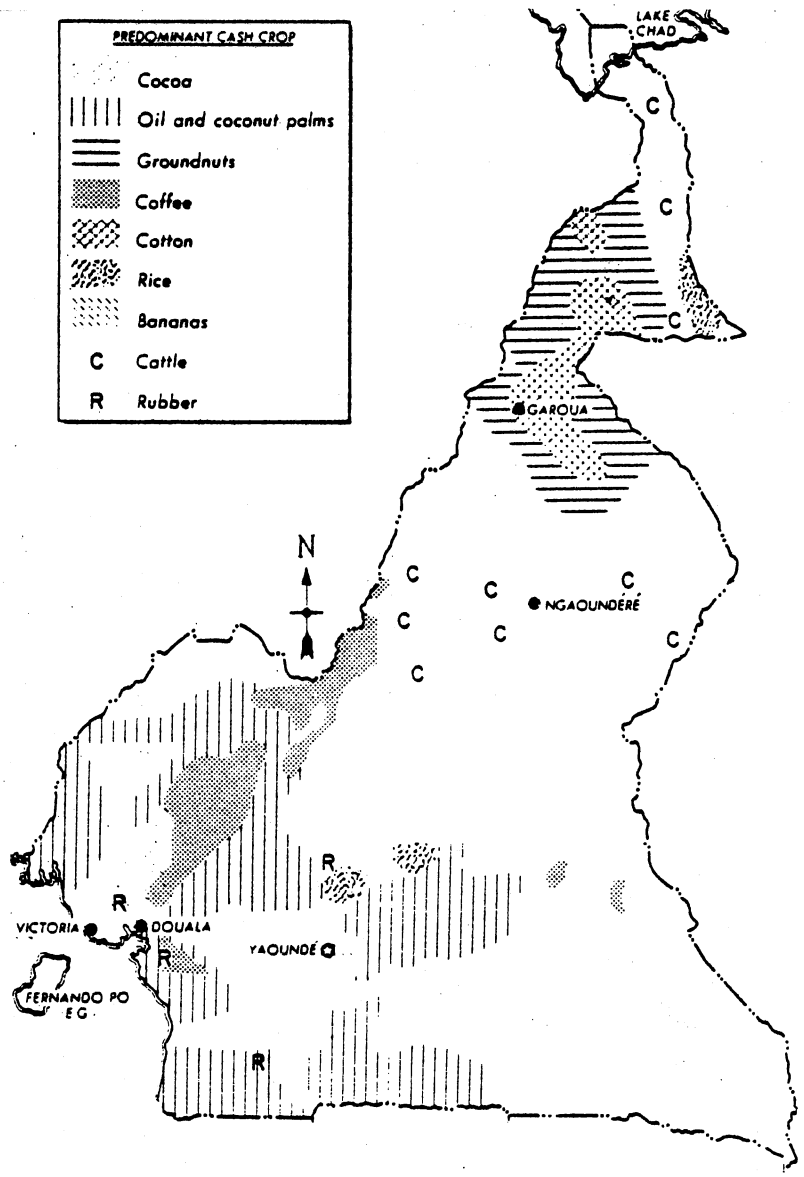
The different agricultural systems in Cameroon are a product of various factors governing land use. A broad division can be made between the forest, long grass and short grass regions. This is an ecological division which

serves to separate that part of the country with more rainfall from that which is more arid. The forest ecological region produces plantain, oil palm, cocoa, tea and coffee (tree types of crops), while the short grass area produces short season crops like millet, cotton or grain. These systems are modified to some extent by further differences based on rainfall and altitude.

Another factor affecting agriculture in each system is the social history and the background of the people in the area. Sociologically, Cameroon can be divided into three divisions. The Bantus, who occupy the equatorial rainforest, are basically agriculturalists with varied backgrounds of interest in large landholdings. The Sudanese and plateau dwellers are traditional cultivators, but also attach some importance to their cattle. The Hamitic people are entirely pastoralists and practice little or no cultivation (The Sahel, 1975).

The coffee, oil palm, rubber, cocoa, and rice systems are practiced throughout the rain equatorial climate. The main crops are the tree crops, which are usually planted for life (Figure 4).

The coffee system is practiced in the equatorial and wooded Savannah belt. Coffee is usually grown in rows with other food crops interplanted. The coffee seeds are first germinated in a nursery, then transplanted in the field. In the field, each coffee seedling is planted in a hole prepared by using a sharp stick or a hoe, 10 to 12 feet



Source: The World Bank. World Bank Development Report. London: Oxford University Press, 1981.

Figure 4. Principal Crops of Cameroon

apart. Usually, planting is done after the undergrowth is cleared. At this stage, the seedlings do better under a heavy shade, so the bigger trees are left standing until the seedlings have become firmly established and plantains have been interplanted. Plantain suckers are usually planted close to the coffee plant to protect it from sunburns at this early stage of growth and also to help retain enough moisture for the plant. The plantains are grown for their parthnocarpic fruits and are cloneally propagated. No plantain seeds have been produced. For good plantain establishment, the selection of a good sucker is very important. Suckers six to seven feet long may be planted, but those three to six inches long serve a better yield and are easier to handle. Both crops are usually planted during the rainy season. The plantains grow faster, so they also serve to show that a coffee plant is in that location, during the next clearing of the undergrowth which comes usually a year later. After the second clearing, other crops like cocoyams, peas, yams, okra, peppers, etc. are then planted in a mixture without any regular pattern. Harvesting is done by hand labor even on the plantation; hence, a very large labor force is needed. Coffee is a major economic crop in the country, so every farmer is encouraged to grow it. There is a sure, steady market for coffee in every small village of coffee growers.

The oil palm system is also practiced in the equatorial vegetation area where the rainfall is heavy all

year, without a pronounced dry season. Until recently, there was no assured market for oil palm in Cameroon, and harvesting is not only difficult but also dangerous. Those farmers who produced oil palm did so either only for personal use or for local consumption. Today, the introduction of the palm oil plantations have created not only a market for local farmers, but more efficient harvesting methods and better yielding varieties have also resulted. The oil palm is first grown in a nursery, then transplanted to the field where secondary vegetation has been cleared. The oil palm trees are usually planted 40 to 50 feet apart by local farmers. In a plantation, they are planted about 20 feet apart (National Research Council, 1974). In a rubber system, the rubber plants are first grown in a nursery by seeds or cuttings, then transplanted in rows in plantations. The trees grow fast and tall; therefore, interplanting with other corps is not usually beneficial for the farmer. Rubber is strictly a plantation crop in Cameroon. Rubber production is typically too expensive for the local farmer and there is no local market for it (National Research Council, 1974).

Upland rice is also important, although the production has declined greatly. The decline may be as a result of cheap imported rice. In a rice system, the forest is slashed and burned. Usually, the men do the slashing while the women follow behind, planting. Planting must be done before the rain in order for the grain to mature by January,

enabling the harvest to be completed before the first rain. Only one rice crop is raised during a growing season. There could be a good local market for the rice if the government encouraged it. Harvesting and planting of rice is all done by hand labor. Although rice is not one of the main Cameroon dishes, it is eaten by more than one-third of the population each day (National Research Council, 1974).

In each system, the main crops are planted for cash while the supporting crops are food crops. All supporting crops cannot be described herein. Note that the part of the country just described is the most fertile; hence, it is the most agricultural and the most advanced, both economically and technologically.

In the Savannah region, wooded and steppe Savannah, the agricultural practices are different. On the plateau, and north of it, the rainfall is less. As the distance from the coast increases, temperatures increase while rainfall decreases and the vegetation changes to grass until the steppe Savannah is reached. Coffee or cotton may be grown where the rainfall allows. Note that the rainfall and temperatures are greatly affected by local conditions. As a result of the low rainfall, only short season crops can be grown. This system differs from those in the south by monomedal rainfall distribution and also by the customs of the people. As in the southern systems, a farmer grows numerous short season crops on the same small area of land, usually less than five acres (Conference on Agricultural

Research and Production in Africa, 1971). The trees are absent, except where coffee is grown. The most distinguishing feature of this system of agriculture is the custom of utilizing communal labor for cultivation. Labor is procured from friends and neighbors in return for food for a day's work. The crops grown here include cotton, millet, peas, sesame, sorghum, cassava, cowpeas, groundnuts, sweet potatoes, tobacco, pepper, cocoyams, and other vegetable crops. Plantain and coffee may be included where the rainfall allows; however, they disappear from farms as one moves toward the drier areas. The rotation followed under this system is well defined. Cotton is the most common crop planted in a newly cultivated land, often followed by millet or peas or some other type of grain crop (The Sahel, 1975; National Research Council, 1974).

Shifting cultivation is practiced heavily in this part of the country where the crop is grown for just a season. Management of livestock under this system is largely traditional. Animal species assume greater importance under this condition. Division of labor by sex is not uncommon. Men open the land while the women follow behind, planting. After planting, weeding and harvesting is for women while the men hunt or graze the cattle. This system stands as a traditional zone between the permanent tree crop farming and the Chad Basin nomadic pastural system (The Sahel, 1975).

The pastural system is a purely nomadic existence. Any agricultural produce required is obtained by means of

barter. Milk is usually exchanged for grain flour or other commodities. The crops grown are usually very short season crops, as the incoming rain allows, if it comes at all. The district is classified as semi-arid. The soil and vegetation are different from the rest of Cameroon. The agrocultural system is influenced by the unreliability of the rain and the extended dry season, usually experienced for nine or more months per year. As one moves toward the Chad Basin, one sees very small plots of groundnuts, a little cassava or beans, and patches of cucurbits, marrows, and tobacco here and there around the permanent settlements. Storage of food crops assume great importance. The main grain fields are in the areas of permanent settlement and cultivation can be seen on the red or black soil. The fields are quite irregular in shape. The main instruments used for cultivation are the hoe and the stick. Soil conservation methods are unknown (National Research Council, 1974).

In this system, a firm seed bed or a mount is required. If the main crop is cotton, the crops that follow are planted or sown either before or after the main crop is planted, usually before the rain. Seeds are broadcast on the bed or mount made with a hand hoe. If a good rain follows, germination is good and early establishment of a good crop for a good yield (in their terms) is achieved. If the ox-plow is used, the land is lightly tilled, merely skimming the soil subsurface to broadcast seeds on this

rough, but not deep, seedbed; a stick or a hoe is then used to cover the seeds. The biggest agricultural problem is weed competition. The growth of young seedlings is usually very slow compared to the weeds. Weeding has to begin when the seedlings are just emerging from the soil. Weeding is done by hand (National Research Council, 1974).

Multiple cropping. Multiple cropping, whether it be intercropping or sequential, whether it be in Cameroon or Asia, or whether it is within the most primitive or the most advanced agricultural system, is dictated by the farmer´s economic constraints. In Cameroon, the average farmer has no capital, yet is faced with the problem of providing for his extended family of over 20 members. He has to produce as much as his soil and labor can provide without any form of fertilization. In this way, the farmer has to produce all the food he needs. He has to make use of all labor and land available. In a single growing season, he may produce as many crops as he can afford to interplant. Although production may not be maximized, the labor is reduced for growing the crops together. In the north, where the rainfall is seasonal and the dry season is prolonged, the farmer grows his crops when the rain comes. He utilizes moisture fully by raising as many crops as he can on the plot. In the south, where there is no distinct dry season, the crops are grown all year. Crops commonly grown in mixtures differ in maturity; hence, the require-

ment of time and competition between them is not even considered (Wortman and Cummings, 1979).

Intercropping systems utilize labor and the arrangement of crop components, e.g., one variety may provide support for another, such as using beans with plantains, or cassava or yams with plantains. Labor is an important dimension. In cases where corn is planted with beans, beans provide the nitrogen needed by corn. High-yielding crops give optimum yield over a wide range of population density. Intercropped crops are less critical at high density (Wortman and Cummings, 1979). They also indicated that orientation of mixed crops into rows has many advantages because production techniques can be applied in a mixture.

Another significant factor in these systems is the greater dependability or return therein, compared with other systems. This is very important in Cameroon, especially to smaller farmers whose alternatives to production are restricted by many constraints. In this way, the farmer is sure that his labor is protected. Single crop systems offer less dependable returns (National Research Council, 1974). In northern Cameroon, as well as other Sahel countries, intercropping produces a return for more than one crop within a growing season and attracts the development of soil and water resources which are accompanied by many features. Crop mixtures are more dynamic biologically. It is less likely to give in to natural adversities. Pest attacks are usually low in crop mixtures (Caswell and

Raheja, 1972).

The form of these production systems and the benefits derived are dictated by the farmers' resources and understanding of how to achieve maximum yield within the limitation of his environment and experience. In the south, where the rainy period is long enough to grow more than one crop of different maturity or in areas where irrigation is practiced, these systems have proved beneficial.

Farm Size. The question of farm size is a central issue in the controversy over how Cameroon agriculture should be organized for agricultural development. This issue has its basis on the complex land tenure system which does not allow a single farmer to acquire large acreages where he can use modern techniques of farming that will bring high productivity and economic returns. Increasing farm size is not and will not be a problem, even during the next century, since more than half of Cameroon land is still uncultivated (Olama, 1978). Farm size is not the cause of food shortages. Increased farm size may increase production for only a short while, because production will decline as soon as the natural soil fertility runs out if scientific agricultural methods are not employed. Olama (1978) suggested that a comprehensive national education campaign should be launched to institute land reform where needed, to form farmers' associations, cooperative marketing societies, create credit, and initiate an extension service

within each rural community. Literature on the point indicated that local markets for farm products, inputs, and supplies should be made readily available to reduce the price uncertainty and risk. INADES (1979) reported that since other nations have had success in increasing food production through national education programs, Cameroon should introduce vocational agricultural programs at the national level, which will encourage better land management practices. Another way this system could be improved is by specific area education projects. The government should set up agricultural education institutions where farmers and agricultural teachers, respectively, will be trained (Benor, 1977; Boyce, 1975).

Increasing farm production to meet the nutritional and income needs of the rural family is important. The objective of agricultural development should be to train (educate) or help the individual farmer and family to produce a surplus for sale, so that the total output of a locality exceeds the total requirement. A supplier will permit sales in urban centers, other rural regions or in the international markets. This will improve local markets, and rural life. Inputs for higher productivity may be purchased and markets for products created. When small farmers are brought into the market economy, they will require a range of services similar to those of other small businesses.

Agriculture has several characteristics which make it

attractive for increasing rural incomes. Agriculture is the activity in which most rural people are directly or indirectly involved. Because a portion of the rural income of the farm family is spent locally, a high potential multiplier effect within the rural economy results. Many agricultural industries might be established to supply production inputs such as seeds, tractors, fertilizers (Uma, 1975).

Technology. Imported technology has its advantages and disadvantages. One must not forget that agriculture is a rural activity for the rural people who are less exposed to outsiders, even within their own nation (Olama, 1978). As a result, the transferred technology often never reaches the rural areas; if it does, it is often not accepted by the rural population because there are usually no native agricultural teachers (Rem, 1980). On the other hand, the difficulties of the distant poorer countries are still unknown and poorly understood by the technically advanced nations (Ted, 1980). Another problem is that the assisting institutions and organizations in developed countries are not used to and will never be prepared to design and implement programs that will sufficiently accelerate agricultural development without native teachers. The complexity of the problem is underestimated and misunderstood (Mellor, 1974). As has been discussed in the preceeding paragraphs, the number of agricultural systems and economic and ideological conditions make articulation of a logical and understandable

strategy for national and international action most difficult to undertake (Casswell, 1972).

Assumptions

The following assumptions were made regarding the study:

1. The participants in the study were aware of the agricultural situation in Cameroon.
2. The participants were also familiar with the agricultural education situation in Cameroon.
3. Government agricultural and educational policies influence agricultural productivity.
4. Increased agricultural productivity will help eliminate hunger, poverty, increase the standard of living and create a higher multiplier effect within rural Cameroon.
5. Identification of agricultural education priorities will help focus resources and foster development with less waste of funds and resources.
6. Identification of agricultural education priorities will help policy makers to locate projects where they are needed.
7. Agricultural education can orient people to knowledge and skills in agriculture, prepare them for leadership and good citizenship.
8. Agricultural education can help curb the population exodus into the cities.

