PROTESTANT AGRICULTURAL MISSION PROGRAMS IN LATIN AMERICA AND THEIR RELATIONSHIP TO AGRICULTURAL DEVELOPMENT

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INTRODUCTION

A. The Problem: The Need for and Usefulness of the Study

Our world is faced with a disturbing paradox. On the one hand nearly one billion people enjoy an adequate or even an abudant food supply, while at the same time hunger and malnutrition are prevalent among the majority of the remaining two billion people. This problem has recently been the concern of an increasing number of writers.[1]

A small number of recent publications has been concerned with the role that the Christian Church is, or should be, playing in the struggle to improve the welfare of the billion or so undernourished persons in the underdeveloped areas of the world.

The purpose of this study is to examine some aspects of Protestant agricultural mission programs in Latin America and to relate these to the problems of overall agricultural development.[2]

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[1]See George Borgstrom, The Hungry Planet (New York: Macmillan, 1965); Gunnar Myrdal, "The United Nations, Agriculture and the World Economic Revolution", Journal of Farm Economics, Vol. 47, No. 4 (November, 1965) pp. 889-99; Lester Brown, Man, Land and Food (Washington: U.S. Department of Agriculture, 1963).

[2]As used herein, "Latin America" refers to continental South America, Mexico and the Central American Republics, and the West Indies. Inasmuch as some agencies contacted differentiated the West Indies from Latin America and, thus, did not report on programs in the former, there are probably more agricultural mission programs in these islands than this study indicated.

Most of the publications regarding Christian agencies discussed below included only those associated with Agricultural Missions, Inc. and the Rural Missions Cooperating Committee of the National Council of Churches of Christ in the U.S.A. (NCC). Thus, most of the agricultural programs of the conservative evangelicals, the so-called "faith missions", as contrasted with the missions of the historic churches, have been excluded from studies of the subject at the very time when, for the period 1952 to 1960, faith missions have increased the number of their missionaries by 149.5%, while the historic churches have increased their missionary numbers by only 4.5%. In Latin America about 75% of the missionary force now belongs to the non-historic missions.[3]

In view of these two circumstances, it was suggested to the author by Dr. Horace L. Fenton, Jr., Director of the Latin America Mission, that a need existed for a study of the agricultural mission programs excluded from the existing studies, that is, primarily those classified as conservative, evangelical faith missions.

Because of the tremendous recent growth of Protestant missions in Latin America, the limitations imposed on the scope

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[3]Joseph McCullough, "Achievements and Failures", Evangelical Missions Quarterly, Vol. III, No. 2 (Winter, 1967), p. 92.

of the study by time and money, and the writer's strong personal interest in economic development problems in Latin America, it was decided to study agricultural mission programs in Latin America only to attempt to assess their relationship to economic development.

Agricultural missions are here defined as any program conducted under the auspices of a church or formally organized mission board whose primary objective, aside from spreading the Gospel message, is to improve the agricultural production and, thereby, the welfare of rural families in underdeveloped areas through the application of modern, scientific methods and materials. An agricultural missionary, as defined for this study, is any missionary who devotes a large portion of his time to reaching this objective. He may or may not have had technical training in either the broad field of agriculture or in some specialized aspect of it.

Although the original suggestion was to study only the evangelical Protestant agricultural mission programs and none of those included in previous studies, the listings of mission agencies used to obtain names of agricultural missionaries made no distinctions between the two categories. This, plus the fact that all Protestant groups in Latin America are generally considered by Latin Americans to be "evangelicals", made it impossible to maintain the distinction in the study. On occasion some differences between the historic church missions

and faith missions are noted, and a complete list of all agricultural missionaries participating in the study is included as Appendix II and may be used by those wishing to draw further distinctions.

This study may be beneficial to persons and mission boards engaged in agricultural mission work. It will aid those directly involved in the programs to effectively evaluate their own programs and will provide them with insights into the programs of others -- their objectives, successes and failures, needs, and suggestions for change -- and will suggest ways for better cooperation and sharing of information among program directors. Mission boards will receive a fresh look at the role of agriculture in the missionary enterprise, plus some recommendations as to what their policies should be toward agricultural missions.

The examination of agricultural missions' contributions to agricultural development will establish some guidelines for the types of activities they should engage in. It will also shed some light on selected theories or concepts of traditional agriculture and the development process as related to agricultural mission programs.

B. Objectives of the Study

The general objectives of this study were to determine the overall nature of Protestant agricultural mission programs in

Latin America and the West Indies and to examine the contributions they might be making to agricultural development in the areas they serve..

The more specific objectives of the study were as follows:

1. To determine the objectives of, rationale for, and some organizational aspects of these agricultural mission programs.
2. To determine present trends in Protestant agricultural mission programs in Latin America, including growth or decline in number, and recent changes in emphasis of those programs in operation.
3. To describe the general characteristics of the agricultural mission programs including the areas served by them, the purposes of their agricultural education programs, their sources of technical information, and their most serious needs.
4. To describe selected characteristics of the agricultural situation in the areas served by the agricultural mission programs.
5. To review briefly some selected agricultural development theories which are relevant for agricultural mission programs and to examine the programs' contributions in the light of these theories.
6. To present some recommendations regarding the future course of agricultural mission programs in Latin America based on the findings of the study.

C. Previous Studies

Previous studies on this subject can be divided into two broad categories, the first dealing with the general topic of Christian participation in numerous technical assistance activities designed to improve individual welfare; the second focusing specifically on agricultural programs as one studying worldwide participation and those specifically concerned with programs in Latin America.

1. Worldwide Studies

One of the most recent of these studies was conducted by the Division of Overseas Ministries of the National Council of Churches.[4] This study included both general welfare and specifically agricultural programs.

By means of a survey questionnaire distributed to ninety-six denominational boards and agencies (with 79% responding), the survey aimed at measuring the present dimensions of major Protestant efforts to combat world hunger.[5]

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[4]Katherine P. Riddle and R. D. Gatewood, Food with Dignity: A Survey Presentation of Major U.S. Protestant Efforts to Combat World Hunger (New York: N.C.C.C.U.S.A., 1966).

[5]The Roman Catholic Mission Secretariat has recently conducted a similar survey, using the same format for their questionnaire so the results may be compared and coordinated more readily with those in Food with Dignity.

In addition to primarily agricultural projects, the survey included projects of an urban nature and a considerable number of projects educational or medical in nature. Just 53% of expenditures reported were for agricultural projects. It obtained information on various topics, such as the frequency and location of projects, dollar amounts contributed, numbers of personnel employed, types of training provided for nationals, and opinions on the success or failure of the projects with some suggestions for changes.[6]

This general survey represents a notable contribution to the literature in this field, as this was the first attempt to gather complete information regarding church activities of this type.

The twenty general categories of projects which were considered to be aimed at "attacking the root causes of hunger" ranged from maternal and child care clinics to improved roads, transport and marketing. While eleven of the categories were primarily agricultural in nature, there was no isolation of "agricultural mission programs" as such, and no attempt was made

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[6]Pages 16-20 of the study contain a brief summary of the findings. See also Katherine P. Riddle, "World Hunger and the Christian Conscience", Occasional Bulletin (New York: Missionary Research Library, Vol, XVII, No. 10, October, 1966), which contains a summary of some of the findings, a discussion of questions raised by the survey, and some recommendations for consideration by the churches.

to determine how the various programs were organized, with the exception of determining the patterns of administration. The large majority of projects were found to be administered either by the local church or council, or by this group jointly with the U.S. supporting body.

The presentation of the survey results attempted to evaluate the significance of the different type of programs in relation to their effectiveness in attacking root causes of hunger based on mission or agency director's rating of them as either "very effective", "normally effective", or of "little effectiveness". Of those who attempted to evaluate their projects' effectiveness, thirty percent were considered to be very effective and sixty-eight percent were rated normally effective. For Latin American projects, fewer were rated as very effective, and a considerably greater percentage was rated as having little effectiveness. Primarily agricultural type projects were considered to be normally effective in fifty percent of the cases. However, no specific recommendations for future Church participation in these programs were made. With the exception of determining the total dollar amount expended for food distribution, no distinctions were made between "give away" type programs and "self-help" programs.

The NCC survey reported that 131 persons trained in either general agriculture, extension, rural sociology, or cooperatives

were employed in attacking the root causes of hunger in Latin America, but without specifying the exact nature of their work.

Regarding studies concerned particularly with agricultural missions, we find their early history adequately described by Hunnicutt and Reid,[7] and also by Carson.[8]

A later historical description of agricultural missions, including an account of the organization and growth of Agricultural Missions, Inc. and autobiographical sketches of experiences as an agricultural missionary in India and as director of the above organization, has been written by Moomaw.[9] He describes clearly, in brief case studies, the plight of most of the peasant farmers around the world and includes numerous moving accounts of the agricultural mission techniques and programs which have been successful in helping some of these farmers to improve their level of living.

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[7]Benjamin H. Hunnicutt and William Watkins Reid, The Story of Agricultural Missions (New York: Missionary Education Movement of the U.S. and Canada, 1931).

[8]Arthur L. Carson, "Agricultural Missions" (unpublished Ph.D. thesis, Ithaca, New York, Cornell University, 1933).

[9]Ira W. Moomaw, Crusade Against Hunger (New York: Harper and Row, 1966).

Moomaw suggests four general ways that the Church can improve its agricultural mission programs in the future:[10]

(1) We must find a new basis for sharing our plenty;

(2) We must use our resources more effectively;

(3) We should offer personnel more generously;

(4) We should present a clear statement of purpose to set forth the Church's beliefs, programs and services offered for the future.

These suggestions are adequate, but Moomaw is speaking to the Church as a whole, so they offer little that can be useful for the practicing agricultural missionary.

In none of the cases cited does Moomaw explain in any detail the organization and operations of a typical agricultural mission program, nor does he point out any inadequacies or failures of the programs.

Crusade Against Hunger concludes on a positive note, expressing the author's belief that agricultural missions programs will rise to adequately meet the challenge of hunger in many parts of the world. Such an outlook overlooks Moomaw's estimate that only 320 persons trained in agriculture and home economics were engaged in agricultural mission work throughout the world in 1966. It also overlooks his estimate of the relatively small amount of money spent on such programs -- only ten cents per member per year from the Protestant Churches of North America.

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[10] Ibid., pp. 181-89.

In a somewhat similar work, Felton presents in simple language, thirty-five brief descriptions of the work of agricultural missionaries in all parts of the world.[11] He writes from first hand knowledge about their successes, ignores their failures, and grossly oversimplifies both the task of improving peasant agriculture and the complex economic and social forces involved.

An excellent account of agriculture's role in the life of the Church and in missionary work, and a convincing justification for the continuation of agricultural missions, has been presented by Ansley.[12] He emphasizes that the Church needs an outreach beyond urban centers and that agricultural work is, and has been since as early as the 5th century A.D., the natural means for identifying with rural people and for expressing true Christian compassion and concern.

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[11]Ralph A. Felton, Hope Rises From the Land (New York: Friendship Press, 1955).

[12]Charles Coke Ansley, "The Role of Agriculture in the Missionary Enterprise" (unpublished Master's thesis, Columbia Theological Seminary, Decatur, Georgia, 1959).

An account is given of the role of agriculture in the work of eleven "great missionaries" including a listing of reasons for using agriculture in the mission program presented by two of them, San Higginbottom and David Livingstone. Ansley discusses the role that agriculture can play in "communicating the Gospel", and lists several characteristics of an effective program of agricultural missions. Agriculture's role in communicating the Gospel includes its use for gaining entrance or a hearing, the opportunity for personal work through agricultural extension, in some instances the establishment of an agricultural colony, the teaching of Christian stewardship, and the transforming of community life through support and growth of the indigenous church.

The characteristics of an effective agricultural mission program, according to Ansley, are that it should:

(1) be unique in content, intent, and extent (in that it calls all men to repentence and new life regardless of race, nationality, or wealth);

(2) include extension services;

(3) include demonstration of practical results;

(4) help develop cooperatives;

(5) in some instances organize agricultural colonies;

(6) work through mission schools, and provide training for pastors and workers;

(7) include a well organized youth program.

Using these characteristics and his knowledge of the area from previous service there as guidelines, he outlined an agricultural mission program for Northern Brazil.

In conclusion, Ansley states:

> In the face of hunger and privation, agricultural mission work is the only adequate expression and witness of Christian love. Relief only relieves, agricultural mission work seeks to remove the cause and effect a permanent cure.[13]

A final study of agricultural missions on a worldwide scale was conducted by Yost.[14] The overall purpose of this study was to gather data which would help define the role of the agricultural missionary. By use of a survey questionnaire sent to 220 agricultural missionaries (completed by 125), Yost presented these four categories of information:

I. Personal information, including how and why they decided to enter the field and background information of their education, training, and work experience.

II. Descriptions of the kind of work done and the major problems encountered.

III. Their relationships with (a) local churches, (b) local peoples, and (c) local government.

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[13] Ibid., p. 129.

[14] Maurice D. Yost, "A Study of Protestant Agricultural Mission Service and How to Prepare for It" (unpublished Master's thesis, Ohio State University, 1959).

IV. Their evaluations of present accomplishments and changes needed in the programs.

Yost found that most respondents had a college degree in agriculture; their most frequently mentioned projects were introducing new or improving local seeds, animals, and tools; and only a small majority spent more time in agriculture than in other work. Further, their three most important sources of information were local (experiments, government, and farmers); they nearly always live separately from the people they were trying to identify with and help; and although they had some contact with local government they did not cooperate closely with it. Finally, he found that most respondents believed they were only "scratching the surface", and they thought their future needs were for more emphasis on extension work and more personnel, both foreign and local.

2. Latin American Studies

Two studies dealing specifically with agricultural missions in Latin America may be noted. The first is a part of the National Planning Association's Project on Technical Cooperation in Latin America and reports on technical assistance by religious agencies.[15] Financed by a Ford Foundation grant, this is undoubtedly the most comprehensive study of these activities of religious agencies.

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[15]James Maddox, Technical Assistance by Religious Agencies in Latin America (Chicago: University of Chicago Press, 1956).

Reports from 84 Protestant agencies, representing almost 3,000 missionaries, show forty-eight agencies engaged in some type of "technical service work" and indications are that forty percent of the missionary effort in Latin America is primarily concerned with this work. However, Table 2 indicates that only one percent of the Protestant missionaries were listed as "agricultural workers", and Table 7 lists a total of only forty-three agricultural projects.

Many of the projects were farms connected with agricultural schools. Maddox thought these schools were not making a significant contribution to Latin American agriculture, and that they should change their curriculum to enable their graduates to be qualified for admittance into higher education institutions. Most of the farms were used to produce food for the missionaries and students, and extension work was incidental. Maddox stated that "most of the farms visited during the field survey were operating at a financial loss"; however, a few were outstanding successes, but "even among the best of them there is not much indication that they have made significant contributions to improving agriculture in the surrounding areas."[16] He attributed this largely to the lack of effective extension activities.

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[16] Ibid., p. 39.

Most extension activities he observed were in the nature of personal services rendered, a "doing things for them" approach, rather than in helping people to help themselves. The major obstacles to improving the extension activities were that the missionaries (a) lack knowledge of how to do effective extension work, (b) were often too busy with farm operations, and (c) were often hesitant to break away from the farms and get out into the community.

After presenting case studies of three of these agricultural mission projects, Maddox noted that their work was "far from comprehensive, not very imaginative, and not greatly successful."[17] In seven years of operation none had succeeded, in his opinion, in changing substantially the agricultural practices of the Indians. He predicted that the quality of the agricultural work of religious agencies in Latin America would be greatly improved if they would:

(1) Reduce the scale of their money-losing farming operations;

(2) Center the attention of their agricultural missionaries on community improvement programs;

(3) Employ national technicians to work directly with farm families; and

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[17] Ibid., p. 82.

(4) Emphasize the adoption of a few simple farm and home practices that will show immediate results in the early stages of each community-development program.[18]

The second study of agricultural missions in Latin America presented a brief description of fifteen of them and discussed the extent of cooperation between them and the technical assistance programs such as Point Four and the Food and Agricultural Organization (FAO) of the United Nations.[19]

Having drawn his information from publications and reports of major mission organizations, Stone again presents a highly favorable picture of these agricultural missions, and overlooks any shortcomings they may have. A small number of the programs have certainly made a major contribution to the agricultural development of their countries, as evidenced by his descriptions. This is particularly so for the Lavras Agricultural College in Brazil, which was the first private institution in that country to merit government recognition (now run by the government), and for El Vergel, the 3,900 acre "garden of paradise" at Angol, Chile, where work in developing nursery

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[18] Ibid., p. 118.

[19] Lurton Paul Stone, "Agricultural Missions in Latin America: Their Correlation With Technical Assistance Programs" (unpublished Master's thesis, Hartford, Conn.: Hartford Seminary Foundation, 1953).

stock and insect control has had an impact throughout the country. However, most mission organizations do not have sufficient funds to develop such extensive, and costly, programs.[20]

The contrast between Stone's evaluation of these programs, based on publications and reports of missions organizations, and Maddox's evaluation based on actual inspection of the programs, is striking. It reveals the difference in evaluations done by those sponsoring the programs and by a disinterested, trained observer.

Stone found little evidence of coordination of agricultural missions with public technical assistance programs, primarily because of the aims of the latter, which generally helped only landowners and commercial farmers, were often in conflict with those of the agricultural missions.

The major shortcomings of all the studies presented here is that they tend to view agricultural mission programs only in terms of their contributions to increases in individual and

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[20] Information on budgets of agricultural mission programs provided by one-half of the respondents in the present study revealed an average expenditure of only $2,675 per agricultural missionary, with a maximum of about $7,500, and a total of approximately $131,000 (in some instances this did not include the salaries of the agricultural missionaries).

local community welfare, or only in terms of increasing food production, independent of the relationship of these changes to overall agricultural and economic development. The broad economic forces in society are ignored, and no attempt is made to relate the programs to agricultural development theories or programs.

D. Procedure for Gathering Information and Limitations of the Study

1. Procedure

It was decided to contact directly, through a mailed questionnaire, those persons most directly responsible for directing agricultural mission programs. As no listing of these persons was readily available, a letter was sent to 197 Protestant foreign mission organizations known to have mission work in Latin America asking them to submit the names of all such persons working with them.

The major list of the mission organizations contacted, 151 of them, was obtained from the Evangelical Foreign Mission Association;[21] an additional 38 were listed in the Missions

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[21]See Clyde W. Taylor and Wade T. Coggins, Protestant Missions in Latin America: A Statistical Survey, (Washington: The Evangelical Foreign Missions Association, 1961), pp. xi-xxvi.

Board Directory, 1963-1964 of Inter-Varsity Christian Fellowship of Canada and U.S.A.; five more were listed in the Inter-denominational Foreign Missions Assn. I.F.M.A. Missionary News, November-December 1965; and two were obtained from personal sources. Replies were received from 175 mission boards, representing 89% of those contacted.

A total of 74 names of agricultural missionaries was submitted by these organizations, and the questionnaire was sent to each of them.[22] Fifty-one persons reponded to the questionnaire. A copy of the questionnaire is included as Appendix I.

