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REPORT ON TDY TO COLOMBIA

PURPOSE: To assist USAID personnel in evaluating the Title II, PL 480 Feed Grain Program, Transfer Authorization 514-044.002-000-0606, approved July 20, 1969.

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Travel Performed: November 20 through December 14, 1970.

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MEMORANDUM

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FROM: FFP/FFD, *James A. Robinson*
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SUBJECT: Report on TDY to Colombia - November 20 through December 14, 1970

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Program Contact: Pedro Chacon, SCAD Division, Bogota

Program Implementing Agency for Colombian Government: Instituto Colombiano de la Reforma Agraria (INCORA)

Reference: A) Travel performed under Travel Authorization AID-LA-71-41,
Purpose: To assist USAID personnel in evaluating the
Title II PL 480 Feed Grain Program

B) Transfer Authorization AID No. 514-044.002-000-0606 approved
20 July 1969, and Amendments Nos. 1 and 2.

I. Program Guidelines and Objectives

A. Title II PL 480 Policy

The Manual Order for Use of Agricultural Commodities Under PL 480,

Title II, for Livestock and Poultry Feeding Programs states:

"Policy

A.I.D. policy is to use feed grains available under Title II of P.L. 480 to stimulate sound livestock and poultry feeding programs for the purpose of increasing the production of animal protein foods in areas that are adapted to production of poultry and livestock, and where production of animal products is insufficient to meet the effective demand. Feed supplied under Title II is considered as a grant-in-aid to be used for the establishment of new or expanded livestock production and institutions associated therewith. Such grants are justified to the extent that (a) they can produce a satisfactory increase in human food consumption; (b) the necessary resources are otherwise unavailable (i.e., the farmer is unable to purchase sufficient feed at the market price to establish new or expand existing sources of protein food); and (c) there is a need for grant capital to accomplish the purposes of the program."

B. Program Objectives and Use of Commodities as Described in Reference Transfer Authorization, and as Amended, Follow:

The commodity authorized herein and the funds accruing therefrom are contributed by the United States to the Government of Colombia in support of a four-year livestock and poultry production and marketing program to be carried out under the administrative direction and supervision of the GOC's Institute for Agrarian Reform (INCORA) in cooperation with central and area farmers' cooperatives in selected areas of Colombia. The GOC shall be responsible to the USG for the provisions contained herein which are to be performed by INCORA, the Agrarian Reform Central of Cooperatives (CECORA), and the central and area farmers' cooperatives.

The major objectives of the program are:

- 1) to increase the production and to improve the quality of poultry, swine and dairy production of low-income farmers through improved management and feeding;
- 2) to improve nutrition by increasing protein availability to the Colombian people;
- 3) to stimulate local production and use of grains, and increase utilization of locally produced protein feed sources through the increased use of balanced rations;
- 4) to improve or establish a cooperative poultry and livestock production and marketing system;

- 5) to provide funds for loans to selected farmer participants for carrying out improved production and marketing practices under technical supervision;
- 6) to strengthen the central and area agricultural cooperatives' organization and services by providing: increased technical assistance, including training; stocking inventories of supplies and materials for resale to the farmers; purchasing equipment and facilities for production and marketing services; and farmer participation at the local level in project operations and management.

II. INCORA and the Implementation of Agrarian Reform Measures

The principal instrument for agrarian reform in Colombia is INCORA, an autonomous agency created in December 1961 and the Title II grants (35,379 M.T. of corn) described in the Transfer Authorization support a part of these reform measures.

While growing and expanding its programs INCORA has enjoyed bi-partisan political support. Starting from scratch it trained 4,000 employees to carry through its programs. Its main functions include titling land, either public or acquired, to landless farmers as well as sharecroppers and renters with insecure tenure. It also provides supervised credit; develops irrigation, drainage and reclamation projects; organizes cooperatives; promotes social action programs which include rural health centers, schools and "feminine credit" programs for home industries; and finances both penetration and farm to market roads.

INCORA's investment budget of \$463 million in 1970, an increase of

23% since 1968, allocates 24% to land titling, 32% to irrigation and drainage development and 44% to credit for small farmer development.

INCORA

As of January 1970 had granted title to nearly 100,000 families for a total area of 6,840,000 acres distributed across the entire country.

Under its program for development of irrigation districts it is working on 18 projects. In 1968 the total area under irrigation on these projects was 60,000 acres. In 1969, 42,000 acres were added.

As of January 1970 a total of 37,000 small farmer families had received credit amounting to 1,100,000,000 pesos (US\$60,000,000) and requisite technical and management advice. Loan purposes vary, some for purchase of improved seed and fertilizer, some for purchase of livestock and some for land clearing, fencing, housing, etc. Gains to the small farmers, measured as average annual increases in deflated pesos, were: gross incomes up 13%, operating expenditures up 16%, net worth up 10%, and farm size up 4%.

AID's direct input has been to the supervised credit program. In 1963 a US \$10 million loan and technical assistance and in 1966 a second loan of \$8.5 million gave the program its start. AID is now providing technical services to an INCORA training school to develop manager-technicians for irrigation districts.