Scope and Limitations

1. The study was limited to Cameroon agricultural education priority issues.
2. The study was limited to the university educators and students at the Dchang Agricultural University Center, and Cameroonian students studying agriculture in the United States of America.

Definition of Terms

The following words and terms were defined as used in this study for better understanding and inferences of the study:

1. Policy makers: Those persons who are involved in the determination of major decisions. Those decisions become terms of references or bases for program initiation and development. They include legislators, ministers, and other persons consulted for facts during the study.
2. Educators: Those persons whose educational background and experience make them knowledgeable on the issues addressed in the study and whose position or profession place them in a position to inform others.
3. Agriculturists: Persons engaged in production, agriculture or business. This includes farmers, both full time and part time, small farmers,

peasants, large corporators, and those who trade in farm products.

4. Researchers: Persons who are doing investigation or studies to uncover new knowledge which will improve agricultural production in Cameroon.
5. Priority issues: Those items which are viewed as being important by the community. Such items or needs must have been identified through a need assessment.
6. Agricultural education: This is teaching and learning about agriculture and other skills that are related to agriculture. The chief agents of such learning and teaching are agricultural institutions and the extension service.
7. Rural development: A process whereby people in the rural areas of Cameroon (villagers) have basic needs of food, shelter, health and roads which may resolved through self organization, self determination planning and learning to solve one's own problems. This also includes government organizations reaching out to the rural people and helping them use local resources to increase production and achieve a higher standard of living.
8. FAO: Food and Agricultural Organization of the United Nations.
9. IBRD: International Bank of Reconstruction and Development.

10. OECD: Organization of European Community Development.
11. Farmers: Those people engaged in production agriculture.
12. INADES: Institute African Pour le´ Development Economique et Sociate (African Institute of Economic and Social Development).
13. CAMSA: Cameroon Students Association

CHAPTER II

LITERATURE REVIEW

Introduction

The purpose of this chapter is to present an overview of materials related to Cameroon and the subject of the study. The review of literature was divided into food importation, small farmers, pricing policy, extension service, educational and agricultural extension, agricultural extension in Malawi, extension results, educational policy, educational policy in Finland, administration, policy structure, agricultural policy and priorities, agricultural research, issue determination and conclusion.

Agriculture is the heart of Cameroon´s economy. More than 70 percent of the population earn their livelihood from agriculture. Agriculture provides about 70 percent of the country´s foreign exchange earnings, 30 to 40 percent of the budget resources, 70 percent employment, and 30 percent of the gross national product. Agriculture also accounts for about 30 to 60 percent of the African economies. Agricultural output is the single most used determinant of most African economies. Agricultural stagnation is the result of the poor economic performance of most African countries Food and Agriculture Organization, 1980).

Food Importation

Since 1970, agricultural exports in most African countries including Cameroon have stagnated or declined while population and commercial imports of food grains increased the food dependency. During this period, food production was not only below the increase in total production, but was well below the increase in rural population in most African countries, including Cameroon (Food and Agriculture Organization, 1980). Uma (1975) indicated that during this period, imports of cereal grew by nine percent, while wheat and rice accounted for more than 82 percent of cereal imports for Cameroon and most African countries. This was a result of the lagging growth of domestic food production, rapid increase of urbanization (7.5% in Cameroon) and bad economic policies (Ted, 1980). During that period, consumption patterns moved from traditional staple food to wheat and rice, a practice created by overvalued exchange rates which made it cheaper to import cereals instead of growing them (Acharya and Bruce, 1978; Balassa, 1978; and EAR Unit, 1980). Deepak and Collier (1980) reported that the food crisis was a result of poor rainfall patterns, rapid population increase, neglect of agriculture by many policy makers, misallocation of investments, and too much emphasis on large-scale schemes in many African countries and Cameroon. The crisis was also a result of unconducive increase in output, low official prices in agricultural

products, uncertain market systems, and limited participation of small farmers in rural development (Food and Agriculture Organization, 1980).

Small Farmers

Gausi (1978) and the World Bank (1980) reported that although small farmers´ productivity should be a priority in Africa and Cameroon, targeting should be based on physical resources, and the existing human and physical infrastructure that provide a pre-condition for rapid payoff for more investment. Since independence, African governments, Cameroon included, wanted to respond to the needs and aspirations of people in the disfavored areas to achieve regional balance in development, since the resources were concentrated on export-oriented regions prior to independence. Bartlett (1978) pointed out that the most newly favored areas in Cameroon, were suited only for food production and were located in zones of low and unreliable rainfall areas where knowledge of technical and social conditions were limited. The World Bank (1981) and Cline (1979) said that investments in these areas had low yields in terms of increased output. Even when they were successful in terms of meeting social needs in Cameroon, the opportunity cost was usually too high, and most of the time these programs increased the peripheral regions, since no taxes were returned.

Despite the drawbacks, Kamark (1976), Acharya (1978)

and Ted (1980) recommended that rural development focus on small farmers because small farmers accounted for the bulk of agricultural output, and that poverty in Cameroon, like in most African countries, was a rural phenomenon. The literature on the issue indicated that raising the rural output and income of small farmers, whereever they may be, to meet basic needs was more cost-effective than any other alternative method. However, since agriculture is highly dualistic, Bartlett (1980) suggested that larger private farmers who provided for the major market share of the output should also be included. Small farmers' productivity can be increased through planned incentive structures (World Bank, 1980).

Pricing Policy

United Nations Educational and Agricultural Development (1977) noted that lack of sufficient price incentives for agricultural products in most African countries and Cameroon was an important factor in production growth. A review of 27 agricultural projects undertaken in Africa (Cameroon included) by the World Bank (1980) showed that lack of price incentives affected production outcomes and population levels. Balassa (1978) also noted that the effects often undercut the quality of technical packages and the extension services, and that projects implemented under favorable prices achieved or surpassed their production goals, whereas those without price incentives failed to do so. Despite the

appreciation of the importance of good market prices, export products were always heavily taxed and food prices usually set below market prices for many years in Cameroon and most African countries (Addison, 1972). In Cameroon, because export crops were heavily taxed, producers received only a fraction of the world market prices (Sixth Annual Review of Project Performance, 1980). The International Bank of Reconstruction and Development (1981) also noted that heavy taxation through export taxes, marketing board levies, excessive marketing cost, overvalued exchange rates, and unfavorable terms of trade kept export production below expectations in every country in Africa. The report postulated that this contributed to the rapid fall of most African countries and Cameroon´s share of agricultural products in the world market. Kamark (1976) reported that producer and consumer prices for basic foodstuffs were legally controlled and that the governments set and regulated prices to increase production and protected consumer interest at the same time in Cameroon and most African countries. Balassa (1978) also indicated that while food prices were fixed below market prices, imported food was being subsidized. However, in Cameroon, the official prices were only partially effective because producers were able to sell their produce at higher black market prices. This happened in Cameroon and other African countries despite the state´s market system monopolies (World Bank, 1981).

Ted (1980), Balassa (1978) and Coombs (1980) noted that

there was no doubt that the system of setting low official producer prices had a negative effect on production and sale of basic foods in Cameroon and most African countries. In Cameroon, government policy affected agricultural production. Some imported foods were steadily cheaper than domestic staples because of overvaluation of the currency (International Bank of Reconstruction and Development, 1981).

Problems in Marketing

The problem in marketing was that too many responsibilities were given to the public sector institutions and too few to individual traders, private companies, and farmers' cooperatives (FAO, 1981). Export crops were marketed by government trading agencies in Cameroon through buying agents. The performance of export crop marketing was very important because it affected the share of the proceeds that went to the producers (World Bank, 1980). In Cameroon, because of long distances and inaccessibility of the production areas, market costs would usually be high even under efficient operations (INADES, 1977). Since the market agencies were the only links between the peasants' economy and the government bureaucracy, there was dissatisfaction by the peasants because market transactions were unfair (Cline, 1979; World Bank, 1981). In Cameroon, inefficiencies characterized the operation of most marketing agencies. In Malawi, the problems found included overmanning, inadequate non-salary budgets, management scarcities and corrup-

tions (EAR Unit, 1980). On the other hand, market controls were absent for vegetables and root crops (Cline, 1979). Coombs (1980) indicated that another problem was input distribution of the rural marketing system which contributed to the poor performance of agriculture in Cameroon and most African countries. Farm inputs were not regularly given to farmers at the right time for agricultural production. In Cameroon, inputs sometimes came three months late and sometimes there were no chemicals for cocoa. Coombs (1980) noted procurement and distribution of inputs was another field monopolized by government, and that the government had full control of procurement and distribution of seeds, fertilizer and other input services. The result was that government agencies failed to fulfill the input supply function because of scarce management, lack of incentives, conflicting objectives and lack of control in many African countries. Coombs (1980) noted that failures were also the result of bureaucratic financial administrative procedures and the absence of competition for inputs. The World Bank Report (1981) and IBRD (1981) noted that the monopolistic subsidized input distribution system in Cameroon and most African countries, did not only limit the amount of services available under budget constraints, but also resulted in a black market system where inputs were driven at uncontrolled black market prices.

Extension Service

The Extension Service was the organizational instrument for rural development. Addison (1972), Benor (1977) and Ted (1980) noted that the Ministry of Agriculture used the extension service to spread technology, provide input and credits in most African countries and Cameroon. However, successful extension service effort needed good incentives, ability to give information to the farmers and an attractive package for the farmer (Gausi, 1978). In Cameroon, the agricultural extension service was less than successful (INADES, 1977). INADES (1977) indicated that the elements that make a successful extension did not exist. Extension agents were far from enough, and there was a lack of proper organizational structure in place in most West African countries. IBRD (1981) expressed that extension had neither incentives for the farmers nor for extension agents, and that it was not uncommon for agents to work with as many as ten villages with more than 400 farmers. In Cameroon, in many instances, the villages were more than 50 miles apart. INADES (1980) reported that very few of the agents in Cameroon had any means of transport; when extension agents had personal transport, they usually lacked fuel (INADES, 1979; World Bank, 1980). Where transport was provided from the ministry, it took days or weeks, sometimes even months. Sometimes where transport was available, the roads were impassable most of the time when agents were

needed (World Bank, 1980).

INADES (1979) reported that another important problem was the low pay given to extension agents. In Cameroon, the pay was too small for any agent to make a living as an extension agent, and as a result, extension service was more or less a part-time job for most agents.

Gausi (1978), Hilary, et al. (1983) and INADES (1979) reported that the agents who were the contact persons to the farmers were the lowest educated in the chain in Cameroon and most African countries. On the average, most had primary education or were secondary school dropouts. Formal extension training lasted for a few weeks or months in Cameroon. Most agents had to do other things to earn a living. In many cases, people who had nothing to do and could accept any type of pay were recruited as extension agents. This type of organization was mostly found around the big cities in Africa (World Bank, 1980). Benor and Harrison (1977), Young, et al. (1980) and IBRD (1983) reported that the Cameroon and the African extension systems lacked organizational structure, that the agents seemed to be making an honest effort to reach the farmers even under impossible conditions.

The trained agricultural extension agents were usually supervisors who had too much administrative work that took all their time. They never had time to visit with farmers. The agents were interested in being trained, not only to improve their education, but also to help the farmers who

desperately needed help in increasing their production (Hilary, et al., 1983). INADES (1980) also indicated that experimental extension education centers set in Donala, Yaounde and Bamenda in Cameroon where farmers were given information through the radio, seemed to work. The report also indicated that few farmers and most agents met, indicated that they listened and learned many things from the radio broadcast. INADES (1979) also said that an experimental correspondence study course tried in Cameroon was highly favored by the agents.

The World Bank Report (1981) and the United Nations Educational and Agricultural Development (1977) indicated that resource inputs to extension in Cameroon and in most African countries produced limited results because of lack of trained personnel, market uncertainties, and the policies where the government fixed prices of targeted crops. The World Bank (1981) and International Bank of Rural Development (1983) said that extension service suffered from organizational weakness seen in the public sector in most African countries. Distances from operating centers and lack of training institutions made it difficult not only to recruit effective extension workers and technicians, but also affected the quality of information given to farmers. Boyce (1982) noted that it was not uncommon to see that extension program work in Cameroon like other African countries was defined by sector chiefs without any guidance on the means of presentation or evaluation. Benor (1977) noted that

there was usually no monitoring of program effectiveness and extension agents were usually agricultural agents with tasks ranging from general administration to promoting new technology, giving credits and supervising inputs through out the African continent.

Meaning of Extension Service

The term extension education was used for the first time in 1873 in England to describe a particular system of education where University people or researchers adopted research findings to local situations to meet specific needs (Addison, 1972). In the United States of America, extension was officially adopted by the Smith-Lever Act of 1914, when agricultural extension became a nationwide cooperative, arrangement of federal, state, and county programs under the responsibility of the agricultural college now known as land grant universities. Agricultural extension service, thus, resulted from a merger of national agricultural programs such as farmers, local adult education movements and the universities (Addison, 1972). From the United States, the idea of agricultural extension was exported to different parts of the world where its philosophy became much broader (Addison, 1972). Although the philosophy became wider, its function was still to assist farmers through educational programs which were to improve farming methods and raise standards of living by increasing agricultural productivity and rural income (Ted, 1980). The Food and Agricultural

Organization of the United Nations (1981) indicated that the function of all extension was to teach rural people to raise their standard of living using their own efforts and resources with help from the government. Extension trained local leadership and developed a self-help spirit so as to develop civic pride and community growth (Young, et al., 1980). Jamison (1982) expressed that extension's broader function was to help people solve their own problems; hence, it was regarded as purely educational. He also noted that extension education, wherever it was conducted, was to be informal. Young and others noted that since adult farmers could not be forced to learn, extension agents should devote more time to creating a desire for the farmers to seek information. In countries like Cameroon where the agents are untrained it is unlikely for the agents to meet this need.

Boyce and Evension (1975) indicated that in order for extension to be effective, whether in Cameroon or elsewhere, there must be a national policy in the form of law, establishing the educational role of the agricultural extension service. Coombs (1980) suggested that major goals of extension must include the development of human resources, such as farm supply, credit, transportation, trained technicians, support services as well as economic and social services. Uma (1975), the Food and Agriculture Organization (1980), The Sixth Annual Review of Project Performance (1980) and Benor and Harrison (1977) agree that the agricultural extension

service under the Ministry of Agriculture should establish a good working relationship with other departments in all other institutions whose activities affect rural people whether it be in Cameroon or Asia or Alabama. INADES (1977) noted that if extension service was to change the knowledge, skills, practices and attitudes of all rural people in Cameroon and elsewhere, it must work with all institutions, organizations and agencies that contribute to the progress in rural people instead of competing or ignoring these organizations. INADES (1980) reported that extension service in Cameroon and other African countries lacked organizational structure and a good working relationship with other institutions and organizations whose activities affect rural people. The report indicated that the extension service usually by passed institutions or ignored them as if they were not there. The World Bank (1980) recommended that the extension service whose programs involve educational activities should not only include all the aspects of rural people, but its educational programs should complement all the administrative programs of other agencies so as to achieve all the functions of agricultural extension service. The Food and Agriculture Organization of the United Nations (1981) suggested that the scope of the responsibility and programs of agricultural extension and its relationship with other agencies be defined by a legislation or in a policy statement. Addison (1972) indicated that although extension may differ within local communities, the

national unit in every nation must have common interests and the programs must reflect the needs and priorities of the people it serves. Uma (1975) remarked that in most African countries, extension personnel were unaware of the total scope and the responsibilities of their services, and that they did not understand the function, the importance and the link between the national extension, administrative unit to which extension was attached, and the rural people. Young, et al. (1980) pointed out that the Ministry of Agriculture, the administrative unit to which extension was attached, the extension personnel and the rural people were not adequately informed of the scope and responsibilities of the agricultural extension service in many developing countries. They were not aware that the scope and role of extension went beyond agricultural production to include marketing and distribution of farm products, resources conservation, farm and home management, family living, youth and leadership development, community improvement and public policy. Extension personnel were not aware that extension education was designed to serve all people regardless of their political ideology. In Cameroon and in many African countries, extension personnel were so politically involved that most extension programs were politically based instead of need-based (International Bank of Reconstruction and Development, 1981). Although political stability was very necessary for the continuation of extension education, programs must be initiated on needs rather than political

ideology.