The questionnaire was pre-evaluated by three persons with foreign mission experience; Dr. Norman R. Piersma (Colombia), Mr. William Cessna (Japan), Mr. Leslie Stennes (Africa), and their suggestions were incorporated in it. Helpful suggestions were also received from Mr. David Smith, a former missionary, who had recently completed a similar questionnaire type study. Included with the questionnaire was a cover letter explaining the purpose of the study, a self-addressed return envelope, and an international postage coupon to cover mailing costs.

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[22]The names of six agricultural missionaries were submitted too late for them to be included in the study.

A follow-up letter was later sent by Dr. Garland Wood, the writer's major professor and Director of the Latin American Studies Center at Michigan State University, to each person not having responded. A final request to all non-respondents was again sent by the writer.

2. Limitations of the Study

It should be noted that the agricultural mission programs which are outlined in this study are described as seen by the agricultural missionaries themselves. It is necessary to bear in mind not only the particular perspective with which they view their own work, but also their professional training. Whereas nearly one-half of the respondents had at least a bachelor's degree in an agricultural or related field (fifteen beyond the bachelor's level), twelve of them had no formal agricultural training at all (three of these had thirty or more years of farming experience). Only four respondents had economics training beyond the bachelor's level; ten had only one year of economics study; and one-half had studied no economics. A lack of training in agricultural and economic fields could lead to faulty perception of agricultural and economic phenomena. To the extent that this occurred in this study, the findings may differ from those which would be reported by one with sufficient training in these fields.

The use of a mailed questionnaire places limitations on the study as it limits the number of items of information that can be obtained. The questionnaire also raises a double communication problem, that of proper understanding of the questions by the respondents, and the problem of correctly interpreting the open response answers given.

PROTESTANT AGRICULTURAL MISSIONS IN LATIN AMERICA

A. Their Extent, Organizational Aspects, Objectives, and Rationale

Not only is it desirable for those mission agencies considering entry into this work to know the present extent of Protestant participation in agricultural mission programs, but it would be helpful to know why missions participate in them to see if these reasons can either be acceptable to more agencies or found to be insufficient justification for these programs. In addition, one needs to know how the programs are organized, what are the objectives they set for themselves, and how they go about measuring their performance in terms of these objectives. Are agricultural mission programs well planned, well organized, and consistently evaluated in terms of uniform standards? Or are they, instead, poorly planned, loosely organized, and haphazardly evaluated? Just where do they fit between these extremes?

The questions asked in the first section of the questionnaire were designed to answer the above questions.

1. Their Extent

From the 74 questionnaires sent, 51 responses were received. There were two instances where two missionaries

receiving the questionnaire were engaged in the same program, and in one of these instances both completed and returned the questionnaire. Thus, 52, or 70 percent, of the persons receiving the questionnaire were heard from.[23]

Of those heard from, six respondents (nine percent) indicated that they were not agricultural missionaries as implied by the questionnaire, four explained that their programs were still in the organizational stage and not subject to study at this time, and one was unable to take time to complete the questionnaire but wrote a letter describing his work. Therefore, 41 completed questionnaires, representing 40 agricultural mission programs, were returned and used in the study. These programs employ sixty-nine missionary personnel. Twenty-two persons did not respond to the questionnaire.

The rapidly increasing number of these programs (Stone reported on only 15 in 1959) parallels the increase in Evangelical Protestant Missionaries in Latin America and the increased attention given to economic development in recent years. This increase in number can be seen graphically in Figure 1.

Respondents also indicated that three more programs are currently being planned, so there is some indication that the number may continue to increase. It should also be noted that

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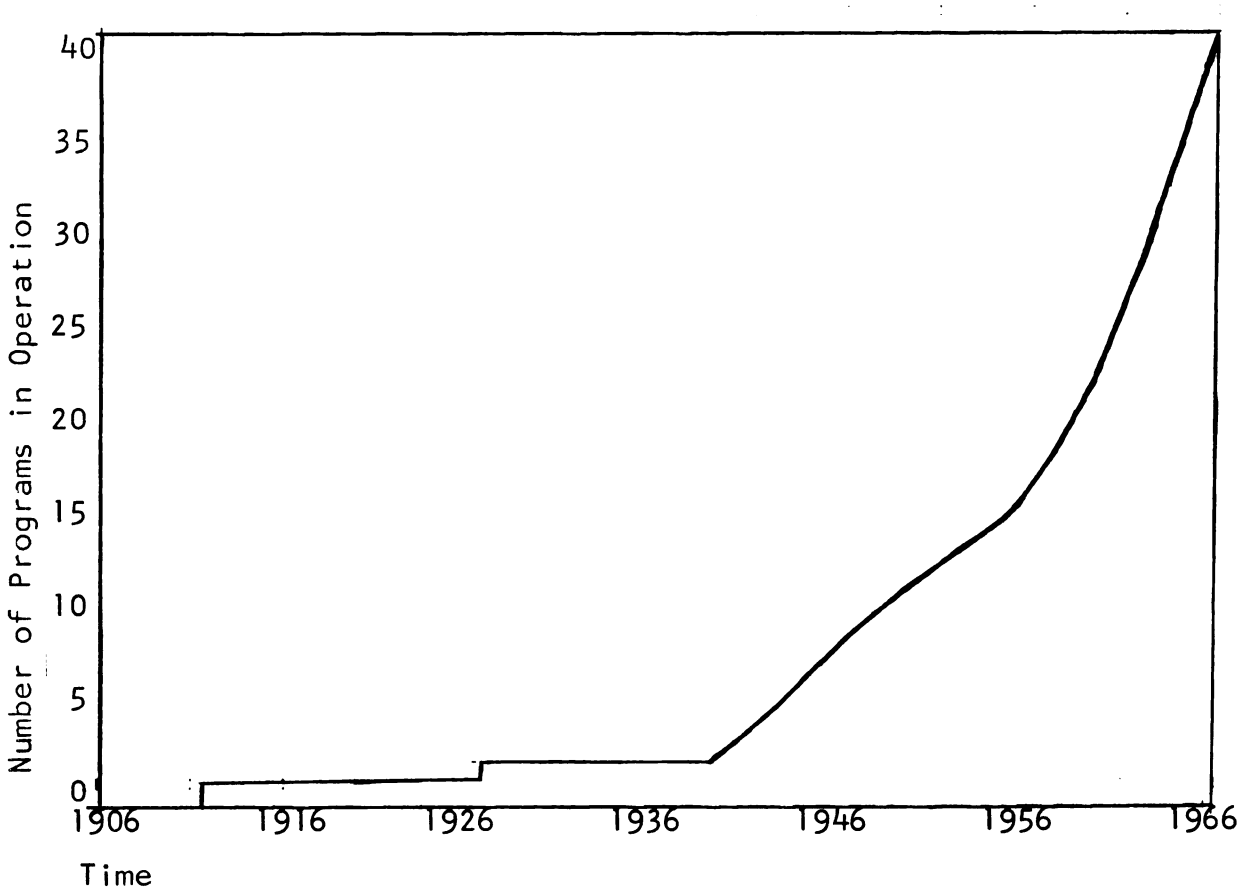
[23]See Appendix II for a list of respondents.

Figure 1

Number of Programs in Operation



two of those discussed by Stone have been discontinued as was another not included in his study.[24]

2. By Whom Organized: Official Written Policy

Two sets of responses indicate that in the past, mission boards, particularly those of the faith missions, have been slow to take the initiative in establishing agricultural mission programs, and that in most cases an official mission board policy regarding such programs is nonexistent.

The respondents indicated that missionaries on the field and area directors together were responsible for establishing just over half of the programs, while mission boards and directors established one-third of them, and three were established by a committee or board of missionaries and nationals. In addition, the following historical churches were responsible for all but one of the programs established by mission boards:

a.	Evangelical United Brethern	2
b.	Lutheran World Federation	1
c.	Mennonite Central Committee	3

[24]The Lavras Agricultural College in Brazil was turned over to the Brazilian Government; the Peniel Hall Society mission in Bolivia, although included in this study, has recently discontinued its agricultural programs; the Oregon Yearly Meeting of Friends' agricultural mission program at LaPaz, Bolivia, was forced to discontinue when the farm was confiscated by the Indians.

d.	Methodist	2
e.	Presbyterian	1
f.	Anglican Missionary Society	1
g.	Evangelical and Reformed in cooperation with (a) and (e)	1

In reference to an official, written mission board policy regarding agricultural mission programs, half of the agricultural missionaries stated that their mission board had no such policy, and one-fourth more stated that no "official written policy" existed, but that it could be implied from such general policy statements as these:

a. It is the Christian responsibility to minister to the whole man.

b. ...the use of every other legitimate means for the furtherance of the Gospel.

c. Reaching the Indian tribes includes preparing them spiritually, physically, and economically for assuming a feasible position in today's world.

The official policy given in the United Andean Indian Mission's organizational statement "directed the activities of the mission toward the rural Indian of Ecuador in which agriculture would play a key role," and the agricultural

policy formulated by the directors of the Latin America Mission was "to use agriculture and agricultural extension services to aid in a total evangelization picture for Latin American areas where it is applicable." It was noted that the third working principle of Wycliffe Bible Translators is "to promote programs of social betterment", and this is generally interpreted to include agricultural programs.

One of the most definitive agricultural policy statements is given in the Methodist Discipline, paragraph N. 2020:F, which states:

> We recognize the basic significance of rural areas in relation to population supply, natural resources, community life, and Christian culture. Methodism, because of its large rural membership and world-wide impact, must lead in developing an adequate Christian program in rural areas everywhere. This should pertain to people in their relationship to God, to the soil and all natural resources, and to family, church, and community welfare. We believe the farmer should have opportunity to earn a fair income.

The official statement of the United Presbyterian Church concerning "rural improvement" is as follows:

> The all-inclusive scope of the Great Commission embraces village as well as urban populations. Among rural people the objective is not only the direct proclamation of the Gospel but the endeavor to better the life of both Christians and non-Christians through a comprehensive program built around the total needs of the community. Such effort will seek to improve the economic status of the villages through better stock and seed and farming methods, through improved hygiene and sanitation, and through training in handicrafts and homemaking, thereby showing the relevancy of Christianity to the whole of life.

With the exception of the General Conference Mennonite Church, which is currently proposing a major official change in strategy regarding its agricultural missions in Mexico, this is apparently the extent of official, written mission board policies regarding agricultural programs in Latin America.

3. Rationale For and Purpose of Agricultural Missions

> What doth it profit, my brethren, though a man say he hath faith, and have not works? Can faith save him? James 2:14-16
>
> The Spirit of the Lord is upon me, because he hath anointed me to preach the gospel to the poor; he hath sent me to heal the brokenhearted, to preach deliverance to the captives, and recovering of sight to the blind, to set at liberty them that are bruised, to preach the acceptable year of the Lord. Luke 4:18-19

When asked how they justify their mission's involvement in an agricultural program, the missionaries responded in three general, and somewhat related patterns. Over half (22) of them would justify their agricultural involvement as being a witness to the love of Christ to all men, "ministering to the needs of the whole man, just as Christ did" in response to the "tremendous need of the area around us." They consider their work "an opportunity to relate the Gospel message in a meaningful context," and a few expressed a sense of responsibility to aid tribal people whose complete way of life has been

changed by the Gospel. Two of them made reference to James 2:14-16; one to Luke 4:18-19; and two to Matthew 25:14-46.

The second pattern of responses, by eight persons, was in terms of providing a stable community which would, in turn, aid in establishing a stable, self-supporting and indigenous church. Training for local lay leadership and aiding the "economic life of the church" were emphasized in the context of overall community development.

The third group of respondents, consisting of six persons, justified the use of agriculture as a "legitimate means of forwarding the getting out of the Gospel," enabling them to be "more able to contact and reach rural people for Christ." It helps them relate to persons in need, but always with evangelization for Christ as the primary motive.

To determine the purposes for doing agricultural mission work, the respondents were asked to rank the five expressions with which they most agree from a list of eleven statements which "express some of the purposes people give for doing agricultural mission work." They were instructed to rank first the statement they had highest agreement with, second the statement they had next highest agreement with, etc.. In evaluating the responses here, a ranking of "1" received a weight

of "5", and "2" received a weight of "4", etc., and the weighted scores were then ranked (See Section I, E of the questionnaire, Appendix I).

The "good works" emphasis of the first two groups of respondents was further emphasized by this ranking, as "helping people to help themselves" was by far the most important purpose (of those listed) for these respondents. This and the two next highest ranked purposes, (to teach farmers better methods of farming; to aid the overall economic development of the country) would all be classified under the "good work" category.

The items ranked four through seven (to prepare the way for the evangelistic message; to serve the church; to show Christ's love and Christian concern) could be classified as more "religious" or evangelically oriented purposes. These would correspond more closely with justifications for agricultural mission work given by the third group of respondents.

The remainder of the items (Part I, e, of the questionnaire) were clearly seen as much less important purposes for doing agricultural mission work.

Inasmuch as the above list couldn't be all inclusive, the respondents were asked to give a brief statement as to what their most important personal aims were.

Among the specific personal aims which were given were these: to teach conservation and management of natural resources; to provide machinery on a rental basis; stock improvement through artificial insemination; to aid community development; to provide methods to farmers for changing from traditional and unproductive (meaning low productivity) to modern, productive agriculture. These are listed to suggest that the diversity in program emphasis will be large, just as is the diversity in personal aims, especially where the individual program director is primarily responsible for determining program objectives.

The following are more elaborate statements of personal aims given by two agricultural missionaries:

(a) To help men know who and why they are; help them to take advantage of the resources and capacities that are theirs; to help them develop leadership, communication, teaching skills, and appreciation of and respect and concern for others.

(b) The program of agricultural mission which I visualize is summarized as follows:

1. The basic aim of the Church is to win others for Christ.
2. But "winning others" is not a matter of exchanging from one flock to another.

3. Commitment to Christ means consecration of the total man.

4. This total consecration demands a total sense of stewardship, including stewardship of time, money, influence, family, etc.

5. For the farmer it also means stewardship of water, soil, trees, animals, machinery, capital, etc.

6. My particular "push" comes in to help realize this latter stewardship.

7. But this "helping others to help themselves" is largely within the framework of the Church -- within the major goal of group evangelism (i.e., not more corn per se, but more corn for a member to give more to his church with which to win more souls -- that's more like it!).

4. Specific Objectives of Agricultural Mission Programs

If agricultural mission programs are going to be effective in reaching their goals or carrying out their aims, it is essential that they establish some definite, attainable objectives toward which to work. In order to determine the degree to which this is being done, the agricultural missionaries were asked if the specific objectives of their programs have been clearly defined; and if they were, to list them.

It should be pointed out that the question failed to distinguish between long term and short term objectives and may have, therefore, caused some uncertainty on the part of the respondents as to how the question should be answered. However, since only one respondent made any distinction between the two, with all others presenting long term objectives only, the difficulty is presumed to be of little importance. This tendency to think only in terms of long term objectives might indicate a reluctance to set more specific goals to be reached within a given time period.

It is significant to note that nearly one-half of the respondents (19) indicated that no specific objectives had been defined for their programs. Many more listed only very general objectives, such as: to do extension type work; to aid the economic development of the church; and to always help the small farmer. Several were oriented only toward support of a particular institution such as an orphanage, a literacy center, or the program itself. One respondent indicated objectives were revised yearly, depending on program emphasis.

Two respondents indicated they had specific objectives dealing with the Indians. One was to help them leave their barren highland plots and relocate where soil is more fertile; the other was to show that they can increase soil fertility by use of vegetable wastes, and thus remove slash and burn tactics.

Only six of the thirty-four respondents were able to submit a clear list of their program's objectives. Four of them, located in areas representing four common types of agricultural structure, are presented below. It will be noted that many of these objectives are still quite general in nature.

Case 1: Located in a newly opened colonization area, the objectives are to:

(a) search out top priority needs, whatever their cost and complexity;

(b) work promptly on training programs, availability of seeds, vaccines, insecticides;

(c) introduce more small cash crops for off-season income and food supply;

(d) suggest projects that are relatively simple, inexpensive, and short range to develop confidence in local ability, and begin to meet some needs immediately.

Case 2: Located among primitive Indian tribes recently employing slash and burn tactics, the objectives are to:

(a) convince the people we know more than they do in their own system, with their own tools, seed, and stock;

(b) increase yields of basic staples by improved methods, seed, and stock;

(c) begin change to a diversified economy -- to include rural crafts and high quality "civilized" products for high price sale.

Case 3: Located in densely populated, minifundia area with communal grazing lands, the objectives are to:

(a) teach modern sheep raising;

(b) eradicate pocket gophers with a poison we developed and sell;

(c) make available improved seeds (wheat, oats, barley, potatoes, and legumes) through a farmers store we run;

(d) sell modern agricultural implements and balanced feeds for hogs, cattle, and poultry;

(e) conduct agricultural experiments and extension visits.

Case 4: Located in a "transitional" community, with families moving into it from western Honduras and others moving to the cities, and with very small holdings on Government land, the objectives are to:

(a) build up vegetable, fruit, poultry and egg production to satisfy the health needs of the people and provide cash incomes;

(b) develop market channels for the outlet of agricultural products;

(c) help the communities organize and develop facilities for meeting their needs;

(d) help farmers adopt improved practices to produce the most possible with their resources.

5. How Agricultural Mission Programs are Evaluated

Three more organizational aspects of agricultural mission programs considered in this study were the question of who evaluates the programs, what standards are used for judging the effectiveness of the agricultural work, and what provisions for change, if any, are included in the programs' structures.

It was found that a large majority of the programs do undergo some kind of periodic evaluation, with one-third of them evaluated by the missionary involved or the local mission director and another third by a "farm committee" consisting of mission and national personnel.

The standard most frequently used for judging the effectiveness of the programs, by one-third of them, is the effects of the programs on local farmers, such as increases in production, the meeting of food needs, the number of new practices adopted, and attitude changes effected. The ability of the program to pay for itself, and its acceptance by the church and/or the

local people were also mentioned several times as standards used. Only three respondents indicated that program effectiveness is determined by the ability to attain the established objectives. The latter reflects the general pattern of not setting specific program objectives. However, where the stated objectives (Section 4, above) were in terms of aiding local farmers to increase their production, the success achieved in aiding them would also be a measure of how well the objectives were being reached.

The programs' responsiveness to changing community needs can be partially measured by the provisions for change included in their organizational structure. One-fourth of the programs are "free to change" in response to changing basic needs of the community, and six more can be changed as the farm committee sees fit to do so. Fully one-half of the programs have no provisions for change included in their organizational structure, which means they may range from being extremely rigid and inflexible to being highly responsive to local needs.

B. Important Characteristics of Agricultural Mission Programs

Turning now to specific characteristics of agricultural mission programs, what can be said about the areas they serve, the type of education they provide, and the sources of

information available to them? It would also be beneficial to determine the changes being made, if any, in their method of direction and control and their program emphasis, the extent to which they are coordinated with other agencies in the community, and their most serious needs as seen by the program directors.