AID coordinates with the GOC in the allocation of local currency generated under the annual agricultural sector loans which were initiated in 1968.

INCORA has developed 31 cooperatives with 20,000 members to serve small farmer patrons. In 1968 CECORA was created as a second level or umbrella cooperative to handle wholesale and supply services.

Title II PL 480 feed grain, in the form of 35,379 MT of yellow corn, has been granted under the referenced Transfer Authorization to support the development of integrated poultry and livestock programs to be focalized around the INCORA sponsored central and area cooperatives. Grain is being made into a mixed, balanced ration using locally produced protein materials and sold to participating cooperative members. The funds accruing are being used to support the program objectives outlined in I.B.

III. Information on Problems which the Title II PL 480 Program Will Assist to Alleviate

A. Overview

The demographic population growth rate of Colombia is 3.2 percent. Projections indicate that the population will double every nineteen years. Forty-six point seven (46.7) percent of the total population is rural, with the illiteracy rate fluctuating between 17.83 percent for urban and 45.2 percent for rural population groups. Primary education is compulsory and free, but as is true of many countries, school buildings and the training of qualified teachers cannot keep pace with the increasing population. There is a great need to increase the purchasing power of the rural population and bring them into the

consumer goods market. Incomes are especially low in the farm worker, renter and small farm holder categories and are often below subsistence levels.

The overcrowding of farming population on small holdings greatly reduces the productive capacity of farms. Income per unit of land is high and income per agricultural worker relatively low on small holdings. The overall annual population growth rate of 3.2 percent in Colombia, and admittedly higher in rural areas, aggravates the uneven distribution of both productive resources and income.

Colombia is not short of farm land, with an average of four hectares per farm capita. But land in holdings of 20 hectares and over appears to be under-utilized in terms of the labor it could support, and the increased productivity it could generate, considering the concentration of available arable land, irrigation facilities, farm mechanization, and livestock on these holdings. Studies based on 1960 census data in Colombia, indicate that medium and large holdings (approximately those with 20 hectares and over) contributed only 34 percent of the total value of agricultural production in 1959. ^{1/}

B. Rural Population, Distribution of Holdings, and Land Tenure

A brief survey of the 1960 census of agriculture in Colombia presents a fair picture of livestock and poultry, the distribution of holdings, farming population, tenure, land area, use of fertilizers,

^{1/} Solon Barraclough and Arthur Demike, "Agricultural Structure in Seven Latin American Countries", Land Economics, XII, November 1966, p. 402.

area in crops, irrigation, and type of farm power available, by size of holding. The census data, published in English by FAO, were taken from the Directorio Nacional de Explotaciones Agropecuarias (Censo Agropecuario) 1960, Resumen Nacional (Segunda parte), Colombia, Departamento Administrativo Nacional Estadística, Bogota D.E., febrero de 1964. ^{1/}

Summary of Pertinent Information Taken from the 1960 Census Data

The development of agriculture in Colombia is hindered severely by inequities in distribution of land and other capital resources among the rural population. A few of the inequities drawn from the 1960 census data follow. They are not necessarily listed in order of importance.

- 63 percent of all farms and 53 percent of the farming population occupied 4.4 percent of the total area in farms as of 1960.
- 3.6 percent of all farms contained 66 percent of the total land in farms.
- 38 percent of the total area in major crops in 1959 was concentrated on holdings which included 9 percent of all land in farms and 28 percent of all arable land.
- Less than four percent of all holdings with irrigation accounted for 62 percent of the total land irrigated.
- Less than four percent of all holdings - those of 100 hectares and over - reported 56 percent of all farm tractors owned in Colombia.

^{1/} Source for all tables: Report on the 1960 World Census of Agriculture, Food and Agriculture Organization, Rome, 1966, Vol. 1, Part A, pp. 62-73.

More than half of the farming population in Colombia is on holdings ranging from 0.05 to 0.8 hectares of land per capita (or 0.12 to 2.0 acres). By contrast, seven percent resided on holdings averaging from 16 to 294 hectares per capita (or 40 to 735 acres).

The few holdings with 100 hectares and over accounted for 61 percent of all cattle and for 53 percent of all animal units, including cattle, in Colombia.

C. Livestock and Poultry Populations on Small Farms

Livestock is an important element in the agricultural economy of Colombia. Excepting cattle, more than half the numbers of livestock in each class of animals and of chickens were reported on holdings under 50 hectares (approx. 125 acres) in 1960 (Table 3 of Annex I). Meanwhile, nearly two-thirds of all chickens, three-fifths of all sheep, half the hogs, and nearly half the goats and asses were on holdings with less than 10 hectares (approx. 25 acres). By contrast, more than three-fifths of all cattle were reported on the few holdings with 100 hectares (approx. 250 acres) and over. This indicates that in spite of the many limitations in resources such as land, capital, technical skills and organizing ability, the small Colombian farmer holding less than 25 acres still remains a significant factor in the livestock and poultry industry of the country, especially in small animals.