INADES (1979) also noted that agricultural extension service in Cameroon and in most African countries had little in common with the schools, colleges (universities) and research stations. The extension personnel and the researchers were not aware that extension education depended upon research for technical information to be interpreted or applied or used to solve rural agricultural problems (Jamison and Lau, 1982). James and Evension (1975) said that research in Africa was not usually focused on solving or improving agricultural productivity, and that policy makers were not as aware of the importance of the liaison between extension activities and research. The World Bank (1980) concluded that the failure to create liaison between extension activities and research was the major factor in the failures of extension and research activities to expand in many developing countries, including Cameroon. Rich, et al. (1979) pointed out that in most developing nations the extension personnel, agricultural education teachers and researchers worked in isolation of each other. INADES (1979) indicated that any agricultural education system or policy which did not have a well-structured extension service in place and a close link between extension and agricultural research was, sooner or later, headed for failure.

Education and Agricultural Education

The objective of agricultural extension is dissemination of innovations (cultivation methods, mechanization, new crop varieties, use of fertilizer, etc.) to increase productivity. The aim was to move from traditional types of farming characterized by a small volume of trade to new, larger volume of agriculture with strong links to the economy (Orivel, 1981). This was the extension model used in industrialized countries for over 100 years (Jamison and Lau, 1982). Jamison and Lau (1982) noted that the level of education and the way farmers managed their farms in the developing countries were related. Leonard (1977) noted that those farmers who could read and write were more responsive to innovations than those without any type of training. Hilary, et al. (1980) noted that the aim of agricultural education was to increase productivity while the aim of basic education included helping farmers to benefit from change, to solve their own problems, have a better understanding of how to acquire information and learn the three Rs. Brunel (1980) also noted that extension was not going to be successful without first attacking adult literacy. They noted that adult literacy teaching was neither successful nor cheap in Cameroon and many African countries. Because of high adult illiteracy, there was an overlap between the aim of extension and the aim of basic education. Oxenham (1978) pointed out that many adult education pro-

grams in developing countries failed to attract students, to retain their interests because there was nothing for the farmers to read, and that there was no evidence of any long time effect of adult education programs on the adults´ lives.

UNESCO (1976) and UNICEF (1976) reported that basic education for adults was supported for ideological and practical purposes. UNICEF (1979) and UNESCO (1976) also noted that basic education was a prerequisite for development. King (1979) stressed that adult education must include the three R´s, foster the ability for the individual to accept a rapid change, ingenuity, personal growth and ability to seek information. Furthermore,King (1979) also stated that agricultural extension failed to provide these necessary tools for basic adult education; hence, the high dropout in adult education classes in many African countries and Cameroon. Ram (1980) and Oxenham (1978) said that literacy and numeracy alone were not adequate for a basic adult education program. The report went on to say that the achievement of agricultural education depended on the level of education of the participating farmers. Farmers were not interested to learn to read and write in many developing countries because there was little or nothing to read (McAnany, 1980). Chandri (1979) indicated that the many things that affected extension productivity included policy, political framework, social structure, culture, inputs, organizational structure,

availability of information and the extension agent. Gilltrrow and Potts (1978) and Mellor (1974) suggested that agricultural extension appraisal go beyond cost and production.

Agricultural Extension in Malawi

The Malawi extension service (the African success story) methods for training farmers, included individual or group visits by field assistants, day training centers and extension aids. Hilary, et al. (1983) and the World Bank (1980) indicated that there were 338 field assistants working with 15 residential centers and 75 day training centers. The report stated that the country was divided into eight agricultural development divisions with six project areas in each. Each project area had a project manager who reported to a program manager. The program manager was a degree graduate, while the development officer was a graduate from a three-year course. Entry into the courses was after four years of secondary education. Field assistants were trained for two years, after two years of secondary education. Program and project managers were provided with vehicles and motorbikes, respectively, while the field assistants were given bicycle allowances. The field assistant's function was to operate demonstration farms and reiterate information to the farmers and encourage them to attend the training centers. They acted as liaison between the farmers and the specialists. Methods

as liaison between the farmers and the specialists. Methods of teaching farmers included mass media, publications, cinema, puppet plays, film shows, radio sections and farm forums (EAR Unit, 1980; Extension Aids, 1976; Extension Branch, 1979; and Uma, 1975).

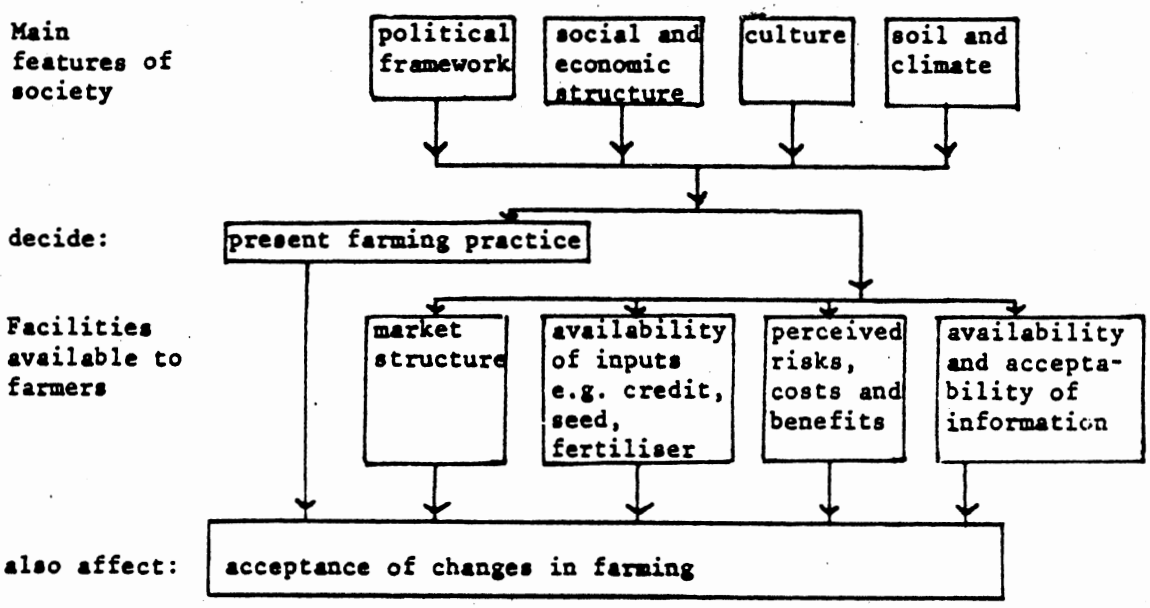
The Malawi extension service is one of extension success story that needs to be copied elsewhere.

Agricultural Extension Results

Evaluation of agricultural extension´s impact was usually based on economic analysis. O´Sullivan (1980) noted that dissemination of innovations in the agricultural extension service, to increase productivity, implied a prior existence, not only of the extension service, but also research and other socio-factors, including time. Brunel (1980) reported that extension evaluators measured extension effects in terms of increased productivity compared with the cost of operation. LADD (1980a) noted that there were major difficulties in assessing extension efforts in Africa, including Cameroon, because farm practice and production were affected by factors such as marketing, pricing policies, basic education, time and organization structure (Figure 5).

Educational Policy

Education covers all schooling (both formal and informal) and is considered in Cameroon as investment and



Source: The World Bank. World Bank Report. London: Oxford University Press, 1980.

Figure 5. What Determines Agricultural Change

consumption goods. Mellor (1974) expressed the idea that some policy makers think that educational cost must be balanced against private and social benefits. UNICEF (1978) and UNESCO (1976) reported that the impact of education extends far beyond the production sector into the home; hence, everyone should be educated (including women) even if they do not participate in the labor force. UNESCO (1976) and Hilary, et al. (1984) reported that the educational systems of most African countries and Cameroon were still based on colonial models in which the students learned the culture and values of their colonial masters. They expressed that such a system of education did not include farmers and self-employed people who contribute more to the economy of their countries. In Cameroon the general order of priority in resources allocation was, first primary school, next secondary school, and last university. Mellor (1974) pointed out that the African system of education needed some form of modernization and a greater efficiency in resources usage. The number of dropouts and repeaters in the colonial system of education was very high, particularly in the primary school. Oxenham (1978) indicated that vocational agricultural education was completely excluded in the colonial model, and that there was no policy on agricultural education. There was usually a mismatch between the type of school offered and social demands. Career prospects for secondary education graduates are usually better than those for the technical school graduates.

Technical schools ended up serving those students who were denied entry into the secondary schools. As a result, technical schools ended up giving more general education than they should. UNESCO (1976) indicated that it would have been more educationally efficient to open more secondary schools so that technical schools could handle only technical subjects. The report also suggested that a wise use of generalized fees would help bring the financing, social and private returns together.

In Cameroon, other problems in the system included lack of trained teachers, outdated textbooks, and lack of equipment, even though better quality education was one of the major priorities. The system needed cost reduction, quality improvement, a well-developed analytic capacity, local reform implementation, and evaluation. Ram (1980) and McAnany (1980) recommended more efforts in training and policy focus research. UNESCO (1976) and IBRD (1981) also reported that the future challenge for African countries and Cameroon policy makers was how to reconcile with what the people needed and what the society could afford.

Educational Policy in Finland

Cameroon has almost the same problems Finland had many years ago. Education is under three ministries (Agriculture, Higher Education and Primary Education), with no central administration just like Finland before the reorganization. There are neither national nor provincial

boards. There is neither a unified secondary nor vocational system of school. There is no basic education program with a unified curriculum; just as Finland did not have before the reorganization. Can Cameroon learn from Finland?

The OECD Report (1982) described Finland as a country that was transformed from struggle for independence and escape from peasant poverty to successful pursuit of the economic growth accompanied by equalization of living standards and opportunities throughout the country. Finland, at a glance, was seen as the northern and eastern extension of the Western industrial society and as a surviving remnant of European agrarian society just northwest of the USSR. The OECD (1982) pointed out that the Finnish system of education was a surface phenomenon of contemporary cultures that challenged every policy maker for more understanding that reminded many that education was not more than a part of cultural transmission that could change rapidly under stimuli from a diversity of origins. The report indicated that the Finns saw education as a vital clue to the survival and nation-building; hence, they went for it.

Educational Policy

The report stressed that the educational policy was developed as part of the overall social policy that embodied educational and social equality, teaching of skills that fostered increase in production and active participation in nation and society building.

To achieve this, policy-makers adopted a common comprehensive educational system where the entire age group received free nine-year basic education with a unified curriculum. All fragmented secondary schools and vocational institutions were integrated. Students in vocational secondary schools did two years of general education before taking studies in their specialized areas (OECD, 1982). It is believed that Cameroon has not been able to embody educational and social equality in teaching skills that will increase production and active participation in society building. Cameroon vocational schools are still considered second or third class choice.

Educational Administration

The report (OECD, 1982) continued that public administration was organized at central, regional and local levels. At the central level was the Ministry of Education, the National Board of General Education and the National Board of Vocational Education. The responsibility of the Ministry of Education was to implement government laws, decrees, policies and planning. Each of the boards was charged with the responsibility of curricular and pedagogical methods in their areas. The departments in the ministry included general school, higher education, research and sports. The school department was responsible for general, vocational, and adult education. This department was assisted by a permanent expert advisory body made up of administrators,

employees, educators, policy makers and researchers. There also was a regional administration in each of the 11 provinces with the authority to plan vocational education tasks (OECD, 1982).

Planning

The Ministry of Education, two national boards and the institution of higher learning drew and implemented development plans in line with the state budget from the provincial development plans. About 18% of the budget was for education (OECD, 1982).

Administration and Policy Structure

Although external constraints have contributed to slow Cameroon's economic growth, domestic policies and administrative structure have been very important to this effect. Acharya (1978) indicated that the way the scarce resources are used determines economic growth and portrays government policy and administrative framework. He noted that improving efficiency required restructuring of government policy on wise use of scarce resources. LADD (1980) and EAR Unit (1980) postulated that unless policy makers in Cameroon and most African countries recognized that policy-making embodied a much wider political and objective constraint, the economic stagnation will continue. They suggested that adequate attention was needed to the policy on increasing efficient use of resources. Trade and ex-

change rate policies needed restructuring, as they failed to provide incentives for agricultural production (World Bank, 1980).

Bartlett (1980), Cline (1979) and Deepak (1980) noted that trade, exchange rate policies and payment restrictions created large profit opportunities for smuggling and a wide gap between official and black market exchange rates. In Cameroon and other African countries, it forced farmers to buy locally-made implements at very high prices, raised cost of consumer goods and held down prices farmers received for their export crops (World Bank, 1980). Trade and exchange restrictions greatly reduced prices farmers received for their crops; as a result, they were unable to pay for cost of production (World Bank, 1981).

Overvalued exchange and low duties on food import policy biased local production. Trade and exchange rate policy did not only reduce the country's economic flexibility, but also created a situation where foreign exchange was being allocated to maintain consumption instead of priority investments (Balassa, 1972; Deepak, 1980).

Deepak (1980) noted that strengthening the economic decision-making capacity in project generation, expenditure evaluation requests and project proposal policies needed to be reviewed. The ability to generate good projects was a basic developmental action essential for efficient use of resources. Policy on project initiation and data location desired a review (Kamark, 1976). IBRD (1981) warned that

it was vital, even more essential, for the units of government responsible for screening investment prospects to be more active. The report indicated that screening expenditure proposals and policy analysis was a vital function which included appraisal of investment projects and priority setting. Coombs (1980) and Uma (1975) suggested that policy analysis should include technical ministries, parastatals, a better pool of information (data) to support policy analysis and a better way to make the information handy for use.

INADES (1979) noted that progress in any country required that resources be used effectively by organizational units, both public and private. In Cameroon, all the evidence pointed to the fact that small holders were outstanding managers. Organizational policy and management was useful, not only to the production of goods in agriculture, mining and industry, but also to other services. In the parastatal sector, a clear definition of objectives (long and short-term), an understanding between government and parastatal entity, showing financial and production plan within agreed objectives, an incentive policy, system conducive to efficient production, independent management and good useful records were a must (International Bank of Reconstruction and Development, 1981).

Agricultural Policy and Priorities

Agriculture is the backbone of Cameroon economy. The Food and Agricultural Organization of the United Nations

(1980) and United Nations Educational and Agricultural Development 1977) postulated that growth rate of 3.9 percent in production between 1980 and 1985 for African states was too optimistic. Coombs (1974) and Cline (1979) noted that although the plan was too optimistic, it provided a useful macroeconomic policy framework that helped to indicate the outline of investment programs in agriculture and other financial constraints. The plan called on specific policies on small holders production, incentives structures, agricultural research, and accelerated yielding agricultural activities (IBRD, 1981; LADD, 1980a).

Agricultural Research

Agricultural production was either stagnant or failing everywhere in many African countries including Cameroon, while areas like India had record increased agricultural productivity. The failure of research to provide answers to agricultural problems in Cameroon and other African countries was the main cause of the stagnation (Gausi, 1978). Little or no money had gone to research. Although some effort had been made on export crop research, it lacked continuity, was usually too academic, and suffered from lack of funding (The World Bank, 1980).

King (1979) indicated that research in most African countries and Cameroon needed expansion, more focus at regional, national, international levels and consolidation with the agricultural extension service. Pest control, food

crop based agricultural projects, food crop components, farming systems, fertilizer effects on crops, soils, rainfall regimes and irrigated crops, were some of the areas that needed to be researched. Then farmers needed to be given education on them. IBRD (1981) also expressed that more attention was needed in strengthening and reorienting national research systems in Africa with international programs. O´Sullivan (1980) noted that it was crucial for research programs to be directed to priority regional and national production requirements, social and economic problems. The World Bank Report (1980) also indicated that research programs already in place at the national and international centers needed a critical review for the relevance of the programs, better coordination, better monitoring, control and continuity, and that the research include all aspects of rural life in developing countries. Extension and agricultural education must work hand in hand with research. In Cameroon research has little or nothing to do with extension.