1. Area Served

The respondents indicated that the size of the areas served by agricultural mission programs has an extremely large variance, ranging from minor extension activities in connection with an orphanage or school farm to the confines of one particular valley with a few hundred farms to anywhere from 100 to 125,000 square miles -- even the whole of a country in a few instances. The area served depends largely on program orientation. Where the program is designed to work among new settlers in a government development project, or to provide previously nomadic Indians with settled agriculture and community development programs, the area is relatively small and efforts are made to serve a large percentage of the total population. By contrast, where primary emphasis is upon extension activities, the spreading of information and ideas, and is less concerned with providing supplies or direct manual assistance, the work may range far afield and serve as little as one percent of the farmers in the area.

Two conclusions are suggested from this. It appears that the agricultural missionaries have designed their programs to meet the needs of their particular communities wherever possible. This seems a reasonable conclusion when we remember that these programs were originated, in most cases, as a response to the needs of the people being "evangelized" by the mission agency.

Secondly, the extremely large areas served by some extension programs, which are usually staffed by no more than two or three expatriates and no nationals, would indicate that the agricultural missionaries may be "spreading themselves too thin" in their attempts to solve all the problems in their area. In contrast to this, one respondent indicated that he has been concentrating extensively on only a few farmers in his area (about 50) helping them to achieve some substantial production increases and relying on them to relay both information and stimulus to their neighbors.

2. Educational Programs

To determine the nature of the "agricultural education" provided by agricultural mission programs, the respondents were asked to check those statements from a list of fourteen given which best described the primary objectives, contents, etc., of their education programs. Their responses showed

that agricultural education is most often used as a means to gain the confidence and respect of the people so they will be more receptive to the Gospel message. Agricultural education is also often used to train people to return to or remain in their rural communities and use their newly acquired skills and knowledge for the benefit of the whole community, while nearly as often it is used as a supplement, to lend a practical dimension, to the total missionary education program.

One third of the respondents indicated that their programs only undertake agricultural education in those locations where government does not provide it. An equal number said their program is used to train local pastors and church leaders to be self-supporting and to give agricultural advice to their neighbors. Nine included adult literacy programs.

Two pertinent characteristics, in relation to rising population growth rates and the large percentage of the rural population living at low subsistance levels, were that twelve respondents (30%) indicated their program includes birth control information, and an equal number reported that, at best, they can only hope to raise farmers' subsistence levels slightly.

One-fourth of the respondents indicated their program is used as a means of introducing social and institutional change. Eight said that emphasis is placed on introducing new labor-intensive, capital-saving techniques, and three said that emphasis is placed on introducing new labor-saving, capital-intensive techniques.

These items will be discussed further in Chapter IV in relation to agricultural development theories.

It should be noted that, whereas these last two items are mutually exclusive statements, three respondents checked both of these statements. This would indicate that there was some misunderstanding of some of the statements.

Nearly half (19) of the respondents indicated that their agricultural education program is a part of an overall community development program. Those community development programs included most often are health and medical, primary education, adult literacy, cooperatives, and handicrafts.

In view of the trend toward increasing urbanization in Latin America, a trend which some writers believe needs to be accelerated if those remaining in agriculture are to have sufficient sized holdings to allow them to raise their income

levels,[25] the respondents were asked to indicate what percentage of the persons trained by them move to urban areas to use their newly acquired skills for earning higher incomes there and if they view this as 'bad', as a failure of their agricultural program.

Of the nine who reported some trained persons moving to urban areas, the percentages varied from one to ninety percent (one respondent said 80% left but 60% returned after 1-1/2 years).

Opinions were mixed as to whether this movement was bad or not. One respondent thought that it was bad because "the Indian needs land. The move to urban areas is bad if he gives up his search for more good land, as it offers no real solution to the problem as a whole." Another "views very dimly indeed any exodus of trained personnel from their native areas. They are needed there to train others, and there they are upper middle class citizens; in urban or foreign areas they are low class citizens regardless of training (all are Indians)." A third found it "somewhat undesirable, but merely unfortunate, and not as a failure of the agricultural mission program," and

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[25]See, for example, Laughlin Currie, Accelerating Development: The Necessity and the Means (New York: McGraw Hill, 1966), pp. 32-39; 104-105.

another thought it wasn't good for the Indian to move completely out of his culture. One respondent thought they should move to colonizing areas rather than urban areas.

Those viewing the movement to urban areas as a good thing recognized it as the general trend everywhere, as "dollar earning power will always pull men," and in some urban areas there is, apparently, a "terrific demand for responsible and trained people." These respondents were glad to see people moving to a higher income bracket in other areas. One noted that this movement was a necessary part of development.

3. Sources of Information for Agricultural Missionaries

The agricultural missionaries indicated that local sources in the country or area of the agricultural mission program were by far their most important sources of information (these results were obtained by having the respondents ranks their five most important sources of information, then these rankings were weighed, a "one" receiving a weight of five, a "two" receiving four, etc.). The only non-local source of importance were U.S. Government and University publications and other missionaries (who may be local sources in some instances), ranked second and fifth respectively in terms of importance.

The important local sources were local government publications, local experiments, and local farmers (those having successfully adopted new ideas), in that order. It is of interest to note that the mission demonstration farm was ranked sixth in importance and was weighed only about half as important as each of the first four sources. The Alliance for Progress and non-profit foundations were weighed about one-fourth as important sources of information as the three important local sources and U.S. Government and university publications.

Several respondents listed less than five sources, indicating a possible shortage of information about improved farming practices. One listed his own experiences as the only source of information available in his area and a few noted that commercial firms' advertising literature was of some importance to them.

The shortage of information does actually exist for one-half of the respondents, who said their sources could be improved in the following ways. Just as local government publications and local experiments are very important sources of information, so the respondents believe that these sources should be providing much more information, as nineteen of twenty-four responses about ways to improve information sources are concerned with local government programs.

It is clear that the respondents believe little improvement in information sources can be obtained from either closer cooperation with U.S. Government groups operating in Latin America or more interchange of information with other agricultural mission programs. Only one respondent thought he could obtain more information from closer cooperation with the U.S. Government groups, a response which may help to explain why Stone found so few programs that were cooperating with U.S. technical assistance groups.[26] Only three respondents thought that more interchange of information with other agricultural mission programs would improve information sources. The latter number is clearly inconsistent with the total of thirty-one who thought their programs could benefit from "closer cooperation and coordination with others" (see section 5, page 52).

4. Changes in Program Emphasis and the Perspective of Agricultural Mission Programs

What are the trends in agricultural mission programs in Latin America? Are changes being made in the type of work being done?

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[26]See Introduction, section B.2, page 5.

About one-half of the respondents said that their programs were too new to have made any major changes in emphasis. It may be noted, however, that many of the new programs appear to be organized to emphasize many of the items listed by those who have made changes in their program emphasis.

(a) Changes in Emphasis

Inasmuch as many of the "older" programs have been in operation less than fifteen years, most changes have been made after seven to ten years of operation. The changes being made fall into five general categories. The first and most often mentioned is a change from doing things <u>for</u> the people to helping them learn to better <u>help themselves</u>, a working "with" rather than "for" them, and in some instances from providing services to spreading ideas, education, and self-help concepts. This change was made to more effectively meet the needs of the people served.

The second change has been from emphasis on demonstration, usually on the mission farm, to extension activities which are generally encompassed in an overall community development approach. For some this involves more participation in non-church related activities. This change was made because demonstration farms were not found to be very effective, and because of the missionary's concern for serving the "whole man",

which means helping to improve his community as well as his own economic status or his spiritual condition.

It should be noted, however, that twenty-nine of the programs studied do include a mission farm and thirteen of these are still classified as demonstration farms. These farms range in size from a one or two acre demonstration plot to fifty thousand acres in one case. Seven of the farms exceed five hundred acres in size, and most of these are located in areas where the size of local farming operations is extremely small. Fourteen respondents also indicated that they direct demonstration plots on local farmers' fields, although the number of such plots is usually very small. It appears from this information that there is still considerable emphasis placed on demonstration methods, even though there is a shift toward extension activities.

A third change in emphasis has been toward the developing of cooperatives as another response to the pressing needs of the people. Other changes have been toward introducing more commercial crops, more diversification, more use of fertilizers, and in a few cases farm mechanization.

The final area of change in emphasis is education. In one instance a twenty hour agricultural course was introduced for Indians attending the mission normal school; another change

was from individual centered education to directing agricultural education through community leaders and cooperatives.

These changes in emphasis strongly reflect the recommendations made by Maddox regarding agricultural mission programs in Latin America.[27] It is possible that some of them were made as a result of Maddox's evaluation and recommendations.

(b) Program Perspectives

In view of these changes in program emphasis, particularly toward helping people to help themselves, what are the perspectives of agricultural mission programs in the areas of financial support, control, and direction? What is being done to allow or encourage the national church to take a more active role in these programs?

A large majority of the respondents indicated that the support of their agricultural programs is derived from financial and material gifts from their mission agency, and this, combined with income from the mission farm, direct gifts from friends in the U.S., and self support, accounts for nearly all sources of support. Only three respondents indicated their programs received support from the local national church and only six indicated they received support from the local government, generally in small amounts to aid research activities. Thus, little has been done to involve

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[27]See above, p. 16

the local church or government in financial support of these agricultural programs.

Regarding the direction and control of agricultural mission programs, much more has been done to involve the local church. One-half of the directors responding indicated that direction and control was either shared by a local national church or foundation and their mission agency or, in two instances, under complete direction and control of the local national church.

Involvement of nationals in the agricultural mission programs is also planned on a somewhat larger scale in the future. Although time limits for carrying out plans were generally not indicated, eight respondents indicated provisions had been made for complete, and eight for partial takeover of the agricultural programs by the local national church. In addition, over one-third (15) indicated they provide training for national leaders to assume responsibility for and direction of the program. One-fourth indicated they had made provision for terminating their agricultural program should it no longer be needed.

5. Extent of Coordination with Other Agencies

From the assumption that it is good to avoid duplication of effort and to combine scarce resources whenever feasible to better overcome problems, the respondents were asked if their agricultural mission programs were now coordinated with several other agencies whose programs and interests would somewhat parallel their own.[28]

Fully two-thirds of the respondents indicated their programs are coordinated with local government experiment stations and their results, and half are coordinated with both local government extension personnel and local government development programs (these two need not be mutually exclusive). This indicates a strong willingness on the part of the agricultural missionaries to coordinate with and receive technical help from local government whenever it offers these services in their areas.

Only one-half of the respondents indicated their programs are coordinated with the work of local national churches and with the overall program of their mission board. The former reflects the lack of involvement of the national church in many

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[28]The word "coordinate" appears to be somewhat ambiguous, as no measure of the extent of coordination was asked for. In most instances it seems reasonable to assume, on the basis of overall questionnaire response, that active coordination and cooperation with many of these agencies is rather limited.

programs, and the latter apparently reflects the general lack of policy, and in some instances lack of sympathy, toward agricultural mission programs on the part of mission boards and directors. About one-third of the respondents said their programs are coordinated with agricultural programs of other mission boards and with experiment stations in the U.S. and their results.

Most of the programs endeavor to coordinate their efforts with many of these other agencies. This may reflect general shortage of resources to achieve extensive results on their own and the lack of sufficient new knowledge and techniques to be introduced.

Regarding coordination of efforts with other agricultural mission programs, the respondents were asked if there is anything to be gained from closer cooperation and coordination between their agricultural mission project and others.

It is clear that, whereas fourteen respondents said their agricultural mission programs are now coordinated with others, the large majority of all respondents believe that they could benefit from closer cooperation and coordination with others. Half of them suggested that they could benefit by sharing information, experiences, discoveries, and new ideas with others. Some would also appreciate advice in planning and exchange of new or improved seeds, and one thought

advice on management of tropical agriculture would be especially helpful. One respondent thought planning advice and coordination could best be achieved through Agricultural Missions, Inc.

Four respondents thought that hardly anything could be gained from closer cooperation and coordination with others because of differences in location and unique local problems, and one said nothing could be gained at the present stage of his program.

6. Most Serious Needs of Agricultural Mission Programs as Seen by Program Directors

Nearly all agricultural mission program directors agree that their most serious need is for additional trained personnel. Some specify the new personnel should be: trained to handle marketing, cooperative, and extension problems; dedicated U.S. citizens; or well-trained nationals.

Only eight respondents said their most serious need was more financing, generally thousands of dollars worth, but the need for personnel also implies the need for financial support sufficient to employ more workers.

Two respondents noted their greatest need was for careful, "more professional program planning and management, and a detailed study of the present agricultural situation and trends."

Other most serious needs listed included: coordination with overall community development and concerns of the national church; strong national leadership; more simple publications in Spanish; a place where short term educational experts can be located; personal training in cooperative administration; answers to jungle agriculture production problems; low cost tractors and equipment; more availability of good stock; and for "church ; mission, and mission board to seriously consider that they have a Christian responsibility to others in need and to set up a policy and program in agriculture to do something about it."

THE AGRICULTURAL SITUATION IN AREAS SERVED BY PROTESTANT AGRICULTURAL MISSIONS IN LATIN AMERICA

Among what type or types of farmers do agricultural missionaries work, and what kinds of changes are they introducing? Are these changes appropriate in view of theoretical models of agricultural development?

Before one can attempt to evaluate the contributions of agricultural missions to agricultural development, it is necessary to learn something about the nature of the agricultural sectors in which they operate. A brief survey of this type cannot present a precise statistical description of these sectors, both because of the absence of relevant data and because of the diversity of the sectors or areas involved. However, a broad, general description of the areas and the farmers involved can be obtained from the information supplied by the agricultural missionaries.

A. Selected Economic Characteristics

1. Size of Agricultural Operations

The respondents were asked to indicate the size of the agricultural operations in the areas served by their programs on both ownership and amount of land operated bases.

Perhaps the clearest fact illustrated by the information on size of holding and of farm operation is the great variability among the areas served by the agricultural mission programs. The type of ownership holdings range from holdings of one to five acres, through ones of fifty to one hundred acres, and as varied as from one to hundreds, and even from ten to thousands of acres, in the same area.

The information on size of holdings on ownership bases does not present an accurate picture of the actual size of farm operation, however. When considered on the basis of land operated by each farming family, nearly one half (15 of 31) indicated the average size of farm operation in their area to be less than five acres. Others showed considerable variability on this basis within the area, just as on the ownership bases; only three respondents indicated that the average size of farm operation exceeded fifty acres.

2. Structure of Ownership Patterns

When these holdings are considered from the viewpoint of the structure of land ownership patterns, it becomes even clearer that agricultural mission programs direct their efforts primarily at very small operators. This can be seen from the following breakdown of areas on the basis of land ownership patterns:

16 - owner operators

2 - mixed: ejido and owner operators[29]

10 - mixed: tenant and owner operatros

4 - tenants

4 - squatter operators

2 - reservation

2 - not answered

Of the 16 owner operators listed, 10 were listed as having holdings of ten acres or less; for the mixed areas, the ejido and owner operators combination includes all small farmers, and the tenant and owner operators (or absentee landlords) consists primarily of small operations (minifundia) on larger (latifundia) holdings; and lastly, the groups of tenants and squatter operators are both composed of small operators only.

3. Average Income Levels

Further evidence of concentration of effort among the minifundia is shown by the estimates of average annual family incomes in areas served by agricultural missions.

Over two thirds of the respondents answering this question indicated the farmers in their areas have family incomes of less than $300 (U.S.) per year, and only four (14 percent) indicated family incomes in their area are over $500.

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[29]An ejido is a small farm, up to 20 hectares (one hectare = 2.471 acres) in size, established from the breaking up of large holdings by the land reform in Mexico.

This concentration of effort among low income, small farm operators appears to be inconsistent with the United States pattern of agricultural extension which concentrates on more successful or progressive farmers on the assumption that they in turn pass on innovations to their less innovative and less successful neighbors. However, it is not inconsistent with the emphasis the agricultural missionaries place on providing "Christian service" to those who are most in need of it.

4. Changes in Size of Farm Operations

Information on trends in the size of farm operations over the past ten to fifteen years in a particular area should indicate whether either continued fragmentation of holdings, due to heavy population pressure on the land, or consolidation of holdings, due to either substantial outmigration from the area and an accompanying "rationalization" of farming or the implementation of agrarian reform, is taking place. Responses on this question were inconclusive, as only slightly over half the respondents could indicate any change in size of operation taking place, and those were almost evenly divided, with twelve increasing size areas and nine decreasing size areas. In nearly all cases the changes in size of operation were relatively small.

The fact that increasing size of operations exists in twelve of the forty areas served does indicate, however, that substantial outmigration may be taking place in some areas. This outmigration reflects both increased rural-urban migration and some resettlement programs into "colonizing" areas.[30] It may also be partially due to redistribution of land through agrarian reform, as nine respondents indicated that some farmers in their areas (in two instances from 95 to 100 percent of the farmers) had participated in land "purchases" through agrarian reform. In one of these cases which involved expropriation of the land by the Indians, however, and in two other cases, it was reported that "there is now less land per person to farm", a rather unexpected outcome from agrarian reform implementation.

5. Use of Non-traditional Inputs

One measure of the degree of development or "rationalization"

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[30]The immensity of Latin American rural-urban migration in recent years is discussed in George Jackson Eder, "Urban Concentration, Agriculture, and Agrarian Reform", The Annals of the American Academy, Vol. 360 (July, 1965), pp. 27-47. Employment changes implied by this migration have been discussed in Zygmundt Slawinski, "Structural Changes in Employment Within the Context of Latin American Economic Development", Economic Bulletin for Latin America (United Nations, ECLA), Vol. X, No. 2 (Oct., 1965), pp. 163-187).

of an agricultural sector that has been suggested is the extent of use of modern or non-traditional inputs.[31]

Section II, C. (lines 1 through 12) of the questionnaire was designed to determine the extent of use of some of the more prominent of these inputs as well as indicating the role of the agricultural mission program in introducing their use, some measure of their availability to area farmers, and the sources through which they are obtained.

Before discussing the results obtained in this section an explanation of the number of responses made and difficulties encountered in interpreting them is in order. The results given must be considered as highly conjectural, as nothing more than indications of a general tendency. There are two reasons for this. First, of the forty programs included, nine gave no responses at all, and ten others responded only partially to this section, leaving only one-half (21) of the programs with complete responses. Secondly, for all respondents, the information, particularly regarding the percentages of farmers using the different inputs, was necessarily a rough approximation at best.

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[31]The distinction between these classes of inputs is made in Theodore W. Schultz, Economic Crises in World Agriculture (Ann Arbor: University of Michigan Press, 1965), pp. 36-40. Traditional inputs are those that farmers are accustomed to and which have been used for generations.

The respondents indicated that their programs were largely instrumental in introducing six of the twelve non-traditional inputs in their areas. It follows that, with the exception of improved hand tools, these new inputs (commercial fertilizer; improved seed or varieties; improved cattle and/or poultry; improved tillage and crop rotation practices; insecticides and/or pesticides; and veterinary medicines) are also the ones most used by farmers in the areas. With all six inputs, however, well over half the respondents indicated that only up to ten percent of the farmers were using them with a large number indicating use by only up to five percent of the farmers. This may be closely related to the information given in section B. 1., page 39 which indicated that most agricultural missionaries serve only a correspondingly small percentage of the farmers in their areas.