Further reference to the census of 1960 indicates that both the percentages of holdings reporting livestock and chickens, and average numbers per holding, tended to increase with size of holdings (Tables 4, 5, and 6, Annex I). Relatively few holdings under five hectares (approx. 12.5 acres) had horses, mules, or donkeys, while only 2.8 percent had mechanical power.

In brief, it is in these categories of smaller farmers that the Title II PL 480 feed grain program is designed to assist. Much was said in the original draft Title II project proposal (PROP) dated October 28, 1968 and its subsequent amendments concerning the needs of these farmers for social and economic assistance. These needs are obviously serious and have been well documented by government and private studies. Meanwhile, from a Colombian Government's policy standpoint the existence of the active on-going programs of INCORA, as described in II above, indicates a positive attitude toward solving these rural problems.

Table 2 shows the tenure of land holders, without reference to farm laborers who work on holdings. Also, it is probable that thousands of tenants in reality are permanent farm laborers with small subsistence plots assigned to them. Sixty-two percent of the land holders in Colombia were owners in 1960; nearly one-fourth were tenants under various rental arrangements; four percent were squatters; and about 10 percent held land under other forms of tenure. Part-owners were included in this latter group. These inequities in land holdings discourage the full utilization of the farm labor force.

Therefore, beyond the social and political aspects, the fact remains that these very small farmers actually hold large numbers of livestock and poultry whose efficiency must be improved if Colombia is to have a productive animal agriculture. For, there are sizable human and animal populations involved. Labor is readily available on these small holdings including women and children for the day by day labor intensive enterprises of poultry, swine and certain types of dairy cattle and goat production. Much farm labor is now being utilized to care for these animals. With training and demonstrations, improved husbandry practices can increase family productivity and result in more income. It is necessary that the herds and flocks become more productive if farm livelihood is to be improved.

Fifty-three (53) percent of the total animal units in Colombia were on 3.6 percent of the holdings, those containing 100 hectares (approx. 250 acres) and over (Table 7, Annex I). In contrast, only 17 percent of all animal units^{1/} were recorded on the three-fourths of all holdings, or those with less than 10 hectares (approx. 25 acres). Data in Table 7 also shows the average numbers of animal units per hectare of land under permanent meadows and pastures by size of holdings. These averages decreased regularly from 5.1 animal units per hectare on holdings with less than one-half hectare to 0.2 animal units per hectare on those with 100 hectares and over. Holdings having less than

^{1/} One animal unit equals 1 horse, mule or ass, 1 head of cattle, 10 lambs, 6-2/3 sheep, 10 hogs and 100 chickens. Ducks, turkeys, geese and other poultry were not included in the tabulation.

ten hectares (approx. 25 acres) accounted for only four percent of all land in permanent meadows and pastures but 17 percent of all animal units were on these holdings. At the other extreme holdings with 100 hectares and over reported 77 percent of the total area in meadows and pastures, and had 53 percent of the animal units. These contrasts in land use suggest that meadows and pastures were overgrazed on small holdings and under-utilized on larger holdings.

For whatever problems that may be encountered the small farmer has a significant role in Colombian animal agriculture. His productive role rather than his plight is to be emphasized in this program. Recognition of this fact suggests that specific efforts be made to increase the income base of small farmers through this grant of Title II, PL 480 feed grain. The objectives outlined in I.B. indicate the program approach to be undertaken.

IV. Program Performance and Outlook

A. Factors in Title II Feed Grain Utilization

1. Rations as Feed Supplements

Land use information outlined in III. suggests that a policy emphasizing the improvement of pastures and ranges for ruminants, especially beef cattle, should loom large in an animal production program for Colombia. But, the categories of small farmers participating in the Title II feed grain program do not have the land, capital and other resources to participate actively in such a program.

Severe land use pressure is an obstacle to the small farmer trying to manage cattle using extensive grazing systems typical of tropical Latin America. But, there are possibilities for managing goats and some dairy cattle if more intensive grazing methods are practiced. Fortunately, large numbers of the program participants have the management potential for using hand planted forages and hand cut pasture and row crops for goat or cow feed, mainly for dairy purposes. This intensive method of feeding was frequently seen during observation around Colombia and especially in the Department of Antioquia where heavy grazing of dairy cattle on extremely hilly land is practiced. Dairy production is traditional there and hand cut soilage is a necessary land use practice if a livelihood is to be gained from such small holdings in mountain areas unsuited for row crops.

Surveys are to be undertaken to determine to what extent mixed feeds can be used economically as supplements in these areas. Early indications are that supplements can be used when coupled with the direct on-farm assistance and supervised credit provided by INCORA. Still, it is not known at what level grain, at present valued at over 100.00 U.S. dollars per metric ton, can be converted economically into milk products when mixed with protein components as a "balanced ration". A lower protein content may be a partial answer, over the long run, with corn used as a

supplemental energy feed. Certainly, it is not expected that grain feeding levels customarily used in the USA and Europe can be introduced for use by these farmers under present production and marketing practices. There is nothing contradictory about the program emphasizing the demonstration of the increased use of farm residues, and home grown forages while at the same time 1) selling balanced rations when and where they are profitable, or 2) recommending low intakes of so-called balanced rations, or 3) feeding corn itself as an energy feed for dairy cattle. The problem is to choose a feeding regime that utilizes fully the scant land and other resources available and is economically profitable.