Issue Determination

An important factor in the advancement of agricultural education policy is a continuous discussion and identification of priority issues. Swanson (1980) related that there was no doubt that any individual involved in agricultural education must continue to identify, discuss and resolve priority issues. The study and identification of agricul-

tural education priorities in Cameroon seems to be not only important in developing a sound agricultural education policy, but also helpful in recollecting the past so as to focus on the important issue of the future. Stenzel and Hall (1973) reported that the development of agricultural education involves the identification and discussion of priority issues. Regier (1977) and Safman (1968) noted that identification and discussion of educational issues encourages professional discussion and priority focus. The identification of these priority issues will help to focus the efforts of the agricultural education system. Upon resolving the issues, only then can education have any real effect on the agricultural development of rural Cameroon and its economy. To identify these issues, researchers must look at the past to remember the pitfalls, the present to discover and/or learn from the errors or achievements, and the future to filter the past and the present so as to choose a course of action for the future.

Conclusion

The objectives of education should be to acquire the ability to think, and express oneself and learn that preparation for life is assessed in terms of ability rather than knowledge. Acquisition of abilities is prime, although it must go hand in hand with knowledge. McNamara, in his farewell address to the Board of Governors of the World Bank (1980), said that the global economic aspect was

deteriorating, difficult and depressing, particularly for the low income countries of Africa, because of the lack of agricultural education priorities. The low income countries of Africa have become food importers instead of exporters.

For years, basic education has been projected as the solution to the problem of development. Basic education is a national investment and the key to all national development. The power of education is unquestionable in Africa as it is perceived as almost the only means to social and economic development. The importance of education is manifested in policy statements made by many African leaders who have often stated that education leads to self-reliance, and each African must be educated to participate in nation building. In fact, the premise of many Africans is "When in doubt, educate." Stenzel and Hall (1973) suggested that development is interwoven with basic education. To facilitate national development, social needs and problems must be identified. Contributors to social development must be trained to apply knowledge to problems. To do this, education must be strengthened at all levels so as to help the Cameroon society define its values and purposes.

Most African extension systems have their roots in the regulatory function of colonial administrative structure. The training and visit systems were not incorporated into national models of many countries. The assumptions that applying improved technology will increase production, that trained professionals meet needs, and that the agricultural

practices which they will encourage farmers to adopt will be beneficial, have so far not worked. The result of the extension concept under colonial regimes was the introduction and spread of development of export crops like cocoa, coffee, tea and cotton, at the expense of food crops. Farmers´ training was of little importance in non-formal education in rural Africa, although there were considerable variations in basic orientation. In Kenya, the intent of Farmers´ Training Centers was to help small farmers become commercial farmers, while in Senegal the centers were considered as part of a broader, highly institutionalized rural training scheme that also included non-agricultural skills (English Teaching Information Center, 1979). INADES (1979) and Brunel (1980) reported that farmers´ training centers were unknown in Cameroon.

The identification of the real needs for rural community education planning should include an inventory of the existing potential resources, economic as well as social. The basics of food, clothing, shelter, spiritual and cultural needs should also be included. Such an inventory should also include all the values of aspiration of the community. All these needs should form the baseline research and encourage studies which are subject to analysis and evaluation. Appropriate strategies, priorities and projects should be formulated, integrated and coordinated in accordance with the values and aspirations of that community and the pursuit of national objectives. The identi-

fication of such community needs requires the participation of community members. The role of agricultural education should include civic responsibilities and the spirit of hard work. Education for rural communities must aim at changing social, cultural values and introduction of new skills, new morals, and even new institutions. Felt needs should be identified by consulting the people, and it is only then that participation can be assured.

The role of agriculture in rural development is the most important single function in raising the standard of living for Cameroon. Recognizing this, the government should sponsor training programs. Colonial education in most African schools, like those in Cameroon, lacked community focus and as a result created problems in the African context, where formal education was part of the colonial package, not to prepare people for solving their own problems, but to fulfill the bureaucratic functions within the colonial administrative structures.

During the colonial era, educational goals were not focused on Cameroonians' educational priorities. During the colonial periods, there were very few primary schools, one teacher training college, and there were neither grammar schools nor universities. Vocational and adult agricultural education schools were unknown, even though more than two-thirds of the population was engaged in farming.

Traditionally, access to agriculture did not require primary education, let alone post secondary education.

Relatively low value was placed on higher education by the farm labor force.

The predominantly agricultural character of the country, the failure of the colonial models for development and the lack of a focused development has caused the interest in this problem.

No one had ever sought to identify and prioritize the important issues in agriculture and agricultural education in Cameroon, hence this study.

CHAPTER III

DESIGN AND METHODOLOGY

The purpose of this chapter is to present the method or procedure followed in the process of conducting the study on the identification and prioritization of Cameroon agricultural education issues.

To collect the data which was to provide the information to accomplish the purpose of this study, the population to be studied was determined and a list of Cameroon agricultural education issues was made. A list of Cameroon agricultural education issues was developed from the fifth,5 year development plan, 1981, into a rating scale instrument format. The development plan was the economic, social, educational, and agricultural agenda in very broad terms, drawn up by the government every five years. Because the plan was written in broad terms, the agricultural education issues were developed by analyzing the main thrusts of the plan and developing them into issue statements. These became known as Cameroon agricultural education issues. After a critical review of each item on the questionnaire with the committee chairman and the researcher's adviser, which resulted in many changes, it was given to each committee member.

The committee members were asked to study the state-

ments, correct, delete or add any item or items related to Cameroon agriculture. A miniature Cameroon fifth, 5 year development plan was brought in one of the committee meetings so that the members could see the original document from which the priorities on Cameroon agricultural education priority issues were developed.

After the committee members had studied the statements for some weeks a committee meeting was called, in which all the statements were discussed. The issue wording, sentence structure, logic and importance to Cameroon agricultural education were all discussed. During the meeting every item on the questionnaire was discussed. Many statements were changed. Some were deleted while others were added. The final list of 21 priority items was made.

The updated list was then given to 25 Cameroon students studying in Oklahoma in person, during a Cameroon Student Association of Oklahoma meeting for a pilot study. The completed and returned pilot study questionnaires were viewed carefully to see if further changes were needed. Some few items which asked for double answers, or were confusing, were changed during another committee meeting.

Instrument

A final list of 21 Cameroon agricultural education issues was made, typed and bound in a booklet form (Appendix). The 21 issues pertained to agriculture, agricultural education, food production research, adminis-

tration and rural development.

The instrument was designed to allow the participants to rate the issues on a six-point continuous scale. Each participant responded to each issue on the scale by merely circling his/her position on an issue. The weighted 5, 4, 3, 2, 1, and 0 corresponded to Extreme Importance, High Importance, Average Importance, Some Importance, Little Importance, and No Importance. A respondent circling 5 scored five points, while that circling 0 scored no point.

The points for each category on each issue were multiplied by the number of respondents choosing that category. The sum of these points was then divided by the total number of respondents that rated that issue to arrive at the mean rating. The number and percentage for each category for each issue was determined by actually counting the respondents who chose that category. The number of the respondents for that category was divided by the total respondents for that issue and multiplied by 100 to get percentages. This was done for all the 21 issues.

The standard deviation for each issue was also calculated to give a measure of consensus. The t-test was calculated to give guidance concerning differences between means of the two groups. It should be noted that the t-test was not appropriate to measure significant differences since the population of students and the population of teachers were surveyed. However, t-test was calculated to give guidance in analyzing the actual notable differences

between the population means for each issue. Mean differences greater than .50 (one half category interval) were considered notable.

The means were used to place each issue into categories (0 - 0.5 no importance, 0.5 - 1.49 little importance, 1.5 - 2.49 some importance, 2.5 -3.49 average importance, 3.5 - 4.49 high importance, and 4.5 - 5 extreme importance).

Data Collection

In order to collect information relative to the purpose and the objective of the study, questionnaires were given to the students studying agriculture at the University Center at Dchang during the student union general meeting at Dchang. Each student at the meeting was given a questionnaire in person to complete and return to the researcher after the meeting. Questionnaires were also given to the teachers at the Center through a student who handed them to each teacher in person. Questionnaires were also given in person to Cameroon students studying agriculture in American universities during a general meeting of Cameroon students at Washington, D.C. A follow up of unreturned questionnaires was made through personal contact to some Cameroonians studying agriculture in the University of Georgia (2), Alabama A & M University (1), Auburn University (1), Texas A & M University (3), and University of Florida (16).

All in all, 342 questionnaires were handed to the

respondents, 294 to Dchang students, 21 to Dchang teachers and 27 to Cameroonians studying agriculture in the United States of America.

Of the 342 questionnaires given out, 245 were returned. There were 212 questionnaires completed and returned by Dchang students; seven by Dchang teachers and 26 were completed and returned by those Cameroonians studying agriculture in the United States. Because the number of the teachers at the University Center at Dchang (7) and those studying agriculture in the United States (26) was small, these two groups were joined into one group. This was considered logical since most of those studying agriculture in the United States had taught at the University Center at Dchang or will be teaching at the Center upon graduation. Thus the respondents were categorized into two groups, 33 teachers and 212 students and their perceptions on the issues were compared for differences and similarities.

Data Analysis

Means for each group on each issue and a mean of means for each issue were calculated:

$$\bar{X} = \frac{\Sigma X}{N}$$

$$\bar{X}_m = \frac{\bar{X}_1 + \bar{X}_2}{2}$$

The "F" test was used to determine which "t" test formula was appropriate.

$$F = \frac{S^2 \text{ greater}}{S^2 \text{ smaller}}$$

The "t" was calculated using the separate or pooled variance formula (Popham, 1973):

Separate Variance Formula

$$t = \sqrt{\frac{\bar{X}_1 - \bar{X}_2}{\frac{S_2^2}{N_1} + \frac{S_2^2}{N_2}}}$$

Pooled Variance Formula

$$t = \sqrt{\frac{\bar{X}_1 - \bar{X}_2}{\frac{(N_1 - 1)\, S^2 + (N_2 - 1)\, S^2\, (1/n_1 + 1/n_2)}{N_1 + N_2 - 2}}}$$

Standard deviation was calculated and used to determine agreement within each group for each issue. The larger it was, the lesser agreement within the group.

$$S = \sqrt{\frac{\Sigma(X - \bar{X})^2}{N}}$$

The issues were then listed into their categories for each group. All the issues were finally ranked in order of importance, using the mean of means. The mean of means was

also used to give each group equal representation to arrive at an overall mean for ranking purposes.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Introduction

The purpose of the study was to identify and prioritize Cameroon agricultural education issues. It was also the purpose of the study to determine if there existed any differences in the perceptions of Cameroon agricultural education issues between the two groups (teachers and students).

Data collected for this study represented the responses of 212 students and seven Dchang University Center teachers and 26 teachers studying agriculture in the United States of America. The purpose of this chapter is to present the data compiled from these responses and to report those facts revealed through analysis of the data collected.

Background of the Respondents

The agriculture teachers and students were chosen because it was believed that these groups will play major roles in influencing Cameroon agricultural education in the near future. The major source of data for this study was the 21-issue questionnaire completed by the 245 respondents. The response rate for this study was 70.60 percent of the

populations of students and teachers. Tables I, II and III summarize the background information of the respondents as provided on the questionnaire used to gather the data for the study.

In Table I, farming experience for the respondents is summarized. According to Table I data, 35.50% of the respondents had farming experience ranging from 1-10 years. Less than 15% of the respondents had farm experience of more than ten years. Only 122 (49.80%) respondents provided farm experience information.

Table II presents a summary of the educational levels of the respondents. The data in Table II revealed that 16.70% of the respondents were graduate degree holders or were in the program. It should be noted that only 167 (68.20%) respondents provided educational background information.

The respondents' places of birth are presented in Table III. According to the data presented in Table III, 37.55% of the respondents were born in one of the western provinces. Only 9.70% respondents were born at the northern and eastern provinces. It should be noted that only 53.10% provided information on where they were born.

Issue Determination

In order to determine the priority perceptions of the respondents on Cameroon agricultural education issues, 21 related issues were developed from the 5th five year

TABLE I

RESPONDENTS´ FARMING EXPERIENCE

Years	Respondents N (Total N = 245)	Percent Respondents %
1-5	48	19.6
6-10	39	15.9
11-15	19	7.8
16-20	13	5.3
21+	3	1.2
Total	122*	49.8

Mean = 4.9 years

*Less than half the respondents answered this question.

TABLE II

RESPONDENTS´ EDUCATIONAL LEVEL

Level	Respondents N (Total N = 245)	Percent Respondents %
Ph.D.	14	5.7
MS/MA	27	11.0
1st Year	40	16.3
2nd Year	51	20.8
3rd Year	22	8.9
4th Year	13	5.3
Total	167*	68.0

*Less than 70% of the respondents answered this question.

TABLE III

RESPONDENTS' PLACE OF BIRTH

Province	Respondents N = 245	Percent Respondents %
Southwest	16	6.5
Northwest	26	10.6
West	40	16.3
North	5	2.0
Far North	6	2.4
Central	6	2.4
Central South	9	3.8
Coastal	10	4.1
East	12	4.9
Total	134*	53.0

*Less than 60% of the respondents provided information on place of birth.

development plan, 1981. The issues pertain to agricultural production, research, rural development, administration, extension and agricultural education.

Issue One

In Table IV, the frequency distribution for issue one was reported: "Redefinition of the purpose and goals for agricultural education in Cameroon." Of the 212 students who responded to this issue, 164 (77.36%) indicated that redefinition of the purpose and goals for agricultural education was above high importance. It should be noted that only 48 (22.63%) of the student respondents indicated that issue one, was either average importance or below.

Of the 33 teachers, 20 (60.6%) of the teacher respondents indicated that redefinition of the purpose and goals for agricultural education was of high importance or greater. Less than 40% of the teacher respondents said that this issue was of average importance or below. Although the student respondents had a higher mean (4.04) than the teacher respondents (3.58) both groups indicated that the issue was of high importance.

According to the data presented in Table IV the students (SD 0.88) were more in consensus than the teachers (SD 1.13). A notable actual mean difference was not observed between the group means, however, the t-test value calculated for guidance showed a difference at .05 level of significance.

TABLE IV

ISSUE ONE: REDEFINITION OF THE PURPOSE AND GOALS FOR AGRICULTURAL EDUCATION IN CAMEROON

Students N (212) N	%	Importance of Responses	Teachers N (33) N	%
69	32.55	Extreme	5	15.10
95	44.81	High	15	45.50
38	17.92	Average	9	27.20
8	3.77	Some	2	6.10
1	0.47	Little	2	6.10
1	0.47	No	0	0
Mean 4.04 SD 0.88		Mean Difference .46* SD .25	Mean 3.58 SD 1.13	

*Actual mean difference <.50, therefore not considered notable, however the t-test calculated for guidance showed a difference at the .05 level of significance.

Comments on Issue One. Respondents were asked to make comments after each issue. Comments for issue one were as follows:

1. Twenty one respondents thought that the current goals were not known.
2. Twenty respondents said that there was no working system to be redefined.
3. Nineteen of those studying in the U.S. thought that the goals were not directed towards practical training.
4. Less than five teacher respondents commented that the goals were not food crop and/or needs oriented.
5. Four respondents indicated that the government should be careful when appointing individuals to redefine the goals and purpose of agricultural education.
6. One respondent thought there were no goals in place hence this issue was not a priority.

Issue Two

Table V reported responses on issue two: "Introduction of compulsory agricultural education at all levels of the educational system." Of the 212 student respondents 108 (50.93%) indicated that introduction of compulsory agricultural education at all levels of the educational system was not higher than average importance. Less than 50% of the students said that this issue had high importance or

TABLE V

ISSUE TWO: INTRODUCTION OF COMPULSORY AGRICULTURAL EDUCATION AT ALL LEVELS OF THE EDUCATIONAL SYSTEM

Students N (212)		Importance of Responses	Teachers N (33)	
N	%		N	%
42	19.81	Extreme	7	21.20
62	29.25	High	9	27.27
42	19.81	Average	2	6.10
38	17.92	Some	13	39.40
12	5.66	Little	2	6.10
16	7.54	No	0	0
Mean 3.17 SD 1.46		Mean Difference .01* SD .15	Mean 3.18 SD 1.31	

*Actual mean difference <.50, therefore not considered notable and supported by no difference shown by the t-test calculated for guidance.

greater.