Regarding the availability of these new inputs, those most readily available and from local sources (veterinary medicines, insecticides and/or pesticides, and commercial fertilizer -- in that order) are among those most used, as would be expected. However, two inputs largely available with difficulty (improved seeds or varieties and improved cattle and/or poultry) are also high on the list of inputs used. In the case of improved seeds or varieties, both

government sources and gifts or supplies from missions are important suppliers; the same holds for improved cattle and/or poultry, with gifts or supplies from mission the most important supplier (often through Heifer Projects, Inc.). It appears, therefore, that the agricultural mission programs are successfully attempting to provide those new inputs which are not readily available locally to at least a small percentage of area farmers.

It is interesting to note that new inputs with relatively higher per unit costs and primarily capital-intensive, labor-saving in nature (improved storage and handling, improved animal drawn implements, garden-tractor-size implements, and irrigation equipment) are used considerably less frequently by area farmers. These inputs are also listed as not being as readily available as those which are more frequently used. Also, commercial fertilizer ranks high on the use list, even though half the respondents indicated it was available with difficulty, which seems to indicate the farmers' recognition of the high returns from using fertilizer in many areas.

One other new input, large tractors and implements, presents a slightly different use-pattern. Nine respondents indicated that they introduced or provided them in their areas,

and several stated that they rented this equipment to area farmers. The remainder of the users were usually latifundia operators in mixed-ownership areas, and this helps explain why in all areas indicating the use of this input the percentage of farmers using it was very low.

6. Supply of Agricultural Labor

A common theme in much literature on agricultural development is the existence, or nonexistence, of "disguised unemployment" in agriculture. This literature has been summarized by Kao, Anschel, and Eicher who pointed out that "the existence of disguised unemployment is largely a matter of definition and the assumption about the institutional forces involved."[32] They concluded that there is little reliable empirical evidence supporting more than token (five percent) disguised unemployment in underdeveloped countries, when defining it by a zero marginal product of labor and the condition of ceteris paribus.

Without any such restrictive definition, the respondents were asked if they thought there was a surplus of agricultural

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[32]Charles H. Kao, Kurt R. Anschel, and Carl K. Eicher, "Disguised Unemployment in Agriculture: A Survey", in Carl Eicher and Lawrence Witt (eds.), Agriculture in Economic Development (New York: McGraw Hill, Inc., 1964), p. 141.

labor in their areas. Sixty percent of the respondents said there was a surplus of agricultural labor in their areas, and forty percent said there was not. From additional comments given, it is apparent that there are about three different types of areas involved. The first is the densely populated, minifundia areas in the highlands with insufficient land and many persons idle, especially the younger men. Many persons are migrating from some of these areas, and the rapid increases in urbanization in Latin America are a reflection of the seriousness of this problem.

A second area might be termed a "transitional" area, where there is no surplus labor with present methods of operation or under the old order, but there would be surplus labor especially if more modern labor saving methods could be used. The extent of surplus labor reported in these areas seems to depend on the respondents' notions of how much labor could be removed if modern mechanization and technification were employed. This approach was employed by Currie to arrive at a figure of seventy percent disguised unemployment for Colombia's agricultural labor force.[33]

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[33]Currie, Accelerating Development, Chapter 12.

The third type of area, one in which there is a shortage of agricultural labor, comprises two distinct types of agriculture. One is represented by a newly settled colonization area where individual families are located on holdings which are too large to be completely tilled by the family labor using traditional methods. The other exists in some remote tribal areas where the Indians are just beginning to use settled agricultural practices and where there is no population pressure on land resources.

In terms of the percent of total agricultural population concerned, the first two types clearly encompass the majority of the population. To what extent the surplus labor category exists, in terms of definite population pressure even with traditional methods of operation, cannot be determined from this analysis.[34]

7. Incentive Institutions

A lack of sufficient "agricultural institutions" has been cited as one barrier to agricultural development.[35] An

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[34]See pages 93, 94, and 97 for further discussion of the existence of surplus labor.

[35]John W. Mellor, "Increasing Agricultural Production in Early Stages of Economic Development", In Edwin O. Haroldson (ed.), Food, One Tool in International Economic Development (Ames: Iowa State University Press, 1962), pp. 237-38.

attempt was made to determine what, if any, new institutions for providing incentives for farmers, such as those associated with credit, marketing, and land ownership, have been developed in the areas served by the agricultural mission programs.

Two sets of responses present information on this question. In answer to the question as stated above, the respondents indicated that, in general, there were very few such institutions, with the exception of credit institutions located in a third of the areas, ten of which were provided by various government agencies. The second set of responses were given on lines 13 thru 16, section II. E. of the questionnaire (See Appendix I). There the respondents indicated that together long term and short term credit at reduced rates were used by the farmers in five areas and ten areas respectively, with five of the credit organizations introduced by the mission program. This corresponds closely with the above response.

The latter set of responses indicated that farmers in eight areas utilized cooperative marketing facilities, while in the former set none of eight cooperatives listed were specifically designated as marketing cooperatives (three were not categorized). Even though a discrepancy exists here, it appears that cooperative marketing incentive institutions

exist in no more than one-fifth of the areas studied. Five of the marketing cooperatives were listed as being introduced by the agricultural mission program.

Regarding land ownership institutions, the first set of responses indicated only three areas had such institutions, while the second set indicated that farmers in six areas were utilizing these institutions. This discrepancy may be removed by noting that the agricultural mission program is credited with providing land purchases through agrarian reform in four areas. With the exception of the Canadian Baptist - Peniel Hall Society program in Bolivia which initiated agrarian reform on its land holdings in 1942 (the first successful land reform in continental South America which became the pattern adopted by the Bolivian government), all the mission program land purchases were confined to their own holdings and were not "land ownership institutions" as such. Thus, there were only three areas in which the farmers had access to land purchases through agrarian reform.

8. Local Changes in Agricultural Output and Incomes

Respondents were asked to indicate the percentage increases in agricultural output, rural population, and income in their areas over the past five years. Inasmuch as obtaining this information would require rather complete government

statistical records, records which were non-existent in most areas, response to this question was inadequate. One half the respondents gave no answer, and most of the others indicated that their answers were again highly conjectural. All but one response did indicate some increase in output accompanied by a somewhat smaller increase in income and considerable variation in rural population. Three responses were very outstanding, however, in that they indicated the following increases:

	Output	Population	Income
1.	200%	0	100%
2.	200%	0	60%
3.	200-300%	20%	300%

Two of these were in areas where emphasis has shifted from crop to pasture and livestock production, the third was among jungle Indians recently settled and given employment on the mission farm. Another indicated that in one village a new colony has doubled income and output, but this did not hold for the entire area; five others listed output increases from 11-25%, and two more indicated output increases from 26-50%.

9. Local Changes in Demand for Agricultural Products

The respondents were asked to indicate, again without access to official statistics but on the basis of personal observation, whether the demand for agricultural products from their area over the last five year period had been declining, remaining steady, or rising.

A very large percentage (80%) of the respondents indicated that demand for agricultural products in their areas was rising, the remainder said it was remaining steady. Most respondents said the increase in demand was relatively small, and two respondents indicated demand was "non-market" in nature, coming from on-farm consumption and local missionaries only. Specific commodities for which demand was rising included apples, poultry, and livestock products.

10. Protentials for Increasing Local Agricultural Production

In view of the predominance of increasing demand for agricultural products from the areas concerned, what are the present potentials for increasing agricultural output from these areas? If there is such potential, why is it not now being attained?

The large percentage of respondents indicating a rising demand for local products also indicated a large potential

for increased agricultural output exists in their areas. Two indicated the potential was slight, one indicated it was moderate. Only five respondents thought that no potential for increased agricultural output existed in their areas.

The most frequent reasons given explaining why this potential was not now being reached were: (1) the lack of education and training in new methods and management; (2) various marketing bottlenecks; (3) financial problems -- lack of credit and the high cost of mechanization; and (4) various attitudinal and motivational deficiencies. Other reasons given included lack of water storage facilities, non-use of fertilizers, the need for land ownership, the lack of experimental results to apply, the need to diversify, and the need for terracing and contour farming.

11. Most Serious Needs of Area Farmers

An elaboration of the above points can be made in terms of the most serious needs of the farmers in the area served, as seen by the agricultural missionaries. Supposedly if these needs could be met, then some of the above potentials for increasing production could be met. However, as one respondent indicated, this list includes only the <u>most serious</u> needs of area farmers and there are numerous other needs which are not listed.

These most serious needs can be broken down into several distinct categories. They are listed here in the order of frequency with which they were mentioned.

(a) New Inputs: a large number of items can be roughly grouped as new on-farm inputs. These include such items as more (or good) land; new methods and equipment or tools; improved livestock and livestock feed; more protein in the diet; irrigation water; improved local plant varieties; and agricultural chemicals.

(b) Financial Needs: these can be very simply stated as the need for more money. It takes two specific forms, however; credit facilities for short term needs, and capital financing for longer term, expansion needs.

(c) Education: these needs are of three specific types. They include general adult education and training, technical knowledge or assistance, and extension help.

(d) Marketing: the primary need here is for improved communication and marketing channels. Nearly synonymous with this are transportation needs in

the form of good penetration roads, and a final item is marketing cooperatives.

(e) Government: four needs which government can provide include a serious governmental attitude toward agrarian reform, prices regulated according to quality, educational programs, and sypathetic representatives.

(f) Socio-cultural: a willingness to apply new techniques and a desire to change; integrity; and the eradication of superstitution were listed as important needs in this category.

(g) Structural: in terms of the structure of the individual farm, the needs to diversify production and to intensify production on small holdings were given.

12. Research Organizations in Areas Served

The benefits received from extensive research and experimentation in agricultural science are very apparent to most persons concerned with agricultural development, as evidenced in United States agriculture, as well as by rice research in the Philippines and Rockefeller Foundation

research in Mexico. To what extent is research being conducted in the areas served by agricultural mission programs?

One third of the respondents indicated that there are no research organizations working on the agricultural problems in their areas; this seems to be particularly true for those engaged in tropical agricultural areas. On the other hand, the other two-thirds of the respondents indicated that there were numerous research organizations in various areas, in some cases two or three in the same area.[36] Fifteen of the areas have some national government agency conducting research in them. It is interesting to note that nine different international organizations were listed as working in twenty-three different areas.

In view of the respondents' indication of a serious need for more local research results that they could apply in their areas, it is questionable if some of the research organizations provide much research results that are applicable for small farmers in the areas. This question has been raised by the Committee for Economic Development (CED) concerning all the agricultural research done in Central America.[37]

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[36]Note: This question was inadvertently omitted from copies of the questionnaire sent to five respondents.

[37]Committee for Economic Development, Economic Development for Central America (New York: CED, November, 1964), p. 44.

Only two of the respondents indicated that their agricultural mission program cooperates with governmental research organizations, and their lack of coordination or cooperation with technical assistance agencies was discussed by Stone.[38]

B. Selected Personal Characteristics of Farmers Served

1. Rates of Adult Literacy

The level of literacy of the rural population is often considered to be a major factor in agricultural development. Any educational or extension program must take the literacy rate into consideration when planning its approach and in preparing its materials.

The percentages of adult literacy in areas served by agricultural missions represent a wide and very evenly spread distribution with three or four areas in each ten percentage point category ranging from one to ninety percent. There is a complete lack of weighing of the distribution of percentages of adult literacy toward any point on this scale, and an

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[38]See page 18 above.

extremely wide variation in percentages of adult literacy in given areas, ranging from 0 to 9% in some areas to 80-90% in others. Yet in most of these areas the average annual family income has been estimated to be under $300, so it would appear that a higher percentage of adult literacy, by itself, does not necessarily lead to higher family incomes.[39]

Percentage of adult literacy needs to be considered in relation to other individual characteristics before any clear picture of its influence can be obtained. The following section discusses the relationship of adult literacy with two such characteristics.

2. Recognizing and Accepting Possibility of Change, and Recognizing Possibility for Personal Gain from Technological Improvement

Respondents were asked to rate farmers in their areas on a four point scale in relation to, (1) the extent to which they

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[39]See Mary Jean Bowman and C. Arnold Anderson, "Concerning the Role of Education in Development", in Clifford Geertz (ed.), Old Societies and New States (Glencoe: The Free Press, 1963), pp. 247-79. The authors concluded that income levels per capita remained below $300 through the range from thirty to seventy percent adult literacy, and that adult literacy reached ninety percent before per capita incomes exceeded $500.

recognize and accept the possibility of change, and (2) the extent to which they see the possibility for personal gain from technological improvement.[40]

With nearly 100% response on these two statements, the results can be taken as indicative of farmers attitudes (as perceived by the agricultural missionaries). Area farmers are ranked predominantly in the two middle points of the scale, and fairly evenly balanced between the two, so approximately 40% of them recognize and accept the possibility of change "only slightly", and 47% see it "good". Approximately 38% see the possibility for personal gain "only slightly", 40% see it "good", and 19% see this possibility "very well".

Thus, farmers in some areas with very high literacy rates see these possibilities only slightly, and some in very low literacy areas see them good or very well.

Percentage of adult literacy does appear to influence farmers' ability to recognize and accept the possibility of change. When looking at the number of literacy areas above and below the midpoint (45%), a fairly strong relationship

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[40]These topics are taken from the characteristics of "Phase II" of agricultural development given in Bruce F. Johnston and John W. Mellor, "The Role of Agriculture in Economic Development", American Economic Review, Vol. 51, Sept., 1961, p. 582. For further discussion on this topic, see pages 97-99.

appears. Of the fifteen areas listed under "only slightly" recognizing the possibility of change, eleven were below 45%, and only three were above 45%. For "good" recognition of the possibility of change, the relationship is reversed, with five area literacy rates below 45%, and twelve above 45%.

On the other hand, percentage of adult literacy in the area seems to have less influence on farmers' ability to recognize the possibility for personal gain from technological improvement as measured by the number of areas with literacy rates above and below the midpoint.

In general, it appears that levels of literacy may influence the farmers' "recognition and acceptance of the possibility of change", but that they have little influence on farmers' recognition of "the possibility for personal gain from technological improvement". One implication from these relationships would be that low levels of adult literacy may not be as great a barrier to agricultural development as is often suggested. There are, undoubtedly, variables in addition to literacy rates that influence these levels of recognition, and which may well be more important than literacy as

determining factors.[41]

3. Responsiveness to Economic Incentives

Traditional farmers, or farmers in underdeveloped areas, are often accused of being "perverse economic men" and not very responsive to economic incentives from prices, earnings from work, or rates of return on investment. This picture is quite incorrect according to agricultural missionaries.

With only three respondents not indicating their opinions, a large percentage (78%) of those responding indicated that farmers in their areas are not indifferent to economic incentives, particularly (relative) price incentives. Some reported that area farmers are "very interested in prices and earnings"; others that they "watch prices closely"; and, further, they "will expand only as they see that the added investment will bring increased incomes". Other revealing comments were that farmers are "aware of possibilities, but can't avail themselves of them for lack of capital", and that

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[41] See Everett M. Rogers and William Herzog, "Functional Literacy Among Colombian Peasants", Economic Development and Cultural Change, Vol. XIV, No. 2 (Jan, 1966), pp. 190-203. This recent study of functional literacy among Colombian peasants, however, emphasized its importance in individual modernization in developing societies as it related to mass media exposure, empathy, agricultural and home innovativeness, achievement motivation, and other variables.

they are responsive, "but stick to lower earning 'sure' crops for security". A few respondents commented that investment concepts and rates of return on investments were not well understood by area farmers.

One comment from a respondent working among farmers with $100 (U.S.) average annual family income levels in Bolivia illustrates this responsiveness very well:

> When the price of potatoes rose to around $b 35.00 to 40..(equivalent to $6.50 to $7.50 (U.S.) per bu.) per arroba of 25 pounds there was much activity to break up virgin pasture lands high up in the valleys to plant more potatoes... When the prices are good they try to expand production. I imagine that the result will now be overproduction and a corresponding drop in prices, but so far they are holding up to normal. Also, they are very price conscious for what they buy and do a lot of bargaining, if they think it does any good.

In some instances the primary incentive is the pressure from land shortage which stimulates more intensive production; in others it is the need to produce food to avert hunger.

Those area farmers who appear indifferent to economic incentives are generally remote Indian tribesmen and other isolated groups who have not yet entered the money economy of their country.

Part of the reason why foreign observers have accused traiditional farmers of being unresponsive to economic incentives may be because they did not understand the nature

of incentives available to these farmers. Several respondents indicated that incentives were low due to the lack of access to markets, and in some cases because of government price regulation. Another indicated that good incentives were offset by too many barriers, such as lack of credit, minifundia, and values and beliefs which run contrary to economic values.

On the basis of the strong evidence given by agricultural missionaries, it is safe to conclude that traditional farmers, in Latin American areas served by agricultural mission programs, are not indifferent to economic incentives, and it is reasonable to assume that this is true of most traditional farmers everywhere.[42]

4. Use of Resources

A final characteristic of farmers in underdeveloped countries which has been given some attention in development literature has been the efficiency with which they use their

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[42]Lee R. Martin cites several empirical studies which support this conclusion, in "Basic Considerations in Transforming Traditional Agriculture", in Haroldson, Food, One Tool, p. 59.

traditional resources.[43] In answer to the question, "Would you say that the farmers in your area use their resources efficiently?", a large majority (74%) of the respondents indicated that they do not. This question did not, however, refer only to use of traditional resources.

When asked if they were able to help farmers increase production by showing them how to use their traditional resources more efficiently, the respondents answered overwhelmingly in the affirmative. In citing examples of this, however, many respondents indicated they did not fully understand what was meant by "traditional resources". A number of the examples of more efficient production involved combining traditional resources with modern resources. Examples of this include: grafting onto their old orange trees; using commercial fertilizer; better weed, insect, and disease control; improved

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[43]See Schultz, Economic Crises, pp. 16, 20. "Traditional" agriculture is defined by Schultz in this volume as agriculture "which contributes little to economic growth" (p. 9), Elsewhere (see his Transforming Traditional Agriculture [New Haven: Yale University Press, 1964], pp. 29-30) he refers to traditional agriculture as "a particular type of economic equilibrium with respect to savings, investment, and production". See next section for further discussion on this point.

The term "traditional resources" usually refers to land, labor, and capital. For Schultz traditional resources are all resources, including level of technology, available in traditional agriculture.

livestock breeding; crop rotation and double cropping; switch to crops with less labor requirements; converting crops to meat via livestock; and irrigation.