An area of great importance to explore is the use of forages and farm residues in the feeding of milk goats and dairy cattle, especially since corn is as scarce as it is at present. The introduction of milk goats, including direct imports, might be fed higher rates of ^{grain} feed during an introductory or transitional period of adaptation immediately after importation or other movement. It should be remembered that it is generally an objective of cattle farmers, world-wide, to put as much roughage, i.e., pasture, silage and hay into their feeding practices as is possible since they are normally less expensive than grains, and ruminants are uniquely able to convert them to meat and milk. This leaves food/feed grains available for humans or for small animals such as

swine and poultry both of which are unable to digest roughages. It is not expected that any Title II program feed will be fed to beef cattle.

Colombian poultry consumption per capita is less than 1/16 of the USA. With 18,000,000 broilers produced per year Colombia provides about one (1) broiler per person while the USA citizen consumes about 16. There are only about 6,000,000 laying hens in Colombia. Feed prices for layers range from \$115.00 to \$118.00 per MT while in the USA prices are about \$58.00. Increased local grain production and active programs to promote its most efficient utilization for livestock and poultry is of utmost importance. Corn is so scarce at approximately \$100.00 MT that it was reported that Purina had closed their ration plants on the Caribbean coast for want of grain. It appears that any prediction of over production of corn under present conditions in Colombia is grossly premature.

For U.S. Government entities interested in the increase in American grain exports abroad, Colombia should not be overlooked as a potential market. As for improving the U.S. market, or the grain trade in general, the Title II program will directly increase the efficient and economic utilization of grains both local or imported, by moving Colombia toward a more modern and productive animal agriculture. This is to be accomplished by the integration of all facilities, inputs and advisory services.

2. Feeding Trials

Feeding trials are being developed for future use with experimental animals and fowl to supplement the programs effective system of chemical analyses now being made by an independent entity. Results of these tests are on record in USAID and AID/W. These necessary trials may be conducted by personnel of either the program, ICA ^{1/} or the cooperating universities.

Program feed should be allocated for these feeding trials to insure that quality is continually maintained and that feed conversion ratios under actual farm management conditions can be obtained to determine feeding levels that can be used under market conditions.

When such feeding trials are made as part of a livestock and poultry demonstration, additional program funds should be used for appropriate tests, trials, economic and farm management studies. Such studies should be pointed toward, including at some future date, the overall management aspects of the whole farm as a production unit in order to measure what effect the program is having on the livelihood of the families involved. Every effort should be made to use existing organizations such as the universities, ICA (and ICA's existing CIAT ^{2/} working agreements).

^{1/} Instituto Colombiano Agropecuario (ICA). The Colombian Government's Agricultural Research Organization. The ICA has 52 extension agencies throughout the country.

^{2/} Centro Internacional de Agricultura Tropical (an International Tropical Agricultural Research Center, supported by the Rockefeller, Ford and Kellogg Foundations, located at Cali, Colombia).

B. Commodity Operations

1. Grain shipments

- a. Commodities approved, 35,379 MT yellow corn, program approval date June 20, 1969.
- b. Corn delivered in Colombian ports 6,000 MT, as of January 1971.
- c. Port of Entry of shipments: Buenaventura, Colombia (Pacific Coast).
- d. Type of shipment: bagged in jute.
- e. Number of milling operations as of December 1970, one (1).
- f. Location of milling operation: Candelaria, Cauca Valley, approximately 30 KM from Cali.

2. Call forwards

It was concluded, and agreement was reached in USAID and GOC that there would be an expected three (3) month lapse between USAID call forwards and estimated arrival of grain in Colombian ports and that only in the most extenuating circumstance can AID/W shorten this period.

3. Ration distribution

- a. Distances from Port of Entry to milling operation - 160 KM.
- b. Distances from Candelaria milling operation to major points of ration distribution:

Bogota	523 KM
Medellin	430 "
Tunja	625 "
Pasto	474 "
Popayan	183 "
Bucaramanga	941 "

- c. Separate geographic regions served by rations sales posts, as of December 1970, 31.
- d. Local Project Councils supervising ration sales 9.
- e. Method of collection from farmer for rations purchased: 30-day billing or cash.
- f. Commodity control of ration request and delivery from local Project Council to mill is adequately explained in "Tramite Adquicion de Concentrados" on file in USAID/Bogota and AID/W.
- g. Present method of milling and storage: Through a single commercial contract with a rural service cooperative. Title II grain storage and milling is completely separated from cooperative feed milling operations including separate equipment for ration manufacture. The milling costs are reasonable and the contract has resulted in continuous adequate service. The contractor has furnished a 24-hour milling operation when required.