According to the data in Table V, 17 (51.52%) of the teacher respondents said that introduction of compulsory education could only be considered as having average importance or lower. Sixteen (48.48%) indicated that this issue had high importance or above. It should be noted that no teacher respondent suggested that this issue had no importance. The frequency distribution of the students was more spread out than that of the teachers hence the teacher respondents agreed more within the group.

No notable actual difference was observed between the means of the two groups. This lack of difference was also supported by the t-test comparison at the .05 level of significance. The means and standard deviations were almost identical.

Comments on issue two. Comments on issue two were as follows:

1. Fifteen respondents commented that compulsory education may not solve the problems. The government should subsidize crop production or provide capital.
2. Agricultural education must stress practicability, was a concern expressed by ten respondents.
3. Five respondents commented that agricultural education was a must if Cameroon was to survive agriculturally.

4. Compulsory agricultural education should be introduced up to high school, was the comment from five teacher respondents.
5. "Agriculture does not need to be compulsory. Other means should be used to attract students," one teacher said.
6. One teacher indicated that much effort had been done to create interest.

Issue Three

The third issue was "a critical review of Cameroon agricultural education curriculum in all agricultural institutions." The data on issue three is summarized in Table VI.

According to the data summary, of the 212 student respondents, 164 (77.36%) indicated that a critical review of the curriculum in all agricultural institutions in Cameroon had a high or above importance. Only 48 (22.64%) indicated that issue three had lower than high importance.

Of the 33 teacher respondents, 23 (69.70%) also indicated that a critical review of agricultural education curriculum in all agricultural institutions in Cameroon was of high importance or above. The students (SD 0.88) were more in consensus than the teachers (SD 1.06). Only 10 (30.30%) teacher respondents thought that issue three was of average importance or lower (Table VI).

There was no notable difference between the means of

TABLE VI

ISSUE THREE: A CRITICAL REVIEW OF CAMEROON AGRICULTURAL EDUCATION CURRICULUM IN AGRICULTURAL INSTITUTIONS IN THE COUNTRY

Students N (212)		Importance of Responses	Teachers N (33)	
N	%		N	%
73	34.43	Extreme	13	39.40
91	42.92	High	10	30.30
35	16.51	Average	7	21.20
12	5.66	Some	2	6.10
1	0.47	Little	1	3.00
0	0	No	0	0
Mean 4.05		Mean Difference .08*	Mean 3.97	
SD 0.88		SD .18	SD 1.06	

*Actual mean difference <.50, therefore considered not notable and supported by no difference shown by the t-test value calculated for guidance.

the two groups which was also supported by the t-test value calculated for guidance at .05 significance level.

Comments on the third issue. On the comments,

1. Twenty four respondents agreed that agricultural education curriculum should stress practicality in on the job training.
2. Eighteen teacher respondents indicated that agricultural education curriculum had been reviewed but receommended some more review.
3. Fifteen respondents indicated that training should be geared towards the small farmer or private interprise.
4. Ten respondents called for more emphasis on Cameroon agriculture in the curriculum.
5. Ten respondents commented that a critical review be given to practical aspects during training.
6. Eight respondents said that there should be some way to evaluate the agricultural institutions.
7. Five respondents said that schools be made to have farms for practical training, said few respondents.
8. Four respondents suggested that agricultural education curriculum should be farm research oriented.

Issue Four

The fourth issue asked for the reorganization of all agricultural institutions under the university center for agriculture. A summary of the issue four data is presented in Table VII. According to the data presented in Table VII, of the 212 students who responded to this issue, 160 (75.47%) indicated that reorganization of all agricultural institutions under the University Center for Agriculture was high importance or above. It should be noted that less than 25% of the students said that the issue was less than average importance. Of the 33 teacher respondents, 19 (57.60%) indicated that reorganization of all agricultural institutions under the university center for agriculture was average importance or lower. Only 14 (42.47%) said that this issue was high importance or above. There was a difference between the students and teachers on the perceptions on the reorganization of all agricultural institutions under the university center for agriculture. The actual mean difference (1.12) was the largest of the mean differences of the issues. This difference was considered notable and supported by t-test value calculated for guidance at .05 significance level. It should be noted that more than 30% of the teachers said that this issue had no importance (Table VII). The students (SD 1.13) were more in consensus than the teachers (1.99) (Table VII).

TABLE VII

ISSUE FOUR: REORGANIZATION OF ALL AGRICULTURAL INSTITUTIONS UNDER THE UNIVERSITY CENTER FOR AGRICULTURE

Students N (212) N	Students N (212) %	Importance of Responses	Teachers N (33) N	Teachers N (33) %
70	33.01	Extreme	9	27.27
90	42.45	High	5	15.20
18	8.49	Average	7	21.20
28	13.20	Some	2	6.10
3	1.41	Little	0	0
3	1.41	No	10	30.30
Mean 3.85 SD 1.13		Mean Difference 1.12* SD .86	Mean 2.73 SD 1.99	

*Actual mean difference >.05, therefore considered notable and supported by a difference shown by the t-test calculated for guidance.

Comments on issue four. For comments on the fourth issue,

1. Twenty respondents indicated that agricultural education research and extension, should be administered from one department for better functioning.
2. Eighteen respondents suggested the opening of more agricultural centers with autonomy and independence. This was to give room for competition, which was to result in greater efficiency.
3. Fifteen respondents suggested that the reorganizers, policy makers and heads of these institutions must be serious, committed, well trained Cameroonians who know the system.
4. Ten respondents said that reorganization of all agricultural institutions under the University for Agriculture was good, although this might increase tribalism.
5. Nine indicated that reorganization would be difficult unless the system was abolished, then restructured from start.
6. Five respondents suggested that those agricultural institutions in the Ministry of Higher Education should remain there because of the problems that might be created in dismantling the present system.

Issue Five

Issue five was on the introduction of free primary education for all Cameroonians. The data in Table VIII, which is a summary of issue five data revealed that of the 212 students who responded to this issue, 163 (76.88%) indicated that introduction of free primary education for all Cameroonians was of high importance or above. Only 49 (23.11%) said that this issue was of average or some importance.

In Table VIII, 25 (75.75%) of the teachers said that this issue was of high importance or higher. Of the 33 teachers who responded to this issue, only 8 (24.25%) indicated that introducing free primary agricultural education was of average importance or lower. The student (SD 0.99) respondents had a much greater agreement on this issue than the teachers (SD 1.57). No notable actual group mean difference was observed between the two groups. This was supported by t-test value calculated for guidance at .05 significance level.

Comments on issue five. For comments on issue five,

1. Twenty respondents agreed that free primary education would entice parents to send their children to school to study agriculture among other subjects.
2. Fifteen respondents were skeptical to suggest or recommend anything free from private schools.

TABLE VIII

ISSUE FIVE: INTRODUCTION OF FREE PRIMARY AGRICULTURAL EDUCATION FOR ALL CAMEROONIANS

Students N (212) N	Students N (212) %	Importance of Responses	Teachers N (33) N	Teachers N (33) %
86	40.56	Extreme	16	48.48
77	36.32	High	9	27.20
25	11.79	Average	0	0
24	11.32	Some	4	12.10
0	0	Little	2	6.10
0	0	No	2	6.10
Mean 4.06 SD 0.99		Mean Difference .24* SD .58	Mean 3.82 SD 1.57	

*Actual mean difference <.05, therefore not considered notable and supported by no difference shown by the t-test value calculated for guidance.

3. Thirteen indicated that introduction of free primary agricultural education would affect other courses in the schools, as such it was difficult for private schools to provide any form of free education.
4. Thirteen respondents indicated that free primary agricultural education was highly recommended in public schools.
5. Seven respondents indicated that they would like to see grants and loans be given as headstart to small farmers.
6. Five suggested that free agricultural education at the high school level might work.

Issue Six

The sixth issue called for the improvement of small farm productivity through rural training centers. A summary of issue six data is presented in Table IX. In Table IX, of the 212 student who responded to issue six, 173 (81.60%) indicated that improving small farm productivity through rural training centers was highly important. According to the data presented in Table IX, only 42 (19.81%) suggested this issue as having average importance or lower.

In Table IX, 27 (81.82%) of the teachers indicated that improving small farm productivity through rural training centers, was of high importance. Only 6 (18.20%) teachers said that this issue was of average importance. There was a

TABLE IX

ISSUE SIX: IMPROVING SMALL FARM PRODUCTIVITY THROUGH RURAL TRAINING CENTERS

Students N (212) N	Students N (212) %	Importance of Responses	Teachers N (33) N	Teachers N (33) %
107	50.47	Extreme	11	33.30
66	31.13	High	16	48.50
25	11.79	Average	2	6.10
15	7.07	Some	1	3.00
1	0.47	Little	1	3.00
1	0.47	No	2	6.10
Mean 4.27 SD 0.85		Mean Difference .39* SD .47	Mean 3.88 SD 1.32	

*Actual mean difference <.50, therefore not considered notable and supported by no difference shown by the t-test value calculated for guidance.

strong agreement on this issue within each group. No actual notable group means difference was observed and this was supported by the t-test value calculated for guidance at .05 significance level.

Comments on issue six.

1. Twenty respondents said that improving small farm productivity would enhance self-sufficiency in food production, since most of the food was produced by small farmers.
2. Fifteen respondents said that farmers needed incentives such as loans, grants, etc., to encourage them to get into training programs. Comments on this issue were precise and to the point, but from few respondents.

Issue Seven

Issue seven asked for a review of agricultural education clientele in the country. According to the summary of data on issue seven (Table X), of the 211 students who responded to this issue, 105 (49.75%) indicated that a review of agricultural education clientele in the country was either of average or below importance, however 106 (50.25%) of the students said that this issue was high importance or above. It should be noted that the students were split between listing the issue as high or above and average or lower importance.

TABLE X

ISSUE SEVEN: A REVIEW OF AGRICULTURAL EDUCATION CLIENTELE IN THE COUNTRY

Students N (211) N	%	Importance of Responses	Teachers N (33) N	%
56	26.54	Extreme	2	6.10
50	23.69	High	14	42.40
39	18.48	Average	8	24.20
38	18.01	Some	2	6.10
8	3.79	Little	5	15.20
20	9.47	No	2	6.10
Mean 3.23 SD 1.56		Mean Difference .41* SD .15	Mean 2.82 SD 1.71	

*Actual mean difference <.50, therefore not considered notable and supported by no difference shown by the t-test value calculated for guidance.

In Table X, of the 33 teachers who responded to this issue, 17 (51.52%) suggested that a review of Cameroon agricultural education clientele was either of average importance or below. Sixteen (48.48%) of the teachers said that this issue was of high importance. Although the students had a higher mean (3.23) than the teachers (2.82) both groups indicated that this issue was of average importance. According to the data in Table X, the students (SD 1.56) were slightly more in consensus than the teachers (SD 1.17). No actual notable group mean difference was observed and this was supported by the t-test value calculated for guidance at .05 significance level.

Comments on issue seven. The following are the comments indicated by the respondents with regard to issue seven:

1. Nineteen respondents said that only those interested to work with the soil be trained.
2. Seventeen indicated that farmers be encouraged to do what they can do best.
3. Fourteen said that the idea that farming is for the uneducated poor be changed.
4. Twelve respondents agreed that no one should be forced to study agriculture.
5. Eight said that only those interested in agriculture should be encouraged to work on the farm.

6. Five said that policy makers look at the quality rather than the quantity of farmers.

Issue Eight

The reorganization of how agricultural education inputs (seeds, chemicals, etc.) were distributed in Cameroon was issue number eight.

According to the data in Table XI, of the 211 students who responded to this issue, 159 (75.36%) indicated that reorganizing the distribution of agricultural inputs (seeds, chemicals, etc.) in Cameroon was of high importance or higher. Only 52 (24.65%) of the students said that reorganizing agricultural inputs distribution was of average or little importance. It should be noted that no respondent reported that this issue had no importance.

In Table XI, 24 (72.73%) of the teachers indicated that reorganization of how agricultural inputs are distributed in the country was of high importance. Nine (27.27%) of the teachers suggested that issue eight was of average or lower importance. Although the teachers' mean (4.06) was a little higher than the students (4.01), both groups were in agreement within the group. There was no actual notable group mean difference observed and this was supported by t-test value calculated for guidance at .05 significance level.

TABLE XI

ISSUE EIGHT: THE REORGANIZATION OF HOW AGRICULTURAL INPUTS (SEEDS, CHEMICALS) WERE DISTRIBUTED IN CAMEROON

Students N (212) N	Students N (212) %	Importance of Responses	Teachers N (33) N	Teachers N (33) %
82	38.86	Extreme	17	51.50
77	36.49	High	7	21.20
27	12.79	Average	5	15.20
22	10.42	Some	2	6.10
3	1.42	Little	2	6.10
0	0	No	0	0
Mean 4.01 SD 0.84		Mean Difference .05* SD .36	Mean 4.06 SD 1.20	

*Actual mean difference <.50, therefore not considered notable and supported by no difference shown by the t-test value calculated for guidance.

Comments on issue eight. Comments on this issue were as follows:

1. Fifteen respondents wrote that means and cost of distribution needed improvement.
2. Fifteen respondents suggested that inputs reached farmers about three months before they were needed and that distribution centers be located in the production areas (villages).
3. Thirteen respondents said that the produce distribution be reorganized as well.
4. Twelve respondents reported that sometimes chemicals ended up in parts of the country where they were not needed.
5. Eleven respondents commented that the cost of inputs should be considered as well as distribution.
6. Five respondents said that channels of distribution of inputs needed some reorganization.
7. Three indicated that free chemicals ended up being sold at very high black markets.
8. Three indicated that inputs should be given for both cash and food crops.
9. One respondents suggested that there should be also some education on the use of inputs.

Issue Nine

Issue number nine asked for the reorganization of how agricultural credits and loans were distributed in Cameroon. Presented in Table XII are the responses of 212 students and 33 teachers who were asked to indicate their perceptions on the reorganization of how agricultural credits and loans were distributed in the country. One hundred and seventy five, (82.54%) students pointed out that reorganizing the distribution of credits and loans for agriculture was high in importance. Only 37 (17.45%) of the student respondents said that this issue was average or lower importance.

In Table XII, 27 (81.82%) of the 33 teachers reported that the reorganization of how agricultural credits and loans were distributed was of high importance. Only six (18.30%) of the teachers said that this issue was of average importance or lower. Even though the teacher respondents had a slightly higher mean (4.27), than the students (4.18), the two groups had a strong agreement between and within the group. No actual notable group mean difference was observed. This was supported by the t-test value calculated for guidance at .05 significance level.

Comments on issue number nine. Issue number nine comments were as follows:

1. Nineteen respondents suggested that government give out loans and credits since private banks were unwilling to give out loans to farmers.

TABLE XII

ISSUE NINE: REORGANIZATION OF HOW AGRICULTURAL CREDITS AND LOANS ARE DISTRIBUTED IN THE COUNTRY

Students N (212)		Importance of Responses	Teachers N (33)	
N	%		N	%
102	48.11	Extreme	18	54.50
73	34.43	High	9	27.20
22	10.37	Average	5	15.20
7	3.30	Some	0	0
6	2.83	Little	0	0
2	0.94	No	1	3.00
Mean 4.18 SD 1.04		Mean Difference .09* SD .01	Mean 4.27 SD 1.05	

*Actual mean difference <.50, therefore not considered notable and supported by no difference shown by the t-test value calculated for guidance.

2. Fifteen respondents pointed out that loans were very important for the future of agriculture in the country.
3. Twelve suggested that loans be actually given to those who do farming.
4. Five teacher respondents pointed out that loans were much easier to get for cars and houses than for farming.

Issue Ten

Training agricultural education teachers and extension agents was issue ten. Table XIII presents the distribution of 212 student and 33 teacher responses on the training of agricultural education teachers and extension agents. One hundred and seventy five (82.55%) students indicated that training agricultural education teachers and extension agents was of high importance or above. Only 37 (17.45%) students said that issue ten was either of average or some importance.