There were a number of examples given which did appear to support the respondents' affirmative answers. Examples of ways in which farmers were being taught to use traditional resources more efficiently include: composting waste for use as natural fertilizer; plowing in straw, and not burning organic material; selecting best ears of corn for seed, and saving own seed; use of local seeds for better poultry rations; making quality hay from existing grasses and better feeding practices; using wood ashes for fertilizer; better cultivation practices and terracing; and improved conservation and reforestation practices. The definition of traditional resources used here is not rigorous, however, Some might argue that the application of new knowledge to these resources makes them no longer traditional.

It appears that the difference between being able or unable to teach more efficient use of traditional resources depends on the degree of development already present in the local agriculture. Some traditional farmers seem to be now using resources efficiently, as revealed in the statement that the "progressive ones can go no farther without investments in

modern equipment; the ones not learning new methods are being squeezed out."

The number of examples given, both in more efficient use of traditional resources only and in the more efficient use of traditional resources in combination with modern ones, does support the agricultural missionaries' statement of opinion that farmers in their areas do not use their resources efficiently.

AGRICULTURAL DEVELOPMENT THEORY AND ITS SIGNIFICANCE FOR PROTESTANT AGRICULTURAL MISSION PROGRAMS IN LATIN AMERICA

A. Summary of Selected Agricultural Development Theories Relevant for Agricultural Mission Programs

One of the principle underlying assumptions of this study is that the agricultural sectors have much to contribute to the economic development of the Latin American countries; the development of Latin American agriculture is a necessary condition for a viable, sustained development and growth.

1. The Two-Sector Concept and Agriculture's Contributions to Development

The concept of development within an agricultural sector implies the existence of one or more non-agricultural sectors, and this is the way that some development theorists have tended to consider the problem of economic development. That is, development theories are formulated in terms of two-sector models, the agricultural as opposed to the industrial or urban, or sometimes more generally the traditional as compared to the modern.

One of the most rigorous formulations of such a two-sector or "dual economy" has been made by Jorgenson, who noted that "the characteristic feature of the theory of development of a dual economy is the asymmetry between production relations in the industrial and agricultural sectors."[44]

Needless to say, a two sector model is a gross over-simplification of the complex structure of any country's economy regardless of the terminology used. Most developing countries have an export agriculture sector, usually plantation type, which is more like the industrial sector than the agricultural sector. Thus, the agricultural sector is often subdivided into the subsistence and the commercial sectors, and when discussing agricultural development one should specify what part of the agricultural sector is being considered. Differences have also been noted between different types of subsistence sectors. For example, Myint discusses the non-monetary, self-sufficient type which possesses excess capacity

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[44]Dale W. Jorgenson, "The Development of a Dual Economy", Economic Journal, Vol. 71 (June, 1961), p. 312. See also his "Testing Alternative Theories of the Development of a Dual Economy", in Irma Adelman and Eric Thorbecke (eds.), The Theory and Design of Economic Development (Baltimore: Johns Hopkins Press, 1966), pp. 45-65.

in land and labor which can readily be utilized for production of cash crops without reduction of subsistence production. This is contrasted with the type in which the people are living at a minimum subsistence level with no surplus land or labor capacity. Here, in order to produce marketable cash crops, the peasants would have to reduce their subsistence output.[45] The type of subsistence sector which actually prevails in a country would thus present different obstacles to development, and require different development policies and programs.

In spite of the oversimplification of the two-sector model, and the conceptual problems noted above, it has proven to be a useful initial tool for conceptualizing the development process and, particularly, for examining the role that agriculture must play in that process.

The specific contributions that the agricultural sector makes to economic development have often been enumerated, and Witt has presented a concise summary of these.[46] He notes that

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[45]Hla Myint, The Economics of the Developing Countries (New York: Frederick A. Praeger, 1965), pp. 43-50.

[46]Lawrence W. Witt, "Role of Agriculture in Economic Development: A Review", Journal of Farm Economics, Vol. 47, No. 1 (February, 1965), pp. 126-129.

by concentrating on cross-sectoral transactions including products, factors, and money, five categories of contributions listed have been: (1) farm products for domestic consumption; (2) the export of farm products which earn foreign exchange; (3) the transfer of labor to the nonagricultural sector; (4) the flow of money into capital formation; and (5) increased rural cash income increasing demand for industrial products.[47] When contributions have been considered more in relation to economic development in general, the following three categories of contributions have been outlined: (1) the product contribution, due simply to a rise in agricultural production; (2) the market contribution, which includes farm products moving into both domestic and foreign markets and the flow of industrial goods to agriculture; and (3) the factor contribution, the transferring of capital, labor, and loaned capital funds to other sectors.[48]

Development requires that a larger volume of food be produced and that a larger proportion of it be moved through

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[47]Listed in Johnston and Mellor, "The Role of Agriculture", op. cit.

[48]Listed in Simon Kuznets, "Economic Growth and the Contribution of Agriculture: Notes on Measurement", reprinted in Eicher and Witt, Agriculture, pp. 102-19.

marketing channels. Therefore, Witt states that during the development process, "policy workers are likely to be most concerned with one issue: to expand the supply of food to the urban sector."[49]

Not only does agriculture have important contributions to make during the development process, but, as Nichols has emphasized, "The existence of a substantial agricultural surplus is a precondition for industrial development."[50]

2. Selected Theories of Agricultural Development

Accepting the admittedly oversimplified two-sector model of development and the necessity for agriculture to make substantial contributions to overall development, theorists recognized that development must first take place in the agricultural sector independent of development elsewhere in the economy if it was going to fulfill its role as the leading sector.

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[49]Witt, op. cit., p. 125.

[50]William H. Nichols, "The Place of Agriculture in Economic Development", reprinted in Eicher and Witt, op. cit. p. 25.

The concept of a leading sector was derived from Rostow, who formulated one of the first modern explanations of the development process in The Stages of Economic Growth.[51]

The five stages in the transition from a primitive to a modern economy were: (1) the traditional society; (2) the preconditions for take-off; (3) the take-off; (4) the drive to maturity; and (5) the age of high mass consumption.

Rostow's stage theory of development has been widely criticized on historical grounds for postulating incorrect dates for the beginning of the "take-off into sustained growth" and for determining the length of time spent in the take-off period for presently developed countries, and on theoretical grounds for the analytical criteria employed in identifying the several stages, the vagueness of the transition processes between stages, as well as for its lack of clear policy prescriptions.[52] In spite of these criticisms, the stages of

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[51]W.W. Rostow, The Stages of Economic Growth: A Non-Communist Manifesto (Cambridge: The University Press, 1960).

[52]See Simon Kuznets, "Notes on the Take-off", in W.W. Rostow (ed.), The Take-Off Into Sustained Growth (New York: Macmillan, 1963); A.K. Cairncross, "Essays in Bibliography and Criticism, XLV: The Stages of Economic Growth", Economic History Review, Series 2, Vol. XII, No. 1 (April, 1961), pp. 450-58. Both of these works are reprinted in part in Gerald M. Meier (ed.), Leading Issues in Development Economics (New York: Oxford University Press, 1964).

development concept has proved a useful device for theorists of agricultural development.

Two agricultural development theories which utilize a modified stages approach are the phases of agricultural development of Johnston and Mellor[53] and the approach to "transforming traditional agriculture" of Schultz.[54]

The three phases of the Johnston-Mellor theory can be summarized as follows:

Phase I: Development of agricultural preconditions

In this phase changes in attitudes toward change among rural people and in institutions, such as land tenure arrangements and the political power structure, are among the essential requirements. Community development programs emphasizing adult literacy and self help programs directed at satisfying "felt-needs" would be used to promote greater receptivity to change.

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[53]Johnston and Mellor, "The Role of Agriculture", op. cit.; also John Mellor, "Increasing Agricultural Production in Early Stages of Economic Growth", in Haroldson, Food, pp. 219-43.

[54]Schultz, Transforming Traditional Agriculture; Economic Crises in World Agriculture.

Phase II: Expansion of Agricultural production based on labor-intensive, capital-saving techniques, relying heavily on technological innovations.

This phase "requires an environment in which the possibility of changes is recognized and accepted, and in which individual farmers see the possibility for personal gain from technological improvement."[85] These preconditions would be met in Phase I.

In Phase II, agriculture still represents a large proportion of the economy, the demands for agricultural products is increasing substantially, capital for industrial expansion is scarce, and there is an important distinction between resources of high opportunity cost (machines) and those which are plentiful in agriculture and which have a low opportunity cost (labor).

A group of "non-conventional" inputs necessary for increasing agricultural productivity in this period include (1) research and development, (2) extension-education programs, (3) facilities for supplying new and improved inputs, (4) institutional service facilities for such things as credit and marketing, and incentive institutions such as new land

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[85] Ibid., p. 582.

tenure arrangements. All these complementary inputs come from outside traditional agriculture, have a large institutional component, and are highly complementary.

Phase III: Expansion of agricultural production based on capital-intensive, labor-saving techniques.

This phase represents for Johnston and Mellor a relatively late stage of agricultural development, and receives little attention from them. The opportunity costs of labor and other inputs is high, and the need for credit facilities becomes acute in this phase.

According to this theory of agricultural development, a country needs only to determine the present phase in which its agricultural sector is lingering and then proceed to apply the necessary palliatives. The writers assume that most underdeveloped areas will find themselves in phase II.

In Transforming Traditional Agriculture, Schultz recognizes three stages of agricultural development; the traditional, the transitional, and the modern. Whereas Johnston and Mellor concentrate on their phase II, which is roughly comparable to the transitional stage, Schultz concerns himself with the problem of transforming an agricultural sector that is still in the traditional stage.

Schultz argues that there is no "disguised unemployment" in traditional agriculture, and that the traditional farmer utilizes his resources efficiently, because a condition of long standing equilibrium exists. He says the traditional farmer is also responsive to economic incentive, and does not invest in more traditional factors of production because the marginal returns to them are extremely low.

To transform traditional agriculture two major changes must be made. The first is that a whole host of non-traditional inputs (fertilizer, improved seeds, improved livestock, etc.) must be provided. Since the research and development necessary for such inputs cannot be provided by profit making firms, it will be necessary for government to provide this, as well as supplying enough of the factors to stimulate demand sufficiently to attract profit-making firms into supplying them.

The second change calls for a large scale increase in investment in human capital through extension service and formal education. This is primarily needed to train the traditional farmers in the use of the new non-traditional factors, and again must be provided by the government.

The introduction of any new factor creates disequilibrium in traditional agriculture, and inefficiencies in resource

allocation will then occur. It would thus appear that few systems of traditional agriculture as defined by Schultz really exist in the world, certainly not where agricultural missionaries and others have introduced new factors and new techniques, and Schultz's theory really applies more to transitional than to traditional sectors.[56]

Beckford points out that population growth can also be a disequilibrating factor in a relatively short period of time, and states that "Professor Schultz will therefore have to provide us with some relevant theory of population growth which is both consistent with the real world and with his equilibrium model before we can begin to take his model seriously."[57]

In criticizing the take-off concept and the differentiation of stages in both general and agricultural development stage approaches, Ruttan concluded that they represent a "blind alley" rather than a route to a new revolution in

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[56]See G. L. F. Beckford, "Agricultural Development in 'Traditional' and 'Peasant' Economies", Social and Economic Studies, Vol. 15, No. 2 (June, 1966), pp. 152-53.

[57]Ibid., p. 160.

economic thought. He said they represent, at best, a set of valid historical generalizations about the process by which the developed countries arrived at their current levels of development.[58]

3. Examining Specific Aspects of Agricultural Development Theories in Relation to Opinions Expressed by Program Directors

Several items on the questionnaire used in this study were designed to examine some aspects of both the Schultz and the Johnston-Mellor agricultural development theories as well as to provide information about personal characteristics of area farmers. The answers to these questions in some instances support, in some instances contradict, and in some instances point up the seemingly inadequate formulation of the ideas or hypotheses examined.

(A) Schultz Hypotheses

(1) Price Responsiveness. Schultz emphatically states that traditional agriculturalists are not perverse economic men but

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[58] Vernon W. Ruttan, "Growth Stage Theories and Agricultural Development Policies", The Australian Journal of Agricultural Economics, Vol. 9, No. 1 (June, 1965), p. 32.

are, instead, very responsive to economic incentive from (relative) price of products and return on investments.[59] The respondents generally supported the hypothesis that farmers in their areas are not indifferent to economic incentives and pointed out, as Schultz has, that failure to respond to some incentives is usually caused by economic barriers outweighing the incentives.

(2) Efficiency of Resource Use. Two questions were designed to determine if program directors thought area farmers were using traditional resources efficiently. The large majority of the respondents indicated that in their opinion area farmers do not use their resources efficiently, and a considerable number of them gave specific examples of how they had been able to help the farmers use traditional resources more efficiently.

These results would seem to contradict the hypothesis that these farmers are not underutilizing the land and the reproducible material capital at their disposal,[60] except that the first question was not asked in terms of traditional

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[59] Economic Crises, pp. 24-25.

[60] Economic Crises, p. 16; Transforming, Chapter 3.

resources only. In addition, as pointed out in part I above, once there have been new factors of production introduced into an area, it presumably becomes profitable to adopt them and the equilibrium of the traditional agriculture is disturbed. It would appear that the respondents indicate that "transitional" farmers use their traditional resources inefficiently.

(3) Surplus Agricultural Labor. In contradiction to the Schultz hypothesis that labor resources are not misallocated, and that there is therefore no disguised unemployment in traditional agriculture,[61] sixty percent of the respondents indicated there was a surplus of agricultural labor in their areas. Again, however, the restrictions of Schultz's theory did not appear to hold in those areas where surplus labor was observed, for new factors were being introduced there.

(B) Johnston-Mellor Hypotheses

(1) Recognition of Possibilities. Two Johnston-Mellor hypotheses state that when a country's agricultural sector is in Phase II of the development process, the farmers will recognize and accept the possibility of change and will

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[61] Transforming, Chapter 4.

recognize the possibility for personal gain from technological improvement. The respondents indicated that farmers in about forty percent of the areas served by their programs see these possibilities "only slightly", and those in from forty to forty-five percent of the areas see these possibilities "good". The hypotheses as originally formulated did not specify any degree of recognition of these two possibilities, so it would be difficult to say, on the basis of the responses given, what phase the different areas are in. It appears that if definite stages or phases of agricultural development can be determined, these two criteria are not adequate for doing so.

An important weakness of these criteria for determining development phases is that the ability to recognize possibilities for change and for personal gain are associated with different individuals in varying degrees. They are thus individual, more than group characteristics, and if a small percentage of farmers in an area recognize these possibilities strongly enough they can very well lead the rest of the farmers in the adaptation process.

This is one of the principle assumptions of those who study the process of diffusion of innovations, that is, that for any new agricultural factor or innovation in a particular

community, there is a very small group of farmers, the innovators, who first adopt the innovation. These are then followed in sequence by early adoptors, the early majority, the late majority, and finally the laggards. Studies in the United States,[62] and one in Colombia,[63] have attempted to identify the personal characteristics of innovators, so that communications about new innovations in a developing society could theoretically be aimed primarily at them in an attempt to speed up the diffusion process. The diffusion process is seen to operate irrespective of any stage or phase of development, although the time involved for the diffusion of a particular innovation could vary with the percentage of farmers in an area who perceived clearly the possibilities for change and for personal gain from technological improvements.

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[62]Elihu Katz, "The Diffusion of New Ideas and Practices", in Wilbur Schramm (ed.), The Science of Human Communications (New York: Basic Books, Inc., 1963); Everett M. Rogers, The Diffusion of Innovations (New York: The Free Press of Glencoe, 1962).

[63]Paul J. Deutschmann and Orlando Fals Borda, Communication and Adoption Patterns in An Andean Village (San Jose, Costa Rica: Programs Interamericano de Informacion Popular, Dec., 1962).

(2) Availability of Institutions. The list of requisites for development of new production processes which should characterize Phase II in the Johnston-Mellor theory includes institutions to provide incentives (land tenure, credit, and marketing institutions) and institutions to service agricultural production (facilities for distributing inputs; marketing and processing the increased output; rural government).

The respondents indicated that in areas served by agricultural mission programs very few of these institutions have been developed. On this basis most areas would have to be considered to be still in the preconditions phase, even though some individuals could be considered to be in Phase II by the previous criteria.

(3) Introduction of Non-traditional Factors. This criteria for determining the phase of development also appears to conflict with the above criteria. Theoretically, changes in attitudes and institutions characterize Phase I, and only during Phase II is production expanded by the use of non-traditional factors or inputs. Yet the respondents all indicated they had been at least partially successful in introducing numerous labor-intensive, capital-saving new inputs. It was noted that some new inputs were much easier

to introduce than others (See Section C. 1. pp. 111-12), which would indicate that the characteristics of the innovation or change being introduced, as well as the personal characteristics of the farmers concerned, must be considered in addition to the particular phase of development. Whereas the stage or phase of development concept is a useful descriptive device for suggesting broad policy measures, it overlooks the differences in these two variables and the differences which may exist between different parts of the agricultural sector such as the subsistance and the commercial subsectors.

B. Agricultural Development Theory as a Guide to Agricultural Mission Program Development

Directors of agricultural mission programs would find it useful to utilize theories of agricultural development when organizing and developing their programs. A close attention to principles of development theory, and to the policy implications contained therein, would help the program directors to meet the need for "careful, more professional program planning and management" which was mentioned in Section two.

More specifically, knowledge of agricultural development theory could provide program directors with a framework for viewing the interrelationships between the various sectors of the economy and for viewing the problems faced by area farmers, and their several possible solutions, in terms of the overall needs and opportunities for the country. A better understanding of theory would enable program directors to understand more clearly the underlying causes of present conditions, such as the lack of labor mobility and the lack of "pull" factors in urban employment to accelerate rural out-migration, why there are market imperfections (or sometimes no markets), and why "low cost" machinery and other inputs aren't -- and in some case shouldn't be -- available. Development theory would also aid agricultural missionaries to consider and understand the larger impact of the changes they are introducing.

Theories concerning stages or phases of agricultural development, while subject to the criticisms or shortcomings indicated above, can also help agricultural mission program directors in determining the types of programs and projects and the types of innovations to be introduced in their particular areas. For example, in areas where the Phase I

preconditions of the Johnston-Mellor theory are clearly absent, work on attitude change programs and changes in local community institutions may be necessary before the successful introduction of Phase II innovations and techniques is possible or at least these changes may need to be made concurrently with the introduction of these highly technical innovations. The general notions of the Schultz theory would indicate that agricultural mission programs should concentrate on the extension-education needs in traditional or transitional areas, both because of the high priority of this need and because of the programs' limited resources which would make it impractical, if not impossible, for them to concentrate on either research and development or supply of factors. Regarding supply, however, the agricultural mission programs may, by supplying factors temporarily on a gift or non-profit basis, contribute much to the stimulation of demand to the point where it is economical for profit-making firms to enter the local market.

Another function of an understanding of agricultural development theory could be to help the agricultural missionaries understand the development policies of the country in which they are working. Myint has presented a clear example of the

importance of understanding government programs, their aims and objectives.[64] The discussion is presented on two different levels. First, he points out that recent developments in Indian agriculture have led to most of the increases in agricultural production coming from commercial and "capitalist" agriculture on holdings ranging from ten to fifty acres, and not on the peasant smallholdings of five acres or less. This, he states, is because these larger commercialized farms have benefited most from the governments attempts to assist agriculture directly. The government has consciously endeavored to provide essential capital goods and other inputs for the commercial farmers.