4. Expanded Milling Needs

In spite of a 24-hour work shift in the milling operation at Candelaria using relatively rudimentary machinery, an excellent feed is being produced. This is documented by a series of chemical tests being made on random samples of rations by independent entities. In the opinion of the farmers, the program rations are considered greatly superior to the feed

products formerly used. The main difference is the high quality components going into the mix. There have been marked increases in production per animal unit. The feeds performance is due to the planning of INCORA at the national level and the close supervision of the Title II program feed ration manager at the plant. Rigid commodity controls are exercised in the movement of Title II grain stocks (Reference AID/W, USAID/SCAD files "Tramite Adquisicion de Concentrados"). Excellent care is also taken in placing bids, and in the inspection and purchasing of non-grain components including plant and animal proteins, minerals and vitamins. In brief, it is a tightly run operation that one would not expect to see in the first year of a program involving all the elements of initiating a large scale feed business distributing over almost half the country. Storage of mixed feeds at coop sales posts is well done and local coop leaders have shown initiative in responding to the operational requirements of the program.

Despite this overall performance, it appears that greater efficiency could be attained and better use of managerial, supervisory and labor personnel could be made by purchasing project owned milling equipment, even though the proposed Candelaria mill might still remain in the existing warehouse/mill building owned by the cooperative organization presently under contract.

The equipment purchases would not preclude having the mills operated on a 1) contract basis, or 2) as a program or cooperative operation.

For the existing operation at Candelaria, integrated mill and mixing equipment should be purchased to include, among other improvements, automatic weighters, bag sewing, and material flow or elevator machinery. For use with this improved equipment, portable bag elevators to handle and stack bagged materials in the warehouse should be put in operation to increase the effective use of flat storage space and improve stock control inventory. Such improvements will cut down the need for constant foremen supervision of laborers on the ration make-up floor and greatly reduce the possibility of error due to component mix-up in the ration manufacturing process.

For the Bogota area, a mill similar to that described above for Candelaria should be put in operation since, among other reasons, bulk non-grain feed components are surprisingly cheaper in Bogota than in the Cali-Cauca Valley area, even though the major plant protein materials such as soya beans are grown there. In addition, the U.S. bagged grain can be shipped in the original jute bagging direct from Port of Entry, Buenaventura, to Bogota, a distance of 683 KM, prior to milling. This will contribute directly towards reducing the amount of finished rations in the pipe line, providing a fresher ration, permitting a shorter haul and reducing breakage for paper-bagged feed from mill to farm. By surveying and planning now,

increased ration consumption can be provided for at the appropriate time for the second large distribution area of the program.

The participating coops would retain equity in these centrally operated facilities.

Feed milling consultants and/or program employees should be hired from program funds, when INCORA determines that they are necessary for surveys, plant layout, and other technical aspects of this specialized project activity.

C. Accounting and Fiscal Measures

Due to the 30-day billing procedures, there is an understandable lag in the receipt of funds from ration sales to individual farmers. Therefore, it is advisable to show these accounts receivable if a clear picture of commodities values and accruing program funds is to be made. This is further aggravated by long transport distances involved in crossing two ranges of the Andes mountains and the resulting pipeline of supply involved when port receipts, stored reserves, ration stock at mill, local storage at sales points, and rations sold to farmers are all accounted for.

The "Fund Flow" sheet should be accompanied by a projection of both commodity values and accounts receivable. Reference: " Programa de Concentrados INCORA-AID, informe trimestral, 1970", of which USAID has a corrected version on file.

D. Financial Self-Help

1. 2,300,000 pesos are assigned by the GOC strictly for use of credit for participating farmers of the program.

2. Local currency, equivalent to 147,000 U.S. dollars, is allocated for program operations from the GOC as per program agreement.

E. Supervised Farm Credit

INCORA does not have banking services. It develops and approves supervised credit for participants based on records or a farm management plan. The approval document is then passed to Caja Agraria for payment. Economic banking criteria are not followed since normally the average INCORA borrower would not be considered credit worthy by regular banks. 376 participant farm families are being provided loans for livestock and poultry at present.

The average number of animals owned by a borrower is 1,120 chickens for poultry projects, 4 cows for dairy projects; and 10 hogs for the swine projects. Close individual attention has been given to these farmer-clients and the resulting ties between the local INCORA and representative/farmers is undeniably the most significant single factor in the success of the Title II program in this initial stage. "Credit Feminine" a production loan program designed especially for rural women and supervised by INCORA employed home economists is making an impressive start in assisting livestock and poultry projects around the home.

No recommendations are made for changes in this on-going credit program, as such, or its future use in the grain projects. The production feed loans are uniquely suited to the Title II program. One probable alternative for the future, which one can consider, is the

possibility of a changeover from individual farmer credit to cooperative credit. This may come about. If so, it will come gradually and only with the emergence of a greatly improved managerial and leadership capability in some of the coops at some later stage of the program.