The data on Table XIII also showed that 28 (84.90%) teachers agreed with more than 80% of the students that issue ten was of high or above importance. Only five (15.15%) of the teachers indicated that this issue was of average or some importance. It should be noted that no respondent said that this issue was of little or no importance. According to the data in Table XIII, both the teacher and student groups were very much in consensus, 0.77

TABLE XIII

ISSUE TEN: TRAINING AGRICULTURAL EDUCATION TEACHERS (THOSE WHO TEACH AGRICULTURE) AND EXTENSION AGENTS (THOSE WHO WORK WITH FARMERS)

Students N (212) N	%	Importance of Responses	Teachers N (33) N	%
81	38.20	Extreme	16	48.50
94	44.33	High	12	36.40
22	10.37	Average	4	12.10
15	7.10	Some	1	3.00
0	0	Little	0	0
0	0	No	0	0
Mean 4.14 SD 0.87		Mean Difference .16* SD .10	Mean 4.30 SD 0.77	

*Actual mean difference <.50, therefore not considered notable and supported by no difference shown by the t-test value calculated for guidance.

and .87 standard deviation respectively. No actual notable difference was observed. Lack of difference was also supported by the t-test value calculated for guidance at 0.5 significance level.

Comments on issue ten. The comments on issue ten were:

1. Fifteen respondents said that more agricultural education teachers should be trained to reduce the work load of those in the field.
2. Nine respondents said that training be more practical than theoretical.
3. Five teachers reported that the government was on the right track on this issue.
4. Five suggested that training procedures should be adequate for adult training.
5. One said that trainees be made to understand that they were being trained to work with the soil instead of sitting in a big office upon graduation.

Issue Eleven

Issue eleven was on improving small farm productivity by improving the local farming systems. Table XIV reveals that 155 (73.45%) students said that this issue was of high or above importance.

The data on Table XIV also showed that of the 33

TABLE XIV

ISSUE ELEVEN: IMPROVING SMALL FARM PRODUCTIVITY BY IMPROVING THE LOCAL FARMING SYSTEM THROUGH RESEARCH

Students N (211) N	Students N (211) %	Importance of Responses	Teachers N (33) N	Teachers N (33) %
105	49.76	Extreme	16	48.50
50	23.69	High	12	36.40
25	11.84	Average	4	12.10
15	7.10	Some	1	3.00
15	7.10	Little	0	
1	0.47	No	0	0
Mean 4.00 SD 1.27		Mean Difference 0* SD .04	Mean 4.00 SD 1.23	

*Actual mean difference <.50, therefore not considered notable and supported by no difference shown by the t-test value calculated for guidance.

teachers, 28 (84.85%) indicated that improving small farmers by improving the local farming systems was of high importance or greater. The respondents were very consensus within the groups. It should be noted that only five (15.15%) of the teachers showed that improving small farm productivity through the improvement of local farming systems was of average or some importance. Both the student and teacher groups were in agreement on issue eleven, SD 1.27 and 1.23, respectively, within groups.

No actual notable difference was observed between the group means. This was also supported by the t-test value calculated for guidance at .05 significance level.

Comments on issue eleven. The respondents gave the following comments as regards to improving small farm productivity by improving the local farming systems.

1. Ten recommended that farm demonstration be a vital part of the extension service because the small farmers learn more by doing.
2. Fifteen teacher respondents said that most extension agents and personnel were not familiar with the local farming systems.
3. Three said that the link between research, extension and agricultural institutions be strengthened.
4. Five respondents pointed out that farming systems be studied so as to know which ones needed improvement or eradication.

Issue Twelve

The twelfth issue was on the intensification of the local food crop research. In Table XV the respondents' responses on the intensification of local food crop research is summarized.

According to the summarized data in Table XV, 163 (76.88%) of the 212 students indicated that intensification of local food crop research was of high importance or above. Only 49 (23.31%) of the students felt that this issue was average importance or lower. Table XV also revealed that 27 or 81.82% of the teacher respondents listed this issue as having high importance in Cameroon agricultural growth. Of the 33 teachers who responded to this issue only six, (18.20%) said that intensification of local food crop research was of average or some importance. It should be noted that no teacher indicated that this issue was of little or no importance.

The data on Table XV also showed that the teacher respondents (SD 0.96) were more in consensus than the student (SD 1.42) counterparts. The frequency distribution of the student group was more spread out even though there was much agreement within the group. However, the teachers were more in consensus within the group than the students.

No actual notable group mean difference was observed, however the t-test value calculated for guidance showed a group mean difference at .05 level of significance.

TABLE XV

ISSUE TWELVE: INTENSIFICATION OF LOCAL FOOD CROP RESEARCH (COCOYAMS, YAMS, PLANTAIN, ETC.)

Students N (212) N	Students N (212) %	Importance of Responses	Teachers N (33) N	Teachers N (33) %
83	39.15	Extreme	18	54.50
80	37.73	High	9	27.20
21	9.90	Average	3	9.10
7	3.30	Some	3	9.10
5	2.35	Little	0	0
16	7.54	No	0	0
Mean 3.85 SD 1.42		Mean Difference .42* SD .46	Mean 4.27 SD 0.96	

*Actual mean difference <.50, therefore not considered notable, however the t-test calculated for guidance showed a difference at the .05 level of significance.

Comments on issue twelve. The opinions expressed by the respondents on issue twelve were as follows:

1. Nineteen respondents pointed out that Issues 11 and 12 were the same.
2. Eighteen expressed that food crop research was badly needed.
3. Fifteen respondents highly recommended production of food crops for sale to neighboring countries with low food production levels.
4. Fifteen indicated that agriculture is a rural activity practiced by rural people.
5. Eleven commented that mass production created markets and other industries within a local community.
6. Ten respondents noted that food crop research was critically needed.
7. Seven indicated that local markets and industries usually have multiplier effect on the economy.
8. Five respondents commented that food was the single most important item for any nation, as such they commented that a nation must do all it could to feed its people.
9. Three said that food production affected several factors in the economy of a nation. For example, workers in industry needed food for effective work.
10. Two said that food crop research include storage as well as production.

11. One expressed that excess food could be taken and sold for export.

Issue Thirteen

Issue thirteen dealt with the construction of a network of roads to all food production areas in the country. A distribution of the respondents' perceptions on issue thirteen is summarized in Table XVI. A review of the responses presented in Table XVI revealed that, of the 212 students who responded to this issue 169 (79.71%) said that a network of roads to all food production areas was of high importance or above. It should be noted that 50.0% of the student respondents indicated that this issue was of extreme importance to the country's agricultural education growth. Only 43 (21.52%) said that the issue was of average or less importance.

The data in Table XVI also revealed that 28 (84.80%) of the teachers indicated that the thirteenth issue was of high importance or greater. It should also be noted that more than 60% of the teachers listed the issue as having high importance. Only 15% of the teachers said that this issue was of average importance or lower.

Although the teachers had a slightly higher mean (4.39) than the students (4.14) they both listed the issue as high importance. The data in Table XVI also revealed that the teachers (SD 0.98) were more in consensus than the students (1.12). No actual notable group mean difference was ob-

TABLE XVI

ISSUE THIRTEEN: CONSTRUCTION OF A NETWORK OF ROADS TO ALL FOOD PRODUCTION AREAS IN THE COUNTRY.

Students N (212) N	%	Importance of Responses	Teachers N (33) N	%
106	50.00	Extreme	21	63.60
63	29.71	High	7	21.20
21	9.90	Average	3	9.00
11	5.81	Some	1	3.00
11	5.81	Little	1	3.00
0	0	No	0	0
Mean 4.14 SD 1.12		Mean Difference .25* SD .14	Mean 4.39 SD 0.98	

*Actual mean difference <.50, therefore not considered notable and supported by the t-test value calculated for guidance.

served. This was supported by the t-test value calculated for guidance at .05 level of significance.

Comments on issue thirteen. Comments on the thirteenth issue indicated that:

1. Eighteen respondents suggested that all food production areas be linked by a network of roads. This was one of the ways production could be increased. Produce could be sold locally or transported to major markets for better prices.
2. Seventeen respondents said that transportation was an absolute necessity for development.
3. Fifteen indicated that good roads facilitated movement of produce to market areas.
4. Ten also said that lack of outlets from production areas caused dumping of products into the local markets.
5. Ten respondents pointed out that road construction was the most vital point; therefore, it was to be taken seriously.
6. Three respondents commented that market dumping affected not only prices, but production, as well as the national economy.
7. One respondent wrote that transportation usually affected market prices and production.

Issue Fourteen

Creation of a presidential commission to look into agricultural education problems in the country was the fourteenth issue in the study. The frequency distribution of 211 students' and 33 teachers' responses is presented in Table XVII. A close look at the data in Table XVII revealed that 88 (41.71%) of the students indicated that the creation of a presidential commission to look into agricultural education was of average importance or lower. However the other 123 (58.29%) students said that the issue was of high importance or above.

The data in Table XVII also revealed that 21 (63.64%) of the teachers said that this issue was of average importance. Even though the students had a higher mean (3.44) than the teachers (2.58) the two groups placed this issue on the average importance list.

According to the data in Table XVII the students (SD 1.27) were more in agreement within the group than the teachers (SD 1.65). Actual group mean difference was observed and this was supported by the t-test value calculated for guidance.

Comments on issue fourteen. Comments on issue fourteen were as follows:

1. Seventeen teachers suggested that the Ministry of Agriculture and Higher Education could be commissioned to do the job.

TABLE XVII

ISSUE FOURTEEN: CREATION OF A PRESIDENTIAL COMMISSION TO LOOK INTO AGRICULTURAL EDUCATION PROBLEMS IN THE COUNTRY

Students N (211) N	Students N (211) %	Importance of Responses	Teachers N (33) N	Teachers N (33) %
35	16.58	Extreme	3	9.10
88	41.70	High	9	27.20
50	23.69	Average	8	24.20
24	11.37	Some	4	12.20
0	0	Little	2	6.10
14	6.63	No	7	21.20
Mean 3.44 SD 1.27		Mean Difference .86* SD .38	Mean 2.58 SD 1.65	

*Actual mean difference >.50, therefore considered a notable difference and supported by t-test calculated for guidance at the .05 level of significance.

2. Ten respondents indicated that a presidential commission may be too political and corrupt for such an important responsibility.
3. Eight respondents thought that it was the right thing to do at the moment.
4. Six respondents said that a presidential commission to view all aspects of agricultural problems (actual production, input distribution and knowledge application) was necessary.
5. Two respondents indicated that the commission was to help in policy formation.

Issue Fifteen

The organization of food crop cooperative societies and markets was the fifteenth issue in the study. The data on issue fifteen is presented in Table XVIII. Frequency distribution on issue fifteen as presented in Table XVIII revealed that of the 211 students who responded to this issue, 146 (69.19%) indicated that organizing food crop cooperative societies and markets was of high importance. Less than 35% of the students indicated that this issue was of average or less importance.

Table XVIII data also revealed that 24 (72.73%) of the teachers indicated that this issue was of high importance. Less than ten teachers said that the issue was of average or less importance.

The students and the teachers said that organizing food

TABLE XVIII

ISSUE FIFTEEN: ORGANIZATION OF FOOD CROP COOPERATIVE SOCIETIES AND MARKETS

Students N (211) N	Students N (211) %	Importance of Responses	Teachers N (33) N	Teachers N (33) %
74	35.07	Extreme	7	21.20
72	34.12	High	17	51.50
39	18.48	Average	4	12.10
10	4.73	Some	3	9.10
17	8.05	Little	1	3.00
0	0	No	1	3.00
Mean 3.85 SD 1.16		Mean Difference .16* SD .02	Mean 3.69 SD 1.18	

*Actual mean difference <.50, therefore not considered notable and supported by the t-test value calculated for guidance.

crop cooperative societies and markets was of high importance issue though the students' mean (3.85) was higher than the teachers' mean (3.69). The data in Table XVIII also showed that there was very little difference between and within group agreements, students (SD 1.16) and teachers (SD 1.18).

No actual notable group mean difference was observed and this was supported by the t-test value calculated for guidance at .05 level of significance.

Comments on Issue Fifteen. Respondents expressed some vexing dilemmas in their comments on this issue as reflected in the following statements:

1. Eleven reported that if cooperative societies were well managed, it could cut the middleman's profit, which could go into the farmers' pockets.
2. Ten commented that in many cases the societies were short of money to buy produce during harvest seasons.
3. Six respondents suggested that such cooperative societies should be controlled by the local farmers and not some government officials.
4. Five respondents indicated that cooperative societies were already in place in the country; however, they were poorly managed.
5. Five respondents did not welcome organized food crop cooperative societies because they were what

they called calculated monopoly.

6. Four commented that the societies' funds were often mismanaged.
7. Three said that cooperative societies could lower food market prices.
8. Three indicated that too often the farmers went for months without being paid for their produce.
9. Two indicated that cooperative societies were a definite need.

Issue Sixteen

Table XIX presents 211 students' and 33 teachers' perception data on issue sixteen, "a review of agricultural product pricing policy." Of the 211 students, 131 (62.10%) indicated that issue sixteen was of high or above importance. Only 80 (37.90%) indicated that this issue belonged to the average or lower categories.

The data in Table XIX also said that 22 (66.67%) of the teachers put the review of agricultural pricing policy on the high or above importance list. Less than 40% of the teachers said that the issue was of average or less importance.

The student groups as well as the teachers said that this issue was of high importance. The students (SD 1.38) were more in consensus than the teachers (SD 1.51) (see Table XIX). No actual notable group mean difference was observed and this was supported by the t-test value calculated

TABLE XIX

ISSUE SIXTEEN: A REVIEW OF AGRICULTURAL PRODUCT PRICING POLICY

Students N (211) N	%	Importance of Responses	Teachers N (33) N	%
78	36.96	Extreme	13	39.40
53	25.11	High	9	27.20
45	21.32	Average	5	15.20
15	7.10	Some	0	0
12	5.68	Little	5	15.20
8	3.79	No	1	3.00
Mean 3.69 SD 1.38		Mean Difference .02* SD .13	Mean 3.67 SD 1.51	

*Actual mean difference <.50, therefore not considered notable and supported by t-test value calculated for guidance.

for guidance at .05 level of significance.

Comments on Issue Sixteen. The few comments on this issue included:

1. Five commented that a review of pricing policy might be beneficial, provided we were not trying to fix prices.
2. Four respondents indicated that better storage conditions would lead to better pricing controls.
3. Three respondents did not want any price control measures.
4. Two said that reviewing agricultural pricing policy was a good idea, though this might not have any effect because prices are controlled by external forces.
5. One respondent said that food crop pricing should follow the general price structure.

Issue Seventeen

Reorganization of agriculture under one ministry with directors of different units (crop production, research, extension, etc.) was the seventeenth issue. A summary of the data on the perceptions of 211 students and 33 teachers is presented in Table XX.

Table XX data showed that of the 211 students, 101 (47.90%) indicated that reorganizing agriculture under one ministry with various directors was of average or lower

TABLE XX

ISSUE SEVENTEEN: REORGANIZATION OF AGRICULTURE UNDER ONE MINISTRY WITH DIRECTORS OF DIFFERENT UNITS (CROP PRODUCTION, RESEARCH, EXTENSION, ETC.)

Students N (211) N	Students N (211) %	Importance of Responses	Teachers N (33) N	Teachers N (33) %
37	17.53	Extreme	4	12.10
73	34.58	High	11	33.20
43	20.37	Average	9	27.20
14	6.63	Some	1	3.00
15	7.10	Little	7	21.20
29	13.74	No	1	3.00
Mean 3.08 SD 1.62		Mean Difference .05* SD .22	Mean 3.03 SD 1.40	

*Actual mean difference <.50, therefore not considered notable and supported by the t-test value calculated for guidance.

importance. However, 110 (52.10%) students said that this issue was of high or above importance.

The same data in Table XX also revealed that of the 33 teachers, 18 (54.56%) said that issue seventeen was of average or lower importance while 15 (45.44%) of the teachers indicated that the issue was of high or better importance.