Secondly, the government of a developing country must make a policy choice between present consumption and future economic growth. Stated briefly, the choice is between greater economic equality and faster economic growth. By policies promoting use of more labor-intensive techniques a government can create a larger volume of employment and, therefore, a higher level of present consumption and greater economic equality. With capital-intensive techniques a greater net output, or surplus above the wage bill, is yielded and is

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[64]Myint, op. cit., pp. 134-42.

available for additional investment. Thus a lower volume of present employment and consumption can provide a higher rate of economic growth, and a higher potential level of employment and consumption in the future. But there would be a more unequal present distribution of income than with more labor-intensive techniques.

The promotion of subsistence farming represents the most labor-intensive way of expanding agricultural production. However, commercial mechanized agriculture is likely to produce a larger marketable surplus because it may be more efficient, it must support fewer workers, and thus can create more capital for current investment and growth.

The point to be made from Myint's discussions is that the agricultural mission program directors should be aware of the objectives of the governments of Latin America in relation to agricultural development and endeavor to assist that type of development in their areas which stands the best change of fitting into the government's programs and of receiving the most government assistance.

C. Agricultural Mission Programs Contributions to Agricultural Development; Relating Contributions to Agricultural Development Theories

1. Contributions to Development

Any evaluation of agricultural mission programs' contributions to agricultural development must keep in mind the fact that development, in the normal sense of the word with emphasis exclusively on the economic aspects of the process, is not the primary motivation for these programs. Their primary concerns are the elimination of hunger and suffering (as described in the second section), and their efforts are usually directed toward individuals and the solving of problems, such as increasing production, on an individual basis. An agricultural sector will develop, however, as individual farmers in that sector collectively increase their income levels and the amount of marketable surplus (above subsistence) which they produce (assuming the necessary institutions for mobilizing the surplus exist). The agricultural development can be considered a necessary consequent of a successful agricultural mission program.

One way to determine program contributions to development would be to measure the extent of the contributions which they made to the increases in production and income levels in their areas which were discussed in Section 8 on pages 67-68. However, just as no official, accurate measure of these

changes was available, so any precise measure of agricultural mission programs' contributions to these increases is non-existant. A few respondents did describe some specific situations in which their program contributed largely to the ultimate increase in production and income. Some of the more outstanding of these contributions were the following:

(1) A mission program was largely responsible for introducing poultry into its area, and the number of quality broilers marketed per month in Quito had increased from none to 2,000 in five years' time.

(2) One was responsible for introducing a new variety of sugar cane which grows faster and produces more; another introduced a new peanut variety which increased production.

(3) Considerable savannah land in one area was converted from grazing to crop land after the mission farm demonstrated the possibility for doing this.

(4) Aid was given in building an auto road from the mission farm to the local village, and the road literally opened the village to outside markets and outside consumers' goods.

(5) Livestock agriculture was introduced, and a market for the beef was provided by one program among nomadic Indians;

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another made appreciable contributions in developing purebred dairy cattle and high quality poultry; and a third helped increase both vegetable and egg production until local producers could nearly meet the demand in the peak production period.

Several respondents said their programs had contributed little to any income and output changes, and a number of others indicated that their programs were too new to have made any such contributions as yet (eleven respondents gave no answer). Thus, about half of the directors of agricultural mission programs could give no specific examples of contributions their programs made directly to agricultural development, and elevent respondents indicated (as given in Section A, 2., pages 40-42) their education programs could at best only help to raise subsistence levels slightly.

There are other, less obvious ways of contributing to agricultural development, however. Whenever an innovation is successfully introduced into an area, and whenever the farmers learn that they can bring about increases in production and personal welfare through their own efforts, major development contributions are made, even though no large scale changes in production and income are immediately forthcoming.

Agricultural mission programs have been instrumental in introducing a number of changes and innovations in their areas; some were accomplished with relative ease, others with considerable difficulty. A description of both types of changes made, and the reasons for the ease or difficulty with which they were introduced, is revealing in the significance it holds for continued agricultural mission program's contributions to development. They also illustrate one relationship between agricultural mission programs and agricultural development theory - the necessity for meeting some "preconditions for development" as outlined for Phase I in the Johnston-Mellor theory.

(a) Most difficult changes. Changes which the agricultural missionaries have found most difficult to introduce can be grouped into three distinct categories; attitudinal, economic, and technical. Attitudinal barriers to change, the largest category listed, were found to be due to (1) people preferring the old ways and notwanting to change when it would violate their cultural patterns -- this hindered such changes as new sanitation and personal hygiene practices, the use of commercial fertilizer and weed killers in some areas and rather radical changes from both subsistence to commercial and gathering to planting agriculture; (2) elementary suspicion,

fear, and independent nature -- this interfered greatly with organizing cooperative community programs; and (3) a lack of initiative and confidence in ability for self-help (because others had made decisions for them in the past).

Economic barriers to change included (1) farmers living on such a small margin that they would not risk the possibility of failure with new varieties or with fertilizer in areas of uncertain rainfall; and (2) the combination of new inputs being too costly and the farmers inability to see visible results from using them -- this affected introduction of fertilizers, improved animal nutrition, livestock vaccines, weed killers, and the use of the plow.

Technical problems included (1) the lack of specialized equipment for both feed processing and modern land management practices; and (2) difficulty in introducing contour farming, due to the slope twisting the neck of the oxen, and the availability of only short handled hoes which allowed hoeing with ease only by going uphill.

Thus, changes which were found to be most difficult to introduce encountered strong attitudinal resistance to change, some economic barriers when economic benefits were not clearly visible and clearly in excess of costs, and in some cases particular technical problems.

(b) Easiest changes. Perhaps the most conclusive finding of this study was the information obtained about those changes or innovations which were most easily introduced, and the reasons why the changes were so relatively easy to accomplish. The reasons can be broken down into four general categories: those with highly visible practical benefits; those built on existing level of knowledge; those economically feasible; and those built on existing "change" attitudes.

Visible practical benefits were listed most often as reasons for ease of introducing changes, and these were benefits which were easily demonstrated and which gave the farmers quick, and sometimes dramatic, returns through increased production. They often also met felt, or expressed, needs of the area farmers. Included in this category were the use of commercial fertilizers, better seed and plant varieties, improved grasses, chemical weed killers, improved poultry, cattle introduced in jungle areas, and the shared building of a new road.

Second in importance were those changes with economic advantages, somewhat related to the above category. However, in this category were included items which required small initial investment, those which exhibited obvious financial savings, and those for which credit was supplied.

Changes which built on the existing level of knowledge or technology included the introduction of livestock rather than crops in jungle areas because the Indians had some previous experience with raising animals, and improved poultry flocks because most farmers were already raising some chickens.

The final, rather obvious category, includes various changes which were made with relative ease because there was already a desire to know or a desire to change existing among the farmers.

2. Relationship of Contributions to Agricultural Development Theories

There appears to be two relationships to development theory which can be drawn from these examples of changes introduced, the first relating the agricultural mission programs to some of the theories discussed above, the second relating their experiences to development theories or strategies in general. It can be noted that those changes which were most difficult to introduce were often resisted because of the absence of those variables which were given by Johnston and Mellor as preconditions needing to be established in Phase I.

This is particularly true regarding attitudes necessary for technological advance, and is also evident in the lack of research information regarding the possibility and profitability of using certain new inputs, such as fertilizer.

Concerning the resistance to change due to various attitudinal factors, Niehoff, an applied antropologist, has written that "people who build such things (as bridges, roads, schools, markets or irrigation canals) do so because they are convinced they can, and have organizations that enable them to do so. From this point of view, therefore, the work of the developer in the peasant communities of the world is to build new attitudes and new organizations."[65] He further states that "development can very logically be considered an effort to create positive attitudes among well-organized people, rather than the mere transference of technical skills."[66] To the extent that agricultural mission programs deal with innovations requiring individual rather than group decisions, the emphasis on organizations can be overlooked, but the emphasis on attitude development seems to be very relevant

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[65]Arthur H. Niehoff (ed.), A Casebook of Social Change (Chicago: Aldine Publishing Co., 1966), p. 58.

[66]Ibid., p. 164.

for the preconditions phase of development, judging from the information given above.

Those instances in which labor saving, capital intensive innovations were difficult to introduce also lend support to the Johnston-Mellor hypothesis that these innovations should be introduced after agricultural production has risen and a labor intensive technology has been fully developed. Although land tenure systems were not mentioned specifically as obstacles to change, the recognition of only being able to help raise subsistence levels slightly implies the limitations inherent in small, fragmented, holdings. It appears that changes are more difficult to introduce in some areas because some of these preconditions have not been met.

The list of most serious needs of area farmers given on pages 71-72 also strongly supports the Schultz contention that new, non-traditional inputs or factors of production are needed in traditional agriculture before it can be transformed. The need for extensive education of the farmers in the use of these new inputs and in understanding the new technology embodied in them also supports Schultz's hypothesis that education, or investment in human factors, is also very essential if the transformation is going to take place.

The information on changes which were relatively easy to introduce seems to support the Johnston-Mellor hypothesis that labor intensive, capital saving innovations should be the ones introduced in Phase II because of unfavorable labor-capital cost relationships. The only area in which "mechanization" was listed as easy to introduce was one which faced high labor cost, a rather rare occurrence in Latin American agricultural areas served by agricultural mission programs.

In addition, the information presented regarding the four types of innovations introduced with relative ease led to the following hypotheses:[67]

Hypothesis: Other things being equal, those innovations which offer high perceived practical benefits will be accepted more readily than innovations not offering such perceived benefits.

Hypothesis: Other things being equal, those innovations which offer obvious financial savings and which represent a relatively small initial investment will be accepted more readily than innovations which do not.

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[67]Similar points are presented in Niehoff, op. cit., pp. 25-31, under the heading of "motivation". They were also expanded by Professor Neihoff in an applied anthropology seminar at Michigan State University, Spring, 1967.

Hypothesis: Other things being equal, those innovations which build upon the existing level of knowledge and skills (adaptive innovations) will be accepted more readily than innovations which do not build on these (additive or replacement innovations).[68]

Hypothesis: Other things being equal, those innovations which build upon existing positive attitudes toward change, and which meet a felt or expressed need of the recipient, will be more readily accepted than those which do not.

Although these four principles may be considered by some persons to be just good "common sense", too often change agents, including agricultural missionaries, try to introduce changes which they think are needed irrespective of the needs, abilities, and attitudes of the recipients.

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[68]Niehoff defines these innovation types as follows: adaptive - one which modifies existing beliefs or practices; additive - a new belief or practice which has no existing antecedants in the society; replacement - one which replaces an existing set of beliefs or practices.

SUMMARY, RECOMMENDATIONS, AND CONCLUSIONS

A. Summary of Agricultural Mission Programs in Latin America

This study has found there are forty-six Protestant agricultural mission programs in operation, or being organized, at the present time in thirteen countries of Latin America and the West Indies. These programs employ sixty-nine missionaries on either a full or part time basis, with approximately $2,700 budgeted per missionary in support of the programs.

Of the forty programs included in this study, half were established by missionaries on the field and area directors and one-third of them were established by mission boards. It was found that evangelical faith mission boards have not taken the initiative in establishing these programs, as all but one of those established by mission boards were established by the historic churches.

With the exception of the Methodist Church, Board of Missions and the United Presbyterian Church, no mission agencies have official policies referring specifically to agricultural mission programs. Several mission agencies have generally stated policies regarding the Christian's responsibility to minister to the whole man which can be interpreted to include such programs, but it appears that the majority

of them have not formulated any official policy concerning agricultural work even though at least one of their missionaries is actively engaged in it.

Very few agricultural mission programs in Latin America have clearly defined objectives set for them, and in those instances where objectives are formulated they tend to be of a broad, general, long term nature. This lack of establishment of program objectives may prevent adequate program evaluation, as the program's effects on local farmers, its acceptance by the local people, and its ability to pay for itself through production on the mission farm were given as the primary criteria of evaluation. Only three respondents indicated that their program's effectivness was measured in terms of its ability to reach established objectives. Most programs do undergo periodic evaluation, with a "farm committee" consisting of mission and national personal doing the evaluation of one-third of them.

Three related reasons were given as justification for involvement in agricultural mission work: as a witness to the love of Christ to all men, ministering to their needs; as an aid in developing an indigenous church within the context of overall community development; and as a means of reaching rural people in an evangelization effort. The most

important purposes given for doing this type of work include helping people to help themselves and improve their economic condition through better farming methods; as a means of bringing men to Christ; and to demonstrate Christ's love and Christian concern for others.

The size of the area and the percent of farmers in that area served by these programs vary a great deal. In some instances one isolated Indian tribe or one small valley is served, with the program attempting to reach all farmers in the area. Other programs are designed to range over extensive areas and to serve only a small percentage of farmers in them. With a few exceptions in colonization areas, the farmers served are either owner operators or tenants on holdings of under ten acres. Their average annual family incomes seldom exceed $300.00 (U.S.). The colonization areas and isolated tribal areas are characterized by a shortage of agricultural labor, whereas a number of the areas of small holdings have surplus agricultural labor. One evidence of this is considerable out-migration from the areas.

Nine respondents indicated that the size of farm operations in their areas had decreased slightly over the past decade due to population pressure. Twelve indicated the size of operations had increased slightly, apparently as a result of

outmigration, resettlement, and land distribution through agrarian reform. Government land reform institutions were serving farmers in only three areas, however, and the remainder of the purchases were from the distribution of mission properties.

In addition to these three land ownership institutions, there were long term credit institutions in five areas, short term credit institutions in ten areas, and cooperatives were functioning in only eight areas. This was the extent of incentive and service institutions in the areas served. There were a number of research organizations working in or near two-thirds of the areas served, but the shortage of research results to be applied in most areas would indicate they are not generally developing new inputs to be used by small farm operators.

A large majority of the agricultural mission program directors believe there is a large potential for increasing agricultural output in their areas. They also noted that demand for local products has been increasing in recent years. This observed increase in demand may do much to provide market incentives for local farmers to increase production, which would in turn make the agricultural missionary's task of introducing innovations somewhat easier.

The most important needs of area farmers, those things which keep them from attaining the production potentials, include the supply of a large number of non-traditional, labor-intensive inputs and credit for financing their purchase. Also ranked high on the need list, as seen by program directors, were more education and improved communication and marketing channels.

Those agricultural mission program directors who reported having made changes in program emphasis in recent years said they were changing from emphasis on demonstration and a doing "for" people approach to one of extension-education in which farmers are taught to help themselves. Some were learning to rely on more progressive local farmers to relay their experience and knowledge to others. However, thirteen of twenty-nine mission farms were still used as demonstration farms. Fourteen respondents said they were providing demonstration plots on farmer's fields. Combined with these changes was a shift toward community development programs rather than just a project by project approach.

The primary objectives of the agricultural education provided by agricultural mission programs were to use it as a means of gaining the confidence and respect of the people

and to train them to remain in their rural communities and help others. It is also often used to lend a practical dimension to the total missionary program.

Through their educational efforts the programs also contribute to increases in personal income, and in several communities they have been largely instrumental in initiating changes which have made a major impact on the local economy. Innovations which have been easiest to introduce have generally possessed one of these characteristics: they exhibit high perceived practical benefits for local farmers; they combine obvious financial savings with low initial cost; they build upon existing skills and knowledge; or they build upon an existing positive attitude toward change. Changes which were most difficult to introduce encountered strong attitudinal resistances, economic barriers associated with risk and uncertainty, and technical difficulties.

The ability of agricultural mission programs to introduce most easily those innovations which demonstrated their economic benefit supports the program directors' statement that area farmers are quite responsive to economic incentives. Area farmers are divided equally in their abilities to see and accept the possibility for change and to perceive the possibility for personal gain from technological improvement.

Farmers in about forty percent of the areas see these possibilities "only slightly", and in from forty to forty-five percent of the areas they see them "good".

Most program directors believe that area farmers do not use their resources efficiently, and a number of them gave specific examples of how they helped farmers to use them more efficiently. That is, they enabled farmers to get increased production from the land and other resources at their disposal, often by combining them with new resources.

Agricultural mission programs attempt to coordinate their efforts with most other agencies with interest in their areas, such as government agriculturalists and the local national church. The greatest needs of these programs, in the opinion of program directors, are for more personnel trained in agricultural sciences and for more sources of information on agriculture in their areas. They now depend primarily on local sources of information -- government research and publications and successful area farmers -- but find these sources to be inadequate.

B. Summary of Relationship of Agricultural Mission Programs and Agricultural Development Theory

The concept of a two-sector model of economic development was presented to help explain briefly the role that agriculture is expected to play in the economic development of a country. In addition to an initial "agricultural surplus" to finance original investment, this sector is expected to contribute additional products for non-farm consumption, products for export, surplus labor for non-agricultural employment, and an increasing market for industrial products. In the development process agricultural policy workers will usually be most concerned with expanding the supply of food to the urban sector.

Economic growth stage theories have been highly criticized for their lack of clarity in specifying the characteristics of each stage and for their lack of ability to generate clear policy prescriptions. They are often considered to be no more than historical generalizations about the way some developed countries became developed, generalizations having little relevance for today's developing countries.

In spite of these criticisms, growth stage theories have proven to be a useful analytical device for conceptualizing the process of transforming a static traditional agricultural sector into a dynamic, modern one.

Two theories of agricultural development utilizing some of the stage theory concepts developed by Rostow, those of Schultz and of Johnston and Mellor, were summarized. Both theories were found to emphasize the need for introducing non-traditional factors of production into traditional or transitional agricultural sectors. The Johnston-Mellor theory then concentrated on the need for certain institutional factors which must be provided from outside the agricultural sector before agricultural production can be increased substantially. The Schultz theory concentrated on the need for investment in the human factor via extension and education programs to enable people to utilize the new inputs efficiently. These programs must also come from outside the agricultural sector.

Several selected hypotheses from these two agricultural development theories were examined in relation to the responses about area farmers given by agricultural mission program directors. The respondents agreed with the Schultz hypothesis that traditional agriculturalists (the farmers in their areas) are very responsive to economic incentives. They tended to disagree with his hypothesis that these farmers use their traditional resources efficiently. The respondents also

disagreed with the hypothesis that labor is used efficiently, that is, that there is no disguised unemployment in traditional agriculture. The differences here seems to depend partly on the definition of traditional agriculture as well as on the meaning of "disguised unemployment". Schultz's restrictions on these last two points probably did not hold in the areas under consideration.

The responses of program directors on questions containing some Johnston-Mellor hypotheses brought out the inadequacy of these criteria as determinants of phases of agricultural development. It was pointed out that characteristics which are descriptive of individual farmers do not adequately describe all farmers at a particular point in the development process. The diffusion of innovations process was suggested as perhaps a better approach to understanding the process of introducing change because of its emphasis upon individual characteristics of leaders in the innovation process.