The individual farm records kept in the INCORA farm supervised credit program are some of the most outstanding I have ever seen for the management of small farms. The facts now available in INCORA offices coupled with information that can be collected in the future through these farm management records will have inestimable value in guiding the course of the project as well as in overall program evaluation. Of more value to the farmers themselves, would be the use of the records as the basis for a Farm Unit Demonstration program where the demonstrator farm and family operation would be used for demonstration teaching and as a farm management study. Due to INCORA's capability and the records available such unit test demonstrations are now within the possibilities of the program. Such an activity, perhaps limited in the beginning, would be worthy of program subsidies.

One can only be optimistic when considering the value of this on-going credit program. Further, the possibilities are increased when the full implications of additional funds becoming available from Title II rations sale are considered. These additional funds can be used for financial and material support such as: financing increased inventories of supplies and materials for resale to farmers; cooperative and/or

individual production loans; the purchase of a wide range of facilities and equipment for the production and marketing of agricultural products and for hiring personnel. It is believed that the spirit of mutual trust existing between INCORA and these borrowers will carry over into these expanded cooperative activities.

For INCORA and the farmers, this program success will bring on a different program approach, since these new or expanded activities will be in the form of cooperative service operations rather than the present emphasis given to production loans received from the Government for the individual farmers own use. Therefore, it will be interesting to see what collective response will be forthcoming from the cooperative members. Based on a combination of this group response and the programs reaction to it, the cooperative leadership will either become able to do more for themselves, or remain to a degree, farmers still in need of some grant assistance. It is too early to predict the outcome. At least it is recognized that this will be one of the big tests of the program's success.

F. On-going Assistance by INCORA and Expanded Technical and Managerial Assistance

INCORA is now the principal source of administrative, technical, managerial and fiscal personnel for program implementation. The Title II program proposal had stated that the GOC would furnish such direct assistance and INCORA has carried out this provision with thoroughness. USAID's personnel assigned to this Title II program are exercising care in implementing all required self-help provisions. Therefore, GOC paid personnel have had, up to this stage, the complete job, as far as host country persons are concerned, of program logistics and operations, technical assistance, and development and putting into operation the necessary procedures for the program. During this initial period a relatively large number of INCORA staff, considering the tonnage handled, have gained first hand experience across the board. The last eight (8) months have been an invaluable training and trial period. Program procedures have been tested through a lively interchange of INCORA's Bogota and field staff and USAID personnel at meetings throughout project areas.

Thus, there now exists a cadre of INCORA employees familiar with the program and capable of supervising government as well as program hired personnel. Therefore, it is believed that the relatively large number of INCORA people presently engaged in program planning and operations has been justified on the basis of familiarization and training being received.

The self-help input of capable, interested people from INCORA is being adequately met and with enthusiasm. From this early experience INCORA personnel have gained confidence in the logistics of commodity operations dealing with ration processing, distribution and sales. They are getting their first contact with the complexities involved in resolving a whole range of technical and business management problems involving program funds etc. Also, they are acquiring an understanding of the production and marketing of several types of animal products. They have handled the operational, logistic and commodity problems with encouraging success and have put into operation procedures to adequately implement the commodity aspects of the program.

Nevertheless, in estimating needs for overall technical, managerial and fiscal personnel in the future when larger scale operations will be undertaken it should be recognized that expanded training and/or recruitment must precede such an increase in activities.

Granted, operations are the consuming interest at the present time, but as the rate of ration sales expand the business chores will increase. It is necessary to remember that coops are businesses despite the more often discussed "idealism" connected with the cooperative movement. Some of the business or coop management aspects become very demanding and confining and may take key personnel away from technical assistance in the field which will tend to impair that very important undertaking. Unless action is taken now the program may be

forced, during the course of the program implementation, to transfer some of the project leaders or technicians to full time day by day accountancy functions. One alternative is to recruit new trained people. Another alternative is to train personnel now for these specific and relatively easily defined business tasks. Such training can be acquired in a shorter time than the broader training and experience required of a Project area coordinator or an agricultural technical leader charged with supervising several agricultural advisors. All these functions are now being done by INCORA personnel. It is believed that the strictly business aspects of the program might eventually be done by program paid coop or business managers. In the interim, or in certain cases, even for very long periods in the future, INCORA personnel may continue to serve as business managers. But, it appears appropriate that INCORA consider the possibility that program hire or coop hire personnel should eventually hold these positions. During the four year period of program operation new or in-service trained business or coop managers could be assisted in becoming adapted to their duties as well as to the rural area in which the coop operates.

In addition, it is believed that some technical consultants and long term personnel, outside the present competence of INCORA or CECORA, should be considered for employment, hired from program funds. In the initial stage, these consultants may be used for pressing immediate

needs such as the two proposed central milling operations and surveying and initiating cooperative poultry marketing services. But, it is believed that there is adequate reason to use this privately acquired supplemental assistance for other program activities. It is advisable that technicians, governmental or private, be employed and engaged with everyday project problems for fairly long orientation periods especially in a new, complicated program such as this. So, consideration for some personnel expansion should be made now before the management load of program execution becomes heavier. Recruitment is not expected to be easy, since the necessary services that will be required covers a wide range of technical fields which may include agronomists, veterinarians, and economists, etc.