The data also revealed that the teachers were more in consensus (SD 1.40) than the students (SD 1.62). No actual notable group mean difference was observed and this was supported by the t-test value calculated for guidance at .05 level of significance.

Comments on issue seventeen. The respondents' comments on this issue were as follows:

1. Eighteen respondents did not embrace the idea of having agriculture under different ministries.
2. Seventeen respondents welcomed reorganizing agriculture under one ministry because this would not only consolidate efforts but save money and manpower.
3. Fifteen respondents said that the number of directors should be reduced so that more money can be put into research.
4. Thirteen respondents said that a coordinated approach was needed in order to make the system work.

5. Ten indicated that the number of agricultural institutions should be reduced for better management and organization.
6. Five resented making new directors.
7. One suggested an inter ministry committee to involve people in all ministries that handle agriculture.
8. One of the teacher respondents indicated that the Ministry of Agriculture had seven agricultural departments with about 22 development agencies while the Ministry of Higher Education had five agricultural research institutions.

Issue Eighteen

This issue called for the redirection of agricultural research towards problem solving. Issue eighteen data from 200 student and 33 teacher respondents is presented in Table XXI. One hundred and forty two (71.0%) students indicated that redirecting agricultural research towards problem solving was of high or extreme importance. Only 58 (29.0%) said that this issue was of average or lower importance.

Table XXI data also showed that 24 (72.73%) teachers agreed that issue eighteen was of high importance. Only nine (27.27%) said that it was of average or lower importance.

The students had a slightly higher mean (3.90) than the teacher respondents (3.88). This did not affect their

TABLE XXI

ISSUE EIGHTEEN: REDIRECTION OF AGRICULTURAL RESEARCH TOWARDS PROBLEM-SOLVING

Students N (200) N	%	Importance of Responses	Teachers N (33) N	%
80	40.00	Extreme	15	45.50
62	31.00	High	9	27.20
27	13.50	Average	3	15.20
24	12.07	Some	2	6.10
3	1.50	Little	4	12.10
4	2.00	No	0	0
Mean 3.90 SD 1.21		Mean Difference .02* SD .15	Mean 3.88 SD 1.36	

*Actual mean difference <.50, therefore not considered notable and supported by t-test value calculated for guidance.

agreement on giving issue eighteen high importance position. The students (SD 1.21) were slighlty more consensus within the group than the teachers (SD 1.36).

No actual notable group mean difference was observed and this was supported by the t-test value calculated for guidance at .05 level of significance.

Comments on issue eighteen. Comments on issue eighteen were as follows:

1. Fourteen respondents suggested that research problems come from the farmers rather than from the researchers.
2. Ten said that research was necessary for improvement and agricultural growth of any nation.
3. Eight said that applied research as well as basic research be encouraged for future growth.
4. Five indicated that research was crucial at this stage in our agricultural development.
5. Three said that research should identify and solve problems.
6. One teacher stressed that redirection of agricultural research towards problem solving was the key to Cameroon agricultural development.

Issue Nineteen

Issue nineteen was "updating agricultural education curriculum in all agricultural institutions in the country.

Table XXII presents the perceptions of 200 students and 33 teachers on updating agricultural education curriculum in all agricultural institutions in Cameroon.

According to the data in Table XXII, 121 students said that updating agricultural education curriculum in all agricultural institutions in the country was of high importance. Only 79 (39.50%) students said that issue nineteen was of average or lower importance.

In Table XXII, more than 75% of the teachers indicated that updating agricultural education curriculum was of high importance. Only eight teachers said that this issue was of average or some importance.

Although the students had a lower mean (3.55) than the teachers (4.18) both groups put the issue in the high importance position. Table XXII also revealed that the students (SD 1.20) were less in consensus than their teachers (SD 0.99). Actual notable group mean difference was observed and supported by the t-test value calculated for guidance at .05 level of significance.

Comments on issue nineteen. The opinions expressed by the respondents on this issue were as follows:

1. Thirteen respondents said that issue nineteen was the same as issue three, hence, comments for issue three go for issue nineteen too.
2. Eleven indicated that the problem was more with the graduates who refuse to work in the farm upon

TABLE XXII

ISSUE NINETEEN: UPDATING AGRICULTURAL EDUCATION CURRICULUM IN ALL AGRICULTURAL INSTITUTIONS IN THE COUNTRY

Students N (200) N	%	Importance of Responses	Teachers N (33) N	%
44	22.00	Extreme	17	51.50
77	38.50	High	8	24.20
37	18.50	Average	5	12.10
34	17.00	Some	3	9.10
2	1.00	Little	0	0
6	3.00	No	0	0
Mean 3.55 SD 1.20		Mean Difference .63* SD .21	Mean 4.18 SD 0.99	

*Actual mean difference >.50, therefore considered a notable difference and supported by t-test value calculated for guidance at .05 significance level.

graduation to practice what they learn in schools. They instead want to work behind big desks.

3. Ten respondents suggested that the curriculum needed to keep up with time and technological advancement.

Issue Twenty

The twentieth issue called for the creation of a national extension committee made up of policy makers, farmers, researchers and educators.

In Table XXIII, the summary of data on issue twenty is presented. Two hundred students and 33 teachers responded to this issue. One hundred and five (52.50%) students indicated that creating a national extension committee made up of people from different works of life was of high importance, while 95 (47.50%) said that it was of average importance. Of the 33 teacher respondents, 21 (63.60%) indicated that this issue was of high or above importance. Only 12 (36.40%) said that this issue was of average or lower importance. It should be noted that only 2.1% of the respondents indicated that issue twenty was of no importance to the growth of agricultural education in the country (Table XXIII). The student respondents' (3.49) mean and teachers' (3.42) mean agreed that this issue was of high importance. The data summary in Table XXIII revealed that the students (SD 1.22) had a greater agreement with the group than the teachers (SD 1.37). No actual notable group

TABLE XXIII

ISSUE TWENTY: CREATION OF A NATIONAL EXTENSION COMMITTEE MADE UP OF POLICY MAKERS, FARMERS, RESEARCHERS AND EDUCATORS

Students N (200)		Importance of Responses	Teachers N (33)	
N	%		N	%
43	21.50	Extreme	7	21.20
62	31.00	High	14	42.40
64	32.00	Average	4	12.10
21	10.50	Some	2	6.10
0	0	Little	6	18.20
10	5.00	No	0	0
Mean 3.49 SD 1.22		Mean Difference .07 SD .15	Mean 3.42 SD 1.37	

*Actual mean difference <.50, therefore not considered notable and supported by t-test value calculated for guidance.

mean difference was observed. This was supported by the t-test value calculated for guidance at .05 level of significance.

Comments on issue twenty. For comments on issue twenty:

1. Ten respondents thought that creating more committees would make matters worse, because this committees end up using more money from research.
2. Eight indicated that such a mixture would create a very strong and productive committee with higher chances of success.
3. Four respondents said that a committee with such a mixture as suggested in the issue had a good chance of success.
4. Two said that the core of such a committee should include research institutions.
5. One respondents suggested that policy makers should be include in the committee.
6. One of the teacher respondents suggested that extension should work in two ways, (inventory of farmers, --> researchers --> solutions and back to farmers).

Issue Twenty One

The twenty first issue called for the introduction of advanced technology (tractors) to local farmers in the

villages. In Table XXIV, the frequency distribution of 200 students´ and 33 teachers´ responses was summarized.

According to the data summary in Table XXIV, 133 (66.50%) students indicated that introduction of advanced technology to local farmers was of average importance. Only 33.50% of the students thought this issue was of high importance or higher. It should be noted that more than 16% of the students indicated that the issue was not important.

Table XXIV data also said that more than 39% of the teachers reported that introduction of advanced technology was not important to Cameroon agricultural education advancement. Only seven (23.10%) teachers indicated that issue twenty one was of high importance.

Even though the students had a higher mean (2.56) than the teachers (1.79) both groups placed the issue in some importance category. According to the data presented in Table XXIV, the students (SD 1.70) were more in agreement within the group than the teachers (SD 1.81).

Actual notable group mean difference was observed and supported by the t-test value calculated for guidance at .05 level of significance. The group mean difference was higher than .50 of a point.

Comments on issue twenty one. Comments on issue twenty one were as follows:

1. Nineteen respondents wanted to know who paid for advanced technology.

TABLE XXIV

ISSUE TWENTY ONE: INTRODUCTION OF ADVANCE TECHNOLOGY (TRACTORS) TO LOCAL FARMERS IN THE VILLAGES

Students N (200) N	Students N (200) %	Importance of Responses	Teachers N (33) N	Teachers N (33) %
39	19.50	Extreme	4	12.10
28	14.00	High	3	9.10
24	12.00	Average	5	15.20
56	28.00	Some	4	12.10
20	10.00	Little	4	12.10
33	16.50	No	13	39.40
Mean 2.56 SD 1.70		Mean Difference .77* SD .11	Mean 1.79 SD 1.81	

*Actual mean difference >.50, therefore considered notable and supported by t-test value calculated for guidance.

2. Nineteen said that technology must have the potentiality for increasing productivity on the small farm.
3. Fifteen teacher respondents indicated that advanced technology could be utilized by small literate farmers for commercial production and not by illiterate farmers.
4. Three respondents said that technology should be appropriate and cost effective.

Issue Twenty Two

Issue twenty two called on the respondents to list other issues which were of importance but not on the questionnaire. According to the responses, less than one percent of the respondents would have loved to include the following points as issues:

1. Open travel policy by the agricultural scientists.
2. Agricultural extension and their salaries.
3. Centralization of agricultural services.
4. Interdepartmental committee instead of presidential committee.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this chapter is to present a summary of the major findings of this study, along with the conclusions and recommendations based on the findings. The summary is presented under the following headings: purpose of the study, specific objectives, rationale for the study, design of the study and major findings of the research. The conclusions and recommendations represent those concluded by the author based upon an analysis of the data contained in this study.

Summary of the Study

Purpose of the Study

The purpose of this study was to identify and prioritize Cameroon agricultural education issues.

Objectives of the Study

To accomplish the purpose of this study, the following objectives were set forth:

1. To determine Cameroon agricultural education issues and their priorities as perceived by the teachers and students at the Agricultural Center

at Dchang and Cameroonians studying agriculture in the United States of America.

2. To determine if there were differences in perceptions between the groups on the priority issues.

Rationale for the Study

Swanson (1980) related that anyone involved in the advancement of agricultural education policy must continue to identify, discuss and resolve important issues. The identification and the study of Cameroon agricultural education issues are not only important in developing a sound agricultural education policy, but also will help to focus on the important issues of the future. Stenzel and Hall (1973) reported that the development of agricultural education involves the identification and discussion of important issues.

No one has identified and prioritized Cameroon agricultural education priority issues. The identification of these issues will help to focus the efforts and resources of the system. The general belief is that the many failures in agricultural education projects are a result of lack of need assessment upon which priorities can be built. Therefore, prioritization of these issues could focus resources, create involvement, avoid wastage and foster development at a much greater pace.

Regier (1977) noted that identification and discussion of educational issues encourages professional discussion

and priority focus. For us, in Cameroon this study is also a learning process.

Design of the Study

After the review of selected literature, procedures were established in order to satisfy the purpose and objectives of this study. The population for this study included students and teachers at the Agricultural University Center at Dchang and Cameroon teachers studying agriculture in the United States. An attempt was made to include all Cameroonians studying agriculture in the United States through "CAMSA" USA. These groups were selected because it was believed that agricultural education students and teachers should have valuable opinion about the agricultural education priorities of the country.

Twenty one issues were developed from the 1981, five year development plan, in the form of a questionnaire which was administered to 342 students and teachers, with 245 (70.6%) of them responding. The questionnaire provided a six-point "Likert-type" scale of categories which allowed the respondents to rate their perceptions on each issue on the questionnaire. Information secured from the questionnaire provided a means of identifying those issues considered to be of high importance, average importance, some importance, little importance, or no importance.

Information obtained from the questionnaire was presented through descriptive statistics of all responses.

The number and percentages of respondents choosing each response category for each issue along with means and standard deviations were calculated. Further analysis of the information included ranking and placing issues into the different categories based upon the means. A mean of means was also calculated for overall issue ranking. A standard deviation was calculated for each issue and used to determine within group agreement. In keeping with the objectives of this study to determine if differences existed between the students and teachers´ perceptions on agricultural education issues, mean differences greater than .50 (half a category interval) were considered notable. The t-test was also calculated to give guidance in analyzing the actual population mean differences for each issue.

Major Findings of the Research

A total of 245 respondents (212 students and seven teachers of agriculture at the Agricultural Center at Dchang and 26 Cameroonian teachers studying agriculture in the United States) participated in this study. The 49% of the respondents who indicated their farming experience had an average of 4.6 years. The greatest number of respondents had 1-5 years of experience.

Of the 68.20% respondents who indicated their level educational level, 5.7 percent were either Ph.D. holders or were in a doctoral program, 11.0 percent were Master´s degree holders or in the program, 34.8 percent were first

year, 44.3 percent were second year, 19.1 percent were third year, and 11.3 percent were fourth year students doing their first degrees.

The 53.10% of the respondents indicating birthplace showed 10.6% were from the north west province, 6.5 from the south west, 2.0 percent from the north, 2.4 percent from far north, 16.3 from the west, 4.9 percent from the east, 2.4 percent from central south, 3.8 percent from the south and 4.1 percent from the coastal province.

A summary of respondents´ perceptions on Cameroon agricultural education issues is presented in Table XXV. The data in Table XXV revealed that issue 13, "Construction of a network of roads to all food production areas in the country" (4.27), issue 9, "Reorganization of how agricultural credits (bank loans) are distributed in the country" (4.23), and issue 10, "Training agricultural education teachers (those who teach agriculture) and agents (those who work with farmers) (4.22)" were considered to be the most important issues in that order for Cameroon agricultural education development by the combined students and teachers.

The data also revealed that the students indicated that issue 6, "Improving small farm productivity through rural training centers" (4.27) was number one in importance. Issue 9, (4.18), issue 13, (4.14), and issue 10, (4.14) were the next most important agricultural education issues in Cameroon in that order as rated by the students.

TABLE XXV

SUMMARY OF RESPONDENTS' PERCEPTIONS ON CAMEROON AGRICULTURAL EDUCATION ISSUES

Overall Rank	Category	Mean of Means	Issue #	Issue	Students Rank	Students Category	Students Mean	Students SD	Teachers Rank	Teachers Category	Teachers Mean	Teachers SD
1	H	4.27	13.	Construction of a network of roads to all food production areas in the country.	3	H	4.14	1.12	1	H	4.39	0.98
2	H	4.23	9.	Reorganization of how agricultural credits (bank loans) are distributed in the country.	2	H	4.18	1.04	3	H	4.27	1.05
3	H	4.22	10.	Training agricultural education teachers (those who teach agriculture) and extension agents (those who work with farmers).	3	H	4.14	0.87	2	H	4.30	0.77
4	H	4.08	6.	Improving small farm productivity through rural training centers.	1	H	4.27	0.85	7	H	3.88	1.32
5	H	4.06	12.*	Intensification of local food crop research (cocoyams, yams, plantain, etc.).	11	H	3.85	1.42	3	H	4.27	0.96
6	H	4.04	8.	Reorganization of how agricultural education inputs (seeds, chemicals, etc.) are distributed in the country.	7	H	4.01	0.84	5	H	4.06	1.20
7	H	4.01	3.	A critical review of Cameroon agricultural education curriculum in agricultural institutions in the country.	5	H	4.05	0.88	6	H	3.97	1.06
8	H	4.00	11.	Improving small farm productivity by improving the local farming system through research.	8	H	4.00	1.27	8	H	4.00	1.23
9	H	3.94	5.	Introduction of free primary agricultural education for all Cameroonians.	4	H	4.06	0.99	10	H	3.82	1.57
10	H	3.89	18.	Redirection of agricultural research towards problem-solving.	9	H	3.90	1.21	9	H	3.88	1.36
11	H	3.87	19.*	Updating agricultural education curriculum in all agricultural insititutions in the country.	11	H	3.55	1.20	4	H	4.18	0.99

TABLE XXV (Continued)

12	H	3.81	1.*	Redefinition of the purpose and goals for agricultural education in Cameroon	6	H	4.04	0.88	13	H	3.58	1.13
13	H	3.77	15.	Organization of food crop cooperative societies and markets.	11	H	3.85	1.16	11	H	3.69	1.18
14	H	3.68	16.	A review of agricultural product pricing policy.	12	H	3.69	1.38	12	H	3.67	1.51
15	A	3.46	20.	Creation of a national extension committee made up of policy makers, farmers, researchers and educators.	13	A	3.49	1.22	14	A	3.42	1.37
16	A	3.29	4.*	Reorganization of all agricultural institutions under the University Center of Agriculture.	10	H	3.85	1.13	18	A	2.73	1.99
17	A	3.18	2.	Introduction of compulsory agricultural education at all levels of the educational system.	16	A	3.17	1.46	15	A	3.18	1.31
18	A	3.06	17.	Reorganization of agriculture under one ministry with directors of different units (crop production, research, extension, etc.)	17	A	3.08	1.62	16	A	3.03	1.40
19	A	3.03	7.	A review of agricultural education clientele in the country.	15	A	3.23	1.56	17	A	2.82	1.71
20	A	3.01	14.*	Creation of a presidential commission to look into agricultural education problems of the country.	14	A	3.44	1.27	19	A	2.58	1.65
21	S	2.18	21.*	Introduction of advance technology (tractors) to local farmers in the villages.	18	A	2.56	1.70	20	S	1.79	1.81

*Notable actual difference between group means of .40 or greater.