The Johnston-Mellor concept of introducing new labor-intensive, capital-saving techniques only after certain preconditions have been met also appeared to conflict with respondents' experiences in introducing non-traditional factors. The differences here again appeared to depend on individual characteristics. Some farmers may move out of the preconditions

phase before others in the same area. The characteristics of the factor being introduced also appeared to a major factor in determining the readiness with which it was adopted.

It was stated that a knowledge of agricultural development theory would enable agricultural mission program directors to formulate and develop programs which would contribute more to agricultural development than their current programs generally do.

A number of specific agricultural mission program contributions to increases in production and income were listed. On the basis of respondents' explanations about changes which were easiest, and those which were most difficult to introduce, four hypotheses were presented regarding types of innovations that the programs should concentrate on introducing. It was hypothesized that innovations which show the farmers definite practical benefits, offer a definite economic saving, built on existing levels of knowledge and skills, or built on existing positive attitudes toward change, other things being equal, are more likely to be adopted than those not possessing these characteristics.

C. Recommendations

1. Recommendations Concerning Agricultural Mission Program Organization

(a) Official Policy. Mission boards whose personnel are now engaged in agricultural mission programs should formulate a definite, official policy regarding this type of work. Such a policy would (1) cause the mission boards to examine their expenditures and overall position regarding agricultural and other social concern programs; (2) enable agricultural mission personnel to work more effectively knowing they had the backing of the mission organization; and (3) insure the nationals of the mission's continued interest in their material, as well as spiritual, welfare.

In addition, those mission boards with personnel working in low income, subsistence agriculture areas, but who are not engaged in agricultural mission programs, should seriously consider the possibility of organizing agricultural programs (assuming the necessary services are not being provided already). This is particularly relevant in view of these recent statements contained in the "Wheaton Declaration" and subscribed to by delegates from most evangelical mission organizations:

> Today....evangelicals are increasingly convinced that they must involve themselves in the great social problems men are facing. They are concerned for the needs of whole man, because of their Lord's example, His constraining love, their identity with the human race, and the challenge of their evangelical heritage.
>
> ....our Lord, by precept and example, stressed the importance of ministering to the physical and social, as well as spiritual needs of men (Matt. 5-9).[69]

(b) Program Objectives. One noticeable weakness of agricultural mission programs brought out by this study is the failure of most programs to develop specific, realistic, short-run and long-run objectives. By establishing such objectives, program directors will be able to evaluate their program's performance by specific criteria in terms of how well the objectives are attained.

Without such criteria for judging a program's effectiveness and measuring its contributions, it may drift indefinitely with very little impact in its community and it may be unresponsive to local needs. The objectives should be flexible enough to meet changing needs in the community, and

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[69]The Congress of the Church's Worldwide Mission, "The Wheaton Declaration", Evangelical Mission Quarterly, Vol. 2, No. 4 (Summer, 1966), pp. 242-243.

to terminate the program whenever local agencies begin supplying the necessary services. Program evaluation should be done by a "farm committee" as described on page 37 (see also recommendation f, page 133) to provide more objectivity of evaluation.

Some outside help in program planning will usually be necessary as mission personnel cannot usually find the time, and often do not have the necessary experience, for such planning. Probably the only organization presently able to provide this service is Agricultural Missions, Inc.[70]

(c) Establish Limits. Following from establishing specific program objectives, these programs should attempt to establish realistic limits to the area which will be served by them. Concentrating limited resources in one particular locality will allow the program to demonstrate greater results than if the services are spread over a wide geographic area.

(d) Mission Farms. Agricultural mission programs should divest themselves of all mission farm property not used for

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[70]Agricultural Missions, Inc., 475 Riverside Dr., New York, N.Y. 10027.

mission headquarters or other non-agricultural purposes. There are a number of reasons for this. If the farm is primarily used as a "demonstration farm", evidence from demonstration and extension experience has shown such farms to be of little value in convincing local farmers to make changes (see recommendation 'e', p.132 on this point). If the farm is used primarily to support the missionary effort, the agricultural missionary uses his time uneconomically in managing the farm and not serving others in the community, and Maddox observed that most such operations were not profitable ventures (see above, p.16).

Those mission farms which range in size from 500 to 5,000 acres in areas where the average size of farm operation is from two to ten acres are presenting a very unfavorable image to local farmers, and are identifying themselves with the prevalent, oppressive, latifundia system. They should follow the example of the Peniel Hall Society in pioneering land reform in Bolivia. For those who do not follow this example, there is the example of the agricultural mission program of the Oregon Yearly Meeting (of Friends) Board of Missions, also in Bolivia. This program was discontinued because the land was simply confiscated by the Indians, even

though the mission was cooperating fully with Government land reform programs.[71]

The only rather obvious exceptions to this recommendation are those mission farms which are producing food for mission personnel in areas where no adequate local food supply exists, as in several jungle areas. But whenever local supplies are developed, they should be utilized by the mission to help stimulate local demand.

(e) Demonstration Methods. In place of demonstration farms the programs should concentrate on demonstration of improved varieties and practices on small demonstration plots located on the farmer's own fields as several are now doing. Arensberg and Niehoff have said:

> A convincing demonstration can only take place in the village or environment where it is to be applied. State agricultural farms or any other kind of controlled environment may convince the specialists, but the villagers must see the demonstration on their own territory. They must see practical changes where no outside justification is called upon. They may believe the soil or other factors which they cannot duplicate are responsible for good results at the agricultural station; but if the demonstration succeeds on their neighbor's field, a field they know, grown by a man they know, the evidence will be much more convincing.[72]

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[71]Letter from Charles S. Ball, President, Oregon Yearly Meeting Board of Missions, Dec. 1, 1966.

[72]Conrad M. Arensberg and Arthur H. Niehoff, Introducing Social Change (Chicago: Aldine Publishing Co., 1964), pp. 86-87.

Dr. Richard Milk has used this approach in Mexico in cooperation with the government extension service. He developed a series of high altitude farm trials with grain sorghums which clearly revealed three or four extremely promising hybrids for the region.

For those farmers who cannot afford the risk of losing even a part of the one-fourth or one-half acre of crop planted in the demonstration plot, the mission programs should provide a "demonstration plot insurance" plan which would guarantee the farmer a yield or income on the demonstration plot equal to that received on similar plots in the same year using the old methods. A small fund of a few thousand dollars would be sufficient to finance such a program (see recommendation 'h', p.135 on financing methods).

(f) Use of Nationals. Much more use should be made of trained national workers by agricultural mission programs. A program director could train several persons to act as extension personnel and thus broadly expand his own outreach. The United Presbyterian work in Guatemala is now doing this. One new approach which combines United States professional personnel with national counterparts in a promising team effort is the experimental group in the Eastern Bolivian Lowlands, sponsored by the Methodist Church, Board of Missions and the

Bolivia Annual Conference. The team consists of six short-term missionaries from the States with six Bolivian youth counterparts selected by the national church. The North Americans are trained in agriculture, nursing, child guidance, home economics, and literacy. The agricultural missionary serves as the group coordinator.

Nationals, especially local farmers and local churchmen must also be included more on governing boards or committees for the agricultural mission programs to help plan and control them. The ultimate aim should be for local control and support of the programs to promote self-confidence and self-help and to eliminate paternalism on the part of mission personnel. Local support should especially be used for national personnel working in the programs.

(g) Trained Personnel. To overcome the major need for personnel skilled and trained in agricultural sciences, the programs should actively recruit graduates of United States agricultural colleges as either full time or short term missionaries. The response received by the Peace Corps gives evidence of a desire to do this type of service. The possibility of establishing an alternative service program for conscientious objectors with the required skills should also

be explored -- the Voluntary Service Unit of Atlacomulco, Mexico, under the Mennonite Central Committee, is one example of such a program. The recruitment of such personnel could be done through regular mission board recruitment channels, or by a service agency of the type discussed below.

(h) Service Agency. An agency specifically designed to provide direct services for agricultural mission programs should be utilized to provide certain inputs for them and to coordinate the work of the various programs. Among the direct services the agency should provide are: purchase and transport items which must be obtained in the United States, such as improved livestock and poultry and certain implements; recruit personnel trained in agricultural sciences; provide information, including research results of interest for particular areas and general economic information concerning such items as market potentials and urban employment opportunities, taken from United States and international research publications.

Another very important service, in terms of the needs of area farmers given in Section III, which this service agency should provide is financing for low rate loans to the farmers. The funds for such a project could be provided by a program of the following type. Whereas most mission organizations

depend on contributions from churches or individuals to support mission programs, these contributions are used to meet current expenses and little funds are accumulated. However, most individuals who contribute financially to church and mission programs do have some money on deposit in savings accounts. A program could be established whereby these individuals could deposit some of these savings with the service agency and the interest earnings foregone could be credited to them as their contribution to the program. The service agency could then make the funds available, through a properly administered program, to the agricultural mission programs for short term, low interest loans to area farmers. If sufficient funds were deposited in this way, the service agency could invest them itself in securities and use only the interest earnings for the loan fund (only $500,000 at 5% would provide $25,000 annually - a considerable fund for loans to farmers with average annual family incomes of $300.00). This program could also finance the "demonstration insurance" discussed in recommendation 'e', p. 132.

One agency which has recently been organized to provide various services of the types mentioned above is Farms, Inc.[73]

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[73]Farms, Incorporated, P.O. Box 540, Westwood, New Jersey 07675.

(i) Communication Channels. Two media of communications which are not now, but which should be, utilized by agricultural mission programs are the printed word and radio. Every possible effort should be made to provide simple, illustrated pamphlets -- particularly in programs that include adult literacy classes in their work -- explaining new varieties, new tillage procedures, etc., in native languages. One agricultural missionary, David Jarvis, is now beginning such a project among the Tzeltal tribe in Mexico. Booklets on terracing, corn, beans, destruction of the forests, a mud stove, manures and fertilizer, and garden produce are being prepared to instruct them in the use of their own basic tools. Another project in Mexico, by Dr. Richard Milk, has recently worked on reprinting and distributing simple literature on topics related to farm life and rural health. As in this example, a thorough check of existing materials of this type may provide an ample supply of them for distribution by the programs.

There appears to be a large potential for using the existing mission radio stations in Latin America for conducting agricultural training courses of the "radio farm forum" type

which are being developed in India,[74] and the apparent success of the Catholic Church's "radio Sutatenza" project in Colombia may provide some additional insight for utilization of this media.[75]

(j) New Approaches. Additional attention must be given to the development of new approaches to providing the agricultural services needed by area farmers. One such approach is the "team" organization presented in recommendation 'f' which emphasizes a community development approach and the training of national counterparts.

Another new approach is the caravan method. The Latin America Mission has pioneered in organizing "good will caravans" in conjunction with Evangelism in Depth Programs in Costa Rica and other Latin American countries, and similar "massive impact caravans" in Costa Rica were discussed by Moomaw.[76] These caravans also consist of a team of skilled workers including doctors, dentists, agriculturalists, nurses, home economists, and literacy teachers, most of whom are on brief

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[74]J. C. Mathur and Paul Neurath, An Indian Experiment in Farm Radio Forums (Paris: UNESCO, 1959).

[75]A. Eugene Havens, Education in Rural Colombia: An Investment in Human Resources (Madison, Wisconsin: The Land Tenure Center, Feb., 1965), pp. 14-16.

[76]Moomaw, Crusade, pp. 194-195.

voluntary assignments from the States. They are designed to stimulate activity and enthusiasm and to generate an atmosphere of progress.

A new approach which engages lay personnel in the States in a cooperative venture with nationals is the Mennonite Economic Development Associates.[77] This corporation of Christian businessmen provides investment funds and management aid in organizing and operating small manufacturing enterprises in Latin America. Such manufacturing businesses are badly needed in many areas distant from metropolitan centers, and offer many opportunities in agricultural-related fields.

The United Presbyterian work in Guatemala has begun a somewhat similar project which is attempting to develop markets in the United States for locally produced "handicrafts", including finely carved doors.

2. Recommendations Relating Agricultural Mission Programs Specifically to Agricultural Development

(a) Meeting Needs. Using the framework of agricultural development theory, and with the information available,

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[77]Moomaw, op. cit., pp. 183-184.

agricultural mission programs should:

(1) Determine those needs of area farmers which, when provided for, will contribute most to agricultural development. The importance of these needs will be determined by such things as the level of development in the area, the labor supply situation, and the need for incentive or service institutions.

(2) Determine which of these needs can be provided by the agricultural mission program as it is now organized, or which could be provided if it were reorganized, such as the provision of credit and demonstration plots as outlined in recommendations 'h' and 'e' above. As a corollary to this, they should also determine which needs can only be provided for by the government (e.g. major road projects, hydroelectric facilities), and in the provision of which needs the programs can cooperate with the government (e.g., test plots in the area, and extension services).

There are two needs, in particular, which agricultural mission programs should not attempt to provide. The first is the supply through gifts of such new inputs as fertilizer or insecticides. The area farmers must

be able to show enough increase in income to pay for the new inputs from the start if they are to adopt them permanently. In some situations an initial subsidy for adopting new inputs is appropriate, but only if part of a government development program. The mission programs do not have the financial resources for such subsidies. The second is the need for research in the local area; agricultural mission programs just do not have the resources or the personnel available to conduct anything beyond the very simplest type of experimentation with different varieties. The Committee for Economic Development has even suggested that, in Central America, most government research organizations are too small, as experience has shown there are major gains to be had from conducting agricultural research in a large organization. It went on to recommend that one large research center be established for all Central America.[78]

(3) Where several highly complementary needs exist, they should not attempt to provide for one if the others

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[78]CED, Economic Development, p. 44.

cannot be provided for, as this will lead to failure and will tend to develop a "project negativism" among the recipients. In this same vein, they should not attempt to organize an extension program unless there are some definitely profitable innovations to be introduced.

(b) Introducing Innovations. Agricultural mission programs should concentrate on introducing those types of innovations which: (1) offer high perceived practical benefits; (2) offer obvious financial savings; (3) build upon the existing level of knowledge and skills; and (4) build upon existing positive attitudes toward change and which meet a felt or expressed need of the recipient (see pages 115-16 for the development of these points).

(c) Recognize Limitations. The large number of agricultural mission program directors who indicated their programs could only hope to raise the subsistence level slightly must recognize that such programs can never make meaningful contributions to agricultural development, and will do little toward meeting the necessary increases in food supply required to keep pace with the Latin American population increase. A few programs have shifted their emphasis from aiding

subsistence farmers to raise their subsistence levels slightly to helping certain ones to become commercial farmers, in recognition of this. Helping local subsistence farmers to develop commercial agriculture should become a major focus of project efforts.

(d) Recognize Development Trends. Program directors must recognize the relationship between urbanization and economic development. Even though Latin America's urbanization pattern is not accompanied by as high a rate of industrialization as was found in most of the presently industrialized countries,[79] program directors must recognize that some persons from "overcrowded" rural areas will migrate to large urban areas even though absolute numbers of persons in rural areas will still rise for some time.[80] They should seriously consider providing either vocational training for urban employment for those planning to migrate, or help in

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[79] Slawinski, "Structural Change", op. cit., p. 170; W. Stanley Rycroft and Myrtle M. Clemmer, A Study of Urbanization in Latin America (New York: The United Presbyterian Church in the U.S.A., 1963), pp. 5-9.

[80] Slawinski; op. cit., Folke Dovring, "The Share of Agriculture in a Growing Population", in Eicher and Witt, op. cit., pp. 78-98.

establishing small manufacturing industries in smaller cities in their areas (e.g., the Presbyterian work in Guatemala mentioned in part 'j' above) to provide local non-farm employment.

D. Areas for Additional Study

Several topics for additional study concerning agricultural mission programs are readily suggested from the findings of this study. These topics can be roughly divided into two groups, the first group concerning organization and development of agricultural mission programs, and the second dealing with these programs and their contributions to agricultural development. The first group includes:

(1) Financial Analysis. There is a need for careful, detailed studies of the financial structure of agricultural mission programs to determine the extent and nature of their investments in land and other assets and the rate of return on these investments. This is particuarly true for the investment made in the agricultural missionary -- how he utilizes his time. This could include an analysis of projects and innovations introduced to determine those with the largest "returns"

or benefits. If agricultural mission programs are to be effective in teaching modern management methods, the most efficient management methods for their own operations should be determined and applied.

(2) Case Studies. There is a need for case studies in depth of particular agricultural mission programs in Latin America, revealing their failures as well as their successes in both general program administration and technical problems in development projects. Those program directors now groping for successful projects, and for ways to implement them, could benefit greatly from such studies.

(3) Program Planning. A complete description of the process of developing a successful agricultural mission program would be very useful for future planning and for appraisal of existing programs. This should include the methods for conducting the necessary area surveys; estimates of costs of establishing and operating a program and examples of how it can be financed; suggestions regarding the personnel and materials necessary for an adequate program; and an

outline of the optimum type and amount of training that the personnel, both expatriate and national, should have. This topic leads directly to the next.

(4) Training Program. The development of at least a minimum training program for agricultural missionaries, one that prospective missionaries could complete prior to their first term of duty and persons now engaged in the work could complete while on a year's leave from the field. A number of agricultural missionaries are now receiving training in technical agriculture while on leave, indicating the need for such a training program.

(5) Service Agency. A determination of all the various needs of agricultural mission programs which could be met by one coordinated service agency.

Two topics for additional study dealing with agricultural mission programs' contributions to agricultural development are:

(1) Area Studies. Detailed area studies are needed to determine the area's needs and to determine where

new agricultural mission programs are most needed, in view of the limited resources available for establishing these programs. Areas now served by these programs also need to be studied to determine when the mission programs are no longer needed because development has proceeded beyond their ability to contribute further, or because the government is providing the necessary programs.

(2) Contributions to Development. A complete study is needed to determine the ways agricultural mission programs can best contribute to the agricultural development of their areas, and how they can most effectively coordinate their work with government development plans and projects. This should include the potential contributions to be made through vocational training for non-agricultural employment.

E. Conclusions

Several conclusions can be reached from the finding of this descriptive study of Protestant agricultural mission programs in Latin America.

These programs are directed by highly motivated persons who are deeply concerned about the poor living conditions they find in most rural areas of Latin America. All of these persons are over-worked in their efforts to meet the many physical, spiritual, and social needs which engulf them. Some appear to be nearly overwhelmed by the challenges of poverty and misery.

Although program directors have praiseworthy purposes for engaging in agricultural mission work, their failure to set specific program objectives and to limit the outreach of their programs may severely limit their effectiveness. They must realize that most programs as presently organized and financed can do little more than scratch the surface.

Specific agricultural mission programs have made a significant impact in the economy of a few small communities and will undoubtedly continue to do so. But if the contributions of these programs have been worthwhile, and the conclusion here is that they have been, then their efforts must be multiplied many times over before agricultural mission programs can make a significant impact on overall economic development. With only forty-six programs in thirteen countries, half the countries and island groups of Latin

America are left with no agricultural mission programs at the present time.

Those programs which now make little impact upon the areas they serve could do much more by changing their approaches. Large mission farm holdings should be disposed of and emphases should be placed on demonstration plots and extension-education programs. Programs can also expand their contributions by employing many more national workers, and by securing adequate financial support for their projects.