Further, it is believed that intermediate level technicians, farm youths, herdsmen and farm foremen should be given practical in-service training on some of the better participant farms; board and other necessary costs being paid from program funds. Such programs would emphasize carrying out improved on-farm production practices under realistic "herd and flock level" farm conditions. This innovation, initiated now, could provide future demonstration farmers in the production of poultry and other animals at focal points in the program areas. This is a proven demonstration practice and will greatly lessen the practical teaching load and travel of extension-type agriculturists from INCORA and/or other agencies. These proposed demonstrators have already been mentioned in IV.B., Supervised Farm Credit section.

In addition, program funds should be actively used, if necessary, to supplement organized training programs conducted cooperatively by program personnel and SENA ^{1/} and ICA when participant farmers, farm youths and program technicians are enrolled.

Further, the Executive Committee and Project Councils should consider a long range plan with the agricultural universities to support selected tests, trials, studies and surveys with university teaching and student personnel when they are program-related and offer solutions to Title II project problems. Such participating personnel, if they are graduating university students, could possibly be hired by the program upon completion of the survey, or study. Their initial employment could be on an interim, trial, or permanent basis. It is suggested that this might serve, to a degree, as a recruitment measure for acquiring young "free agents" for expanded technical assistance for the program prior to their commitment to a life work. Admittedly, government service may appear more secure, but it is believed that the initiative and spirit in which INCORA is tackling these problems will attract some of the better and more active graduates to the cooperatives. Costs of such special survey projects could include the expense of printing and publishing the results of studies, as well as the per diem and travel involved. It is believed that this use of program funds could,

^{1/} Servicio Nacional de Adestramiento, (SENA), National Training Service.

possibly make available a variety of technical skills needed for program implementation from either students and/or professors during the course of their time with project operations. Selected studies, crucial to program development, could be published as formal reports or documentation of program implementation and be shared with agricultural development programs in other countries.

In suggesting these sub-Project activities the writer is aware of the time required to work out inter-departmental cooperative efforts, however laudable. Furthermore, technical innovations such as the introduction of much needed breeding stock including milk goats, swine, and pilot projects in the use of proven dairy sires through artificial insemination will require special training and supervisory personnel. Due to the press of work bearing on program personnel, I am reluctant to make outright recommendations for such project initiation.

G. The Executive Committee and the Project Councils in Cooperative Development

1. Program Administration Guidelines as Described in the Transfer Authorization (as amended) for the Executive Committee follow:

"Basic policies and procedures to effectively attain the objectives cited in I.B. will be developed, within the provisions of the TA by an Executive Committee composed of: The National Director of the Supervised Credit Division of INCORA, as chairman; a representative of the Agrarian Reform Central of Cooperatives (CECORA); and two representatives selected from among the central and area cooperatives participating in the program. A representative of USAID/ Colombia shall serve as advisor to the Committee."

The Executive Committee described above is charged with overall GOC administration of this program. The forceful way in which it has taken hold is commendable. First, all the participating coops are new, and of necessity, need close assistance in their formative stage. Further, all the coops have an overlapping membership with farmers of INCORA's supervised credit program, and this hard core group is actively participating in the program. The coops themselves are sponsored as a direct development effort of INCORA. Even though the cooperatives were formed and are operating under the auspices of INCORA, whose officials act as Chairman of the Executive Committee, more operations as well as policy making functions will be delegated from the executive committee (national

GOC level) to the Project Councils (cooperative level) as the cooperatives become developed and are able to take over these duties.

Therefore, the separation of policy and operations between the Executive Committee and Project Council is in transition and it is taken for granted that during the four (4) year operation of the program there will be substantial increases in the Project Council's function. At some future time the Project Council's actions and deliberations will hopefully become very similar to the directorship of a service cooperative. This will be a gradual development process rather than any abrupt changeover and will not be uniform for all cooperatives concerned.

The development of the cooperatives as such is a continuing GOC program and is organic to the INCORM organization which will dictate the course of events and policy measures that will insure the long term interests of the cooperatives. The cooperative development program was initiated several years ago while the Title II program is a later U.S. grant activity closely supporting that effort, but just being initiated.

The Title II program does require a relative high level of performance by the coops in commodity operations, and in the handling of accruing funds. Also, the coops are directly designated as the organizational focus for the long term technical and commercial development of the programs integrated livestock

and poultry enterprises. Since these are complex undertakings, the initiation of program implementation itself normally becomes an outright challenge to a coops capability in business and cooperative service operations. Even experienced cooperatives sometime make substantial adjustments in their operations to accommodate such a program.

2. The Project Council

The Title II program is, therefore, requiring the new Colombian coops to initiate or expand operations at a time when they are in a developing rather than in an operating phase. Still, by project design and necessity the program depends on the cooperatives for operations. Further, GOC and USG fiscal requirements must be adequately met. Therefore, a Project Council has been put into operation to serve these needs.

Any discussion of the Project Council must envision both, an arrangement to serve the Title II program, and an organizational measure for developing the coops.

The Transfer Authorization had described the Project Council as follows:

"Implementation of the program is carried out at the local level through Project Councils. Each Project Council is composed of a representative or delegate of INCORA, as chairman; and representative(s) from the participating

central and area cooperative(s). A representative of USAID/Colombia shall serve as advisor to each of the Project Councils. Within the policy and procedural guidelines set forth by the Executive Committee described above, the Project Councils have responsibility for operation of the project in their assigned area."

For development purposes the idea of the Title II Project Council was to provide a subtle but workable means for assisting and advising a cooperative when and where needed, while encouraging the local coop leadership to develop their own capability and take over. In part, this was to be brought about by:

- a. Separating the management of Title II program funds - those accruing from Title II ration sales, (Counterpart "C"), and placing them in a Special Program Account, apart from cooperative funds which represent equity of the coop members;
- b. Separating the management of strictly Title II program activities from other existing cooperative operations, with the Project Council handling the former. This removal of program activities from direct coop management serves as a constant reminder to government officials, both GOC and US representatives on the Council that they should not interfere unduly in decisions of the coop leaders especially those concerning non-program matters.

As far as program affairs are concerned the Project Council provides a forum for elected officers of the coop to participate

freely in policy making and operations and encourages them to take on as much of the overall responsibilities of the Title II program as soon as possible. This opportunity is always open to elected cooperative officers since they are permanent representatives on the Project Council.

On the other hand, the cooperatives act as the operating arm of the Council (and program) during the course of implementation. The goal being to prepare for the transfer of all program activities and assets to the coop even though the Committee and/or Council are nominally and legally charged with carrying out the program until the termination of commodity support. For fiscal and other reasons the Project Council is a program custodian and a body concerned with taking whatever action necessary to execute the program and pass on the whole development process to the cooperatives upon termination of the program.

As regards disposition of program assets upon termination of Project the Transfer Authorization had stated:

"Capital assets, including cash, equipment, and supplies, acquired during the operation of the program as a result of sale of feed containing Title II feed grain to participants, shall be transferred on an equitable basis at the termination of the program to the cooperatives in accordance with the direction of the Executive Committee and the approval of the USAID/Colombia."

If the INCORA sponsored coops were operating fully and had had more experience it would be appropriate to caution the USG and GOC representatives on the Project Council to exercise care in functioning in an advisory role rather than being an operating participant in the program operations. But, some of the coops are not yet operational and it is necessary, rather to emphasize the need for increased efforts on the part of INCORA and the Title II program activity to bring the operational and organizational level of the cooperative up to a point where their leaders can participate, some possibly for the first time, in the actual day by day activities of a service coop. When the coop has reached this early stage of operational capability, advice will become more meaningful. Until that stage is reached the Project Council may, at times, appear to be both advising and operating the program, and possibly as well, the coop. During this process INCORA's long experience and capable management input will remain a stabilizing influence.

It is believed that the Project Council can be a flexible arrangement that will serve the program well during the several stages of its development. It is suggested that the Project Council should be molded to fit the needs of both the program and the cooperative membership whose mutual objectives can be considered essentially one and the same during program operation. The continuing use of the Project Council in the implementation of this program is believed sound.

The written detailed documentation being made of all official meetings of the Project Council is furnishing valuable source material on this institutional development part of the program. When coupled with the itemized, quarterly planning budgets proposed by the Council for Counterpart "C" expenditure, which are approved by USAID, vital information on the program is continually being recorded. It is believed that this information deserves study as a Title IX effort.

It is believed appropriate that AID/USAID assistance be provided these Project Councils as an on-going Title IX activity. Consideration should be given, initially, to the approval of approximately ten (10) participant training grants and travel to the U.S., Brazil and other appropriate third countries for about two (2) months.

H. The Integrated Concept and Program Needs for U.S. Personnel

This program is attempting to solve all the technological and institutional changes needed for an integrated system of livestock and poultry production and marketing. Such an approach has been used for rice, corn and wheat with success in several areas of the world, as indicated in press reports of several leading international organizations including A.I.D. The program also follows in broad outlines a similar on-going cooperative animal production program initiated in Brazil in 1962 which was also supported by Title II PL 480 grain grants and some concepts and procedures have been transferred direct from there. But, the Brazilian program had two (2) full time U.S. senior agricultural specialists assigned to it during several years of operation.

It is unfortunate that, at least, a full time person is not assigned to this program for the fuller exploitation of possibilities for success.

Therefore, in fairness to the part time U.S. personnel charged with program responsibilities, the present serious understaffing should qualify any future evaluation of program implementation. This includes to a substantial degree, the several recommendations, program alternatives and sub-project activities suggested in this report. In addition, as the program progresses the following constraints to development will be encountered and should be given additional consideration:

1. Granted, the basic principle is similar to that used in the rice and corn programs of the so-called Green Revolution