The study indicated that the teachers rated issues 13 (4.39), 10 (4.30), 9 (4.27) and 12, "Intensification of local food corp research (cocoyams, yams, plantain, etc." (4.27) as the most important issues.

The study revealed that issues 7 "Review of agricultural education clientele in the country" (3.03), 14 "Creation of a presidential commission to look into agricultural education problems in the country" (3.01), and 21 "introduction of advance of technology (tractors) to local farmers in the village" (2.18) were considered the least important issues in the development of Cameroon agricultural education by the students and teachers combined.

The study indicated that the students agreed more within the group on issues 1, 3, 5, 6 and 8 than did the teachers.

On disagreement, the study indicated that the students rated issue 4, "Reorganization of all agricultural institutions under the University Center for Agriculture" (3.85) of high importance while the teachers rated it (2.73) of average importance. Issue 4 had the highest mean difference between the groups (1.12) in the study.

Issue 11, "Improving small farm productivity by improving the local farming systems through research," received identical 4.00 mean ratings from both groups. This issue also received an almost identical within group agreement of (1.27) students and (1.23) teachers standard deviations.

There was almost identical within group agreement

between the teachers and the students on issues 9, 10 and 15.

The study showed that the teachers agreed more within the group on issues 12 (0.96), 13 (0.98), and 19 (0.99) than the students 12 (1.42), 13 (1.12) and 19 (1.20).

The study indicated that issue 21, "introduction of advance technology (tractors) to local farmers in the village," (mean of means 2.18), overall ranking 21st, students (2.58) and teachers (1.79) was considered the least important issue.

Of the 21 issues developed from the Cameroon 5th five year development plan, fifteen were rated "high importance" while six were rated "average importance".

Comments on the Issues

It should be noted that comments made on the issues were optional. This might be the reason why less than 35% of the respondents did so.

A summary of comments given by the respondents for each issue is as follows:

The study revealed that 10% of the respondents made comments indicating that a network of roads was vital to the movement of produce from production to market areas.

The study indicated that 11% of the respondents commented more bank loans should be given to farmers and credit centers be stationed at the production areas.

On training, 6.2% of the respondents indicated that

more agricultural education teachers should be trained. Another 3.7% said the training should be more practical and there were a few comments about other phases of training.

This study indicated that 14.3% of the respondents said that small farm productivity increase should be included in all struggles for agricultural education development, since small farms were the main food producers.

On research the study indicated that 10% of the respondents said, applied and problem solving research should be stressed in all agricultural education programs to increase production.

As regards to inputs distribution the study revealed that 19% of the respondents disapproved the way inputs were distributed and recommended a reorganization.

This study revealed that 8.6% of the respondents wanted only those interested in agriculture to be trained.

On the formation of new agricultural institutions the study indicated that 15% of the respondents were skeptical of forming new institutions when those in place were not organized.

The study indicated that 5.7% of the respondents supported a presidential commission to look into agricultural education formation.

On review of agricultural education clientele, 14% of the respondents commented that the curriculum should keep up with the technology and needs.

The study indicated that 19.5% of the respondents indicated that introduction of advanced technology was not cost effective for small farmers.

Conclusions

According to the summary of the data analyzed the following conclusions were made:

1. Most of the teachers who took part in the study had limited farm experience.
2. Since the teacher participants either had graduate degrees or were in a doctoral program, it was concluded that the teacher participants had strong academic backgrounds.
3. Based on the findings that many of the students studying agriculture came from the western provinces and because the agricultural center is in one of the western provinces, it was concluded that most of the agricultural education teachers in the near future will come from the western provinces.
4. Because issue 13, "Construction of a network of roads to all production areas in the country," was ranked most important overall, received a 4.27 mean of means, 4.14 mean from the students and 4.39 mean from the teachers, it was concluded that farm to market roads should be given serious considerations. The literature on agricultural extension

in developing countries also indicated that part of the extension problem was the inaccesibility of the villages. Lack of roads affected input distribution, movement of produce to markets and prices.

5. Since issue nine received a 4.23 mean of means and the students ranked it second and the teachers third, it was concluded that the way agricultural credits were distributed in the country needed to be reorganized.
6. Based on the findings that training agricultural education and extension agents was ranked third overall, second by teachers and third by students, it was concluded that a good agricultural education teachers and extension agents training program that reflects the trainees´ needs should be instituted. It should be noted that the literature on training reported that most African extension services lacked trained personnel. INADES (1979) reported that in Cameroon training lasted only a few weeks or months.
7. Because the student respondents ranked improving small farm productivity through rural training centers first, teachers 7th and 4th overall, it was concluded that more rural training centers where small farmers would be trained should be started.
8. Due to the high rating of students (4.01), teachers (4.06) and high mean of means (4.04), it was

concluded that reorganization of how agricultural inputs are distributed in the country needed careful study and reorganization. The respondents who commented based on some personal experience revealed that it was much easier to get a house or car loan than an agricultural loan.

9. Since teachers ranked it third, overall it was ranked fifth and the literature reports a food crisis in most African countries and Cameroon, it was concluded that intensification of food crop research should be given all the funds, personnel, and attention it deserves. The literature on food crop research said that, in most African countries and Cameroon, food crop research did not exist. Where it did, it was disorganized and lacked funds.
10. Based on the findings that a "critical review of agricultural education curriculum in all agricultural institutions received high overall ranking, high overall mean of means, high importance ratings from students and teachers, it was concluded that agricultural education curriculum review be accepted as an important issue.
11. After reviewing the findings on the improvement of small farm productivity, it was concluded that local farming systems research should be given much more attention, funds and personnel if hunger

and the food crisis were to be eliminated.

12. Since there was such an overwhelming agreement within the respondents and since some respondents commented that free primary education would induce parents to send their children to such a school, it was concluded that free primary agricultural education should be introduced since it would give everybody who is interested to study agriculture a chance.
13. Based on the findings in this study, (responses, means, the literature on Cameroon agricultural education and extension, ranking and comments), it was concluded that those issues that were ranked high importance be accepted as being important to Cameroon agricultural educational development. These issues should play a key role in the development of agriculture in the country.
14. Since both groups rated compulsory agricultural education as only of average importance and since several respondents commented that compulsory agricultural educaiton was not desirable, it was concluded that any form of compulsory agricultural education should be eliminated from the educational system.
15. Because the students and teachers ranked issue 21, "Introduction of advance technology to local farmers," average and some importance, respective-

ly, and since this issue had the lowest overall ranking and since some respondents commented that advanced technology was not cost effective to local farmers on small farms, it was concluded that introducing advance technology it should not be considered an important issue for Cameroon agricultural education at this present time.

16. Based on the findings that the respondents indicated that issues 2, 4, 7, 14, 17 and 20 were rated only average in importance it was concluded that these issues were not of immediate importance to the development of agricultural education program in Cameroon.

Recommendations

The following recommendations are made:

1. Based on the conclusion that the teachers who participated in the study had limited farm experience, it was recommended that supervised occupational training on farm placement be a requirement for graduation for agricultural education teachers.
2. Because of the fact that more than 80% of agricultural student respondents came from the western provinces it was recommended that quotas for admission of students from less developed provinces be made so that more students from those provinces might be trained.

3. Since roads are very important in moving produce to markets, it was recommended that roads be constructed to areas of high agricultural production, including food crops (at least secondary roads).
4. As a result of the conclusion that there were many problems in agricultural credit distribution, it was recommended that policy makers, (government) take a serious look into credit distribution to check the many irregularities.
5. Because training is lacking for agricultural education teachers and agents and the literature report, Cameroon lacks trained agricultural teachers and agents it was proposed that both pre and in-service education programs be started to service the present teachers and extension agents.
6. Due to the conclusion that improving small farms through rural training centers was important to the development of agricultural education in Cameroon, it was proposed that more rural training centers where farmers would be trained be started.
7. Based on the conclusion that food crop and local farming system research were needed, it was recommended that a directorate for food crop and small farms be created. This directorate would coordinate all food research activities. This should be attached to the agricultural center at Dchang.

8. Because of the conclusion that it was difficult to get agricultural inputs, it was recommended that the way and criteria used for giving farm loans be revised and reorganized.
9. Due to the conclusion that the agricultural education curriculum was not meeting the trainees' needs, and was not need and research oriented, it was recommended that an agricultural education committee made of farmers, teachers, researchers, students and specialists be formed as soon as possible to update the curriculum.
10. Because of the conclusion that free primary agricultural education might attract many students into agriculture, it was recommended that free primary agricultural education be provided for all Cameroonians interested in agriculture. The literature indicated that free agricultural education attracted many adult farmers in Kenya.
11. In view of the conclusions that issues ranked as having high importance in this study were accepted as important issues on Cameroon agricultural education, it was recommended that those issues rated high importance be accepted as vital issues on Cameroon agricultural education.
12. Due to the conclusion that introduction of advance technology was not cost effective at this time it was recommended that no tractors or any heavy

agricultural equipment be imported for the local farmers.

13. As a result of the conclusion that those issues ranked average importance or below were rejected as being important, it was recommended that those issues be excluded as Cameroon agricultural education important issues, at least for now.

Recommendations for Additional Research

The following recommendations were made in regard to additional research. These recommendations were made by the author based on the findings of this study:

1. Research be done to determine Cameroon agricultural education priorities other than those included in this study with a randomly selected sample from more groups than those included in this study.
2. Research be done to determine agricultural education priority issues other than those included in this study using the Delphi method.

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APPENDIX

LIST OF 21 CAMEROON AGRICULTURAL EDUCATION PRIORITY ISSUES

ISSUES

EXPLANATION

You are called to take part in a study to identify Cameroon Agricultural Education priority issues. Identification of these issues will focus resources and foster development at a much faster pace. To reach this goal, we are dependent on you. Your name will not be used. Thanks for taking part.

Demographic Data

Please respond to the following in the spaces provided:

1. Place of birth in Cameroon (Division) _____, Experience on the farm, in years ___
2. Education: BS/BA ___ MA/MS ___ Ph.D./Ed.D. ___
   Student Classification (Years) 1st ___ 2nd ___ 3rd ___ 4th ___ Grad ___ Other ___

Directions

Please review each issue in terms of Agricultural Education, Agriculture, Research, Administration and Rural Development, and circle your perception of the importance as to priority in Cameroon. Space is provided for your comments.

A) 5 Extreme Importance
B) 4 High Importance
C) 3 Average Importance
D) 2 Some Importance
E) 1 Little Importance
F) 0 No Importance

Please review each issue and circle your perception of its importance as a priority for agriculture in Cameroon. Space is provided for your comments.

Example: ISSUE
Increasing food production by improving small farm productivity (good seeds, high yielding varieties, good tillage methods, etc.).
COMMENTS: Basic inputs like seeds are important.

IMPORTANCE
Extreme High Average Some Little No
5 (4) 3 2 1 0

Please review each issue and circle your perception of its importance as a priority for agriculture in Cameroon. Space is provided for your comments.

	ISSUE	Extreme	High	Average	Some	Little	No
1.	Redefinition of the purpose and goals for agricultural education in Cameroon. Comments:	5	4	3	2	1	0
2.	Introduction of compulsory agricultural education at all levels of the educational system. Comments.	5	4	3	2	1	0
3.	A critical review of Cameroon agricultural education curriculum in agricultural institutions in the country. Comments:	5	4	3	2	1	0
4.	Reorganization of all agricultural institutions under the University Center for Agriculture. Comments:	5	4	3	2	1	0
5.	Introduction of free primary agricultural education for all Cameroonians. Comments:	5	4	3	2	1	0
6.	Improving small farm productivity through rural training centers. Comments:	5	4	3	2	1	0
7.	A review of agricultural education clientele in the country. Comments:	5	4	3	2	1	0
8.	Reorganization of how agricultural education inputs (seeds, chemicals, etc.) are distributed in the country. Comments:	5	4	3	2	1	0
9.	Reorganization of how agricultural credits (bank loans) are distributed in the country. Comments:	5	4	3	2	1	0

Please review each issue and circle your perception of its importance as a priority for agriculture in Cameroon. Space is provided for your comments.

ISSUE	IMPORTANCE: Extreme	High	Average	Some	Little	No
10. Training agricultural education teachers (those who teach agriculture) and extension agents (those who work with farmers). Comments:	5	4	3	2	1	0
11. Improving small farm productivity by improving the local farming system through research. Comments:	5	4	3	2	1	0
12. Intensification of local food crop research (cocoyams, yams, plantain, etc.). Comments:	5	4	3	2	1	0
13. Construction of a network of roads to all food production areas in the country. Comments:	5	4	3	2	1	0
14. Creation of a presidential commission to look into agricultural education problems in the country. Comments.	5	4	3	2	1	0
15. Organization of food crop cooperative societies and markets. Comments:	5	4	3	2	1	0
16. A review of agricultural product pricing policy. Comments:	5	4	3	2	1	0
17. Reorganization of agriculture under one ministry with directors of different units (crop production, research, extension, etc.) Comments:	5	4	3	2	1	0
18. Redirection of agricultural research towards problem-solving. Comments.	5	4	3	2	1	0
19. Updating agricultural education curriculum in all agricultural institutions in the country. Comments:	5	4	3	2	1	0
20. Creation of a national extension committee made up of policy makers, farmers, researchers and educators. Comments:	5	4	3	2	1	0
21. Introduction of advance technology (tractors) to local farmers in the villages. Comments:	5	4	3	2	1	0
22. Other issues not listed						

VITA 2

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Candidate for the Degree of

Doctor of Education

Thesis: A STUDY OF CAMEROON AGRICULTURAL EDUCATION PRIORITY ISSUES

Major Field: Agricultural Education

Biographical:

Personal Data: Born at Dikome, Balue, Ndian Division. Southwest province, Cameroon, on November 26, 1953.

Education: Graduated from Catholic School Dikome, Balue, 1965, St. Paul's College, Bonjongo, 1970; received the General Certificate of Education ordinary level, University of London and Cameroon Teacher's Certificate in 1972. Received General Certificate of Education, advanced level, University of London, 1973. Received Bachelor of Science degree in Agronomy in 1977 and Master of Science in Plant and Soil Science in 1980 from Alabama Agricultural and Mechanical University, completed requirements for the Doctor of Education degree at Oklahoma State University, May 1987.

Professional Experience: Worked as a teacher for the Catholic school system from 1970 to 1972. Worked as a teacher for the Cameroon government from 1972 to 1974. Worked for Alabama Agricultural and Mechanical University from 1974 to 1977 as research aid, and from 1977 to 1980 as research and teaching assistant. Worked for the Cameroon government from 1981 to 1983, and 1986 to present.