By becoming informed on issues of government agricultural policy and in agricultural development theories which provide the rationale for these policies, agricultural mission program directors can make their contributions be felt in the right directions. Without such knowledge they may, by encouraging the continuance or even expansion of subsistence agriculture, prolong the poverty and misery in the long run. This point was recently emphasized by Pearce when he said that given a continuation of present tendencies in Latin America, the traditional sector may not develop at all. As commercial and capitalist agriculture expands its output, there may be large groupings of smallholders living for

generations at subsistence levels.[81] Agricultural mission programs can help some of these people to develop commercial agriculture or guide them into non-farm employment if they choose to do so.

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[81]Andrew Pearse, "Agrarian Change Trends in Latin America", Latin American Research Review, Vol. 1, No. 3 (Summer, 1966), pp. 67-68.

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APPENDIX

APPENDIX I

QUESTIONNAIRE
PROTESTANT AGRICULTURAL MISSIONS IN LATIN AMERICA

I. STATEMENT OF PROTESTANT AGRICULTURAL MISSIONS' PURPOSES AND OBJECTIVES

A. How long has this particular agricultural program been established, and by whom was it established (mission directors, missionary on the field, etc.)?

B. What is the official, written policy of your mission board regarding agricultural missions? By whom was it formulated (mission directors, missionary on the field, etc.)?

C. How do you justify your mission's involvement in an agricultural program?

D. What standards are used for judging the effectiveness of your agricultural work, who does the evaluating, and what provisions for changes are included?

E. The following statements express some of the purposes people give for doing agricultural mission work. Please rank the five expressions with which you most agree (1-highest agreement with; 2-next highest agreement with, etc.).

1.___To prepare native rural pastors
2.___To teach farmers better methods of farming
3.___To prepare the way for the evangelistic message
4.___To serve the church
5.___To teach the dignity of labor as taught in the New Testament
6.___To bring followers to Christ
7.___To help people to help themselves
8.___To introduce Western agriculture
9.___To prepare rural school teachers
10.___To develop a scientific attitude among rural people
11.___To aid the overall economic development of the country
12.___Other

F. The above list may not include your aims in agricultural mission work. Therefore, would you please give a brief statement as to what your most important aims are?

G. Have the specific objectives of your agricultural mission program been clearly defined? ____ If yes, what are they?

H. What changes have occurred in the main thrust of your agricultural program, what shifts in emphasis have been made, in the past fifteen years? Why?

I. Regarding the perspective of your agricultural programs
   1. Are your programs now supported through:
      a.____financial and material gifts from your mission agency
      b.____support from local national churches
      c.____support from local government
      d.____other
   2. The agricultural mission works are directed and controlled by:
      a.____complete direction and control from your mission agency
      b.____complete direction and control from local national church
      c.____direction and control shared by local national church and mission agency
      d.____other (explain below)
   3. Have you made provisions for:
      a.____complete future takeover of the agricultural program by the local national church in (1)___five years; (2)____ten years
      b.____partial future takeover of the agricultural program by the local national church
      c.____training national leaders to assume responsibility for direction of the program
      d.____terminating your agricultural program should it no longer be needed
   4. Do you now coordinate your agricultural work with:
      a.____the overall program of your mission board
      b.____the work of local national churches
      c.____local government extension personnel
      d.____local government development programs
      e.____local government experiment stations and their results
      f.____experiment stations in the U.S. and their results
      g.____agricultural programs of other mission boards

Comment on above:

II. STATISTICAL AND DESCRIPTIVE PICTURE OF THE AGRICULTURAL MISSION PROGRAM

A. For your mission board in the most recent fiscal year:
   1. the gross operating budget was $_____.
   2. the gross operating budget for agricultural mission activities was $_____.
   3. the total number of missionaries employed was_____.
   4. the total number of missionaries employed in agricultural activities, in man-year equivalents, was____.
   5. the percentage breakdown of the sources of your agricultural mission financial support was:
      (a) grant from mission board sponsoring agricultural mission____
      (b) government aid from within the country ____
      (c) contributions from local national church ____
      (d) contributions from your personal funds ____
      (e) from sale of farm or school products ____
      (f) other sources ____

B. What is the approximate size of the area serviced by your agricultural program? _____

C. What is the approximate number of farms in this area? _____

D. What have been the most difficult changes, innovations, etc., for you to introduce? Why?

E. Please check the appropriate items in this table:

Items Being Used		Use and Introduction			Availability			Sources		
		% of farmers in your area with	occuring before your program	introduced or provided by you	readily available	available with difficulty	not available	local source	government sources	gifts or supplies from mission and/or abroad
commercial fertilizer										
Improved	seed or varieties									
	hand tools									
	storage & handling									
	cattle &/or poultry									
	tillage and crop rotation practices									
	animal drawn implements									
Insecticides and/ or pesticides										
garden-tractor-size implements										
large tractors and implements										
veterinary medicines										
irrigation equip.										
short term credit at reduced rate										
long term credit at reduced rate										
cooperative marketing facilities										
land purchase thru agrarian reform										
agr. extension act.										
demonstration plots on farmers' fields										
demonstration farms										
field trials on farmers' fields										

F. What percent of the farmers in your area do you service?

G. What changes, innovations, etc., have been easiest for you to introduce, and which have been the most successful? Why?

H. What are your most important sources of information about improved farming practices where you are working? (rank in order of importance the five sources which you consider most important: 1-most important, 2-second most important, etc.):

(a)___other missionaries
(b)___local farmers
(c)___local experiments
(d)___local government publications
(e)___local non-government publications
(f)___mission demonstration farm
(g)___United Nations
(h)___Alliance for Progress
(i)___non-profit foundations
(j)___U.S. Govt. and University publications
(k)___other

I. Do you think you have adequate and reliable sources of information?____ If not, how could they be improved?

J. What percentage of the persons trained by you move to urban areas to use their newly acquired skills for earning higher incomes there?____Do you view this as "bad", as a failure of your agricultural program?

K. Agricultural Education: please check the following statements which best describe the primary objectives, contents, etc., of your education program.

1.___used as a supplement, to lend a practical dimension, to the total missionary education program.
2.___used as a means to gain the confidence and respect of the people so they will be more receptive to the Gospel message.
3.___used to train local pastors and church leaders to be self-supporting and to give agricultural advice to their neighbors.
4.___used to train people to return to their rural communities and use their newly acquired skills and knowledge for the benefit of the whole community.
5.___used as a means of introducing social and institutional change.

6.___used to provide food and a source of income for students and staff.
7.___includes an adult literacy program.
8.___includes birth control education.
9.___emphasis is upon training men to become "commercial farmers".
10.___at best can only help to raise farmers' subsistence level slightly.
11.___emphasis is placed on introducing new labor-intensive, capital-saving techniques.
12.___emphasis is placed on introducing new labor-saving, capital intensive techniques.
13.___only undertake agricultural education in those locations where government does not provide it.
14.___other

L. Is your agricultural education program a part of an overall community development program?____ If it is, what other community development programs are included?

M. How many years of training in agriculture and related fields have you had? ____ How much training in economics have you had?____

N. Is there anything to be gained from closer cooperation and coordination between yours and other agricultural mission projects?

O. What are the most serious needs of your agricultural mission program?

P. What, in your view, is the future of agricultural missions in Latin America, and what changes in program or emphasis in rural work do you think need to be made in view of present world conditions or past experience?

Q. What are the employment opportunities in agricultural missions work (1) in your mission, (2) in Latin America, for Christian men with M.S. or Ph.D. degrees in agricultural fields?

R. Please list the total number of:
1. expatriate personnel employed by your project____.
2. national personnel employed by your project ____.
3. number of acres in your project____.

III. THE AGRICULTURAL SITUATION IN THE AREA OF THE AGRICULTURAL MISSION PROGRAM

A. What is the average size of agricultural holdings (on ownership basis) in the area serviced by your agricultural mission? ____

B. What is the average size of farm operation (land operated by each farming family)?____

C. Over the past 10 to 15 years, the amount of land operated per farming family in this area has been (1) increasing___; (2) decreasing____; (3) remaining stable____.

D. What is the structure of the land ownership pattern in your area, i.e., mostly owner-operators, mostly tenants, etc.?

E. The average family income level in your area is: ____(in national currency) X ____(exchange rate) = $____(U.S.)

F. In your area, over the last five year period:
(1) agricultural output has increased by ____percent;
(2) rural population has increased by ____percent;
(3) the average income level has (increased, decreased) by ____percent.

G. In your judgment, what contributions to these income and output changes has your agricultural mission program made? Please cite examples.

H. The rate of adult literacy in your area is____percent.

I. The farmers you service recognize and accept the possibility of change: 1.___very poorly; 2.___only slightly; 3. ___good; 4.___very well.

J. Individual farmers see the possbility for personal gain from technological improvement:
1.___very poorly; 2.___only slightly; 3.___good;
4.___very well.

K. Do farmers in your area appear to be indifferent to prices of products, earnings from work, or rates of return from investment? Is there any incentive for them to expand their production?

L. Would you say that the farmers in your area use their resources efficiently?

M. Are you able to help farmers increase production by showing them how to use their traditional resources more efficiently? Please cite examples____.

N. The demand for agricultural products from your area over the last five year period has been (1)___declining; (2)___remaining steady; (3)___rising.

O. What new institutions for providing incentives for farmers, such as those associated with land ownership, credit, and marketing, have been developed in your area? By whom?

P. What research organizations are working on the agricultural problems encountered in your area?

Q. Is there a large potential for increased agricultural output in your area? _____ If there is, why is it not now being attained?

R. Would you say that there is a surplus of agricultural labor in your area?

S. What are the most serious needs of the farmers in your area?

T. Would you like to receive a copy of the completed study?____

APPENDIX II

LIST OF AGRICULTURAL MISSIONARIES BY COUNTRY

Country-Agricultural Missionaires	Mission Organization
Argentina	
Revdo. W. Flagg Inglesia Anglicana Casilla 17 Embarcacion, F.C.N.G.B. (Salta), Argentina	South American Missionary Society (Eng.)
Bolivia	
Rev. Robert Caufield Casilla 1409 La Paz, Bolivia	Methodist Church Board of Missions
Mr. Arthur Driedger Casilla 213 Santa Cruz, Bolivia	Mennonite Central Committee
Mr. Henrick Erickson Casilla 266 La Paz, Bolivia	World Mission Prayer League
Mr. James Ostewig (formerly with Ayore Tribe) New Tribes Institute Box 398, Oviedo, Florida	New Tribes Mission
Mr. John Palmquist c/o Mr. E.A. Palmquist Belle Plaine, Sask., Canada	Canadian Baptist Foreign Mission Board
Brazil	
Mr. Kenneth Anderson Cristianopolis Est. de Goias, Brazil	Evangelican United Brethren Church, Board of Missions

Brazil, cont.

Mr. Olin Coleman c/o Board of World Missions P.O. Box 330 Nashville, Tenn. 37202	Presbyterian Church in the U.S., Board of World Missions
Mr. Dale H. McAfee Caixa Postal 154 Ceres, Goias, Brazil	Brazil Christian Mission
Rev. Jack Newsted Centrao Rural Metodista Caixa Postal 803 Maringa, Parana, Brazil	Methodist Church, Board of Missions
Mr. Douglas Pletsch 676 Harley Drive Columbus, Ohio 43202	Evangelical United Brethren Church, Board of Missions
Mr. John S. Wangberg Caixa Postal 18 Taquari, RGS, Brazil	Lutheran World Federation (Swiss)
Mr. Jim Wilson, Director Summer Institute of Linguistics Caixa Postal 2221 Brasilia, D.F., Brazil	Wycliffe Bible Translators

Colombia

Mr. Lewis I. Baker, Jr. Apartado Aereo 653 Medellin, Colombia	United Presbyterian Church in the U.S.A.

Costa Rica

Mr. Ralph Miller Apartado 12 Villa Quesada, Costa Rica	Methodist Church, Board of Missions
Mr. Ladoit Stevens and Mr. Donald Longworth Box 1307 San Jose, Costa Rica	Latin America Mission

Ecuador

Mr. Joe Blakeslee c/o Wycliffe Bible Translators P.O. Box 1960 Santa Ana, California	Wycliffe Bible Translators
Rev. Eugene R. Braun and Mr. Ralph L. Van Dixhorn Casilla 2320 Quito, Ecuador	United Andean Indian Mission
Mr. Donald Caswell c/o Gospel Missionary Union Drawer "C" Smithville, Missouri 64089	Gospel Missionary Union
Mr. Dale E. Minnich Mission Rural Brethren Casilla 455 Quito, Ecuador	United Church Board for World Ministries

Guatemala

Mr. Loren Anderson Quiche Bible Institute San Cristobal de Totonicopan Guatemala	Primitive Methodist Foreign Mission Board
Mr. David Ekstrom Barillas, Huehuetenango Guatemala	Central American Mission
Mr. Jim Jorns Postal Apartado No. 16 Zacapa, Guatemala	Lutheran Church, Missouri Synod
Mr. Homer Sharpless Apartado 8 Jocotan, Chiquimula Guatemala	California Yearly Meeting of Friends, Board of Missions
Mr. Don H. Sibley Apartado 1 Quezaltenango, Guatemala	United Presbyterian Church in the U.S.A.

Guyana

Mr. Michael Braithwaith St. Johns Mission Jawalla, Kamarang Upper Mazaruni, Guyana	United Society for the Propagation of the Gospel (Anglican Missionary Society, Eng.)

Haiti

Rev. Vance Brown Box 458 Port-au-Prince, Haiti	Unevangelized Fields Mission
Mr. David Grafenberger Box 1 Capetiàn, Haiti	Latin America Mission

Honduras

Mr. Donald Hawk R.D. No. 2 New Holland, Ohio	Chruches of Christ in Christian Union, Missions Department
Rev. E. Howard Housman Iglesia Morava Caurquira, Honduras	Moravian Board of Foreign Missions
Rev. Gustav H. Kuether and Rev. Lester M.Zook Asociacion de Instituciones Evangelicas de Honduras Apartado 17 San Pedro Sula, Honduras	The United Church Board for the World Ministries, United Presbyterian Church in the U.S.A.
Mr. Elam Stauffer Apartado 77 La Ceiba, Honduras	Eastern Mennonite Board of Missions and Charities

Mexico

Mr. Philip Dyck Apartado 224 Cuauhtemoc, Chihuahua Mexico	General Conference Mennonite Church
Mr. David Jarvis c/o Wycliffe Bible Translators P. O. Box 1960 Santa Ana, California	Wycliffe Bible Translators

Mexico, cont.

Mr. Maxwell Lathrop Apartado 7 Paracho Michoacan, Mexico	Wycliffe Bible Translators
Dr. Richard Milk Apartado 214 Durango, Dgo., Mexico	Methodist Church, Board of Missions
Voluntary Service Unit c/o Mr. Don Smucker Apartado 15 Atlacomulco Estado de Mexico, Mexico	Mennonite Central Committee

Paraguay

Mr. Frank Pickett 307 North Charlton Woodville, Texas 75979 (Arroyos y Esteros, Paraguay)	United Christian Missionary Society
Mr. Adin Steenland Casilla 161 Asuncion, Paraguay	Christian Missions in Many Lands, Inc. (Canada)
Mr. Robert Unruh Mennonite Central Committee Casilla de Correo 166 Asuncion, Paraguay	Mennonite Central Committee

Peru

Mr. Alfred Bell Apartado 525 Cuzco, Peru	Evangelical Union of South America
Mr. Joseph Hocking Yarina Cocha via Pucallpa, Peru	Christian Missions in Many Lands, Inc. (Canada)

APPENDIX III

LIST OF MISSION ORGANIZATIONS WITH AGRICULTURAL MISSION PROGRAMS IN LATIN AMERICA

Brazil Christian Mission (1 - 1)*
412 Winchester Avenue, Martinsburg, West Virginia

California Yearly Meeting of Friends, Board of Missions (1 - 1)
P. O. Box 389, Whittier, California 90608

Canadian Baptist Foreign Mission Board (1 - 1)
190 St. George St., Toronto 5, Ontario, Canada

Central American Mission (1 - 1)
3611 Congress Ave., Dallas 19, Texas

Christian Missions In Many Lands, Inc. (Canada) (2 - 2)
Missionary Service Committee, 16 Hudson St., New York 13, New York

Churches of Christ in Christian Union, Missionary Department (2 - 1)
Box 30, Circleville, Ohio

Eastern Mennonite Board of Missions and Charities (1 - 1)
Salunga, Pennsylvania

Evangelical Union of South America (Eng.) (1 - 1)
6 Novar Rd., Londson S.E. 9, England

Evangelical United Brethren Church, Board of Missions (2 - 2)
601 W. Riverside Ave., Dayton 2, Ohio

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*The first number of parentheses indicates the number of agricultural missionaries' names submitted by the mission organization; the second number indicates the number of agricultural missionaries responding to the questionnaire.

General Conference Mennonite Church (1 - 1)
Box 347, Newton Kansas 67114

Gospel Missionary Union (1 - 1)
Drawer "C", Smithville, Missouri 64089

Latin America Mission (2 - 2)
285 Orchard Terrace, Bogota, New Jersey

Lutheran Church, Missouri Synod (1 - 1)
210 North Broadway, St. Louis 2, Missouri

Lutheran World Federation (Swiss) (1 - 1)
17 Route de Malagnou, Geneva, Switzerland

Mennonite Central Committee (4 - 3)
21 S. 12th St., Akron, Pennsylvania 17501

Methodist Church, Board of Missions (9 - 4)
475 Riverside Drive, New York, New York 10027

Moravian Church in America, Board of Foreign Missions (1 - 1)
69 W. Church St., Bethlehem, Pennsylvania

New Tribes Mission (1 - 1)
Woodworth, Wisconsin

Prebyterian Church in the U.S., Board of World Missions (3 - 1)
Box 330, Nashville 1, Tennessee

Primitive Methodist Foreign Mission Board (1 - 1)
33 North Market St., Mount Carmel, Pennsylvania

South American Missionary Society (Eng.) (2 - 1)
157 Waterloo Rd., London S.E. 1, England

Unevangelized Fields Mission (3 - 3)
P. O. Box 306, Bala - Cynwyd, Pennsylvania

United Christian Missionary Society (Disciples of Christ)
(2 - 1)
222 South Downey Avenue, Indianapolis 7, Indiana

The United Church Board for World Ministries (5 - 5)
(Includes those listed in Appendix II under United Andean
Indïan Mission)
475 Riverside Drive, New York, New York 10027

United Presbyterian Church in the U.S.A. (3 - 3)
475 Riverside Drive, New York, New York 10027

United Society for the Propagation of the Gospel (1 - 1)
c/o Church of Providence of the West Indies
Austin House, Georgetown 1, Guyana

World Mission Prayer League (1 - 1)
228 Clifton Avenue, Minnesapolis 3, Minnesota

Wycliffe Bible Translators (4 - 4)
P. O. Box 1960, Santa Ana, California 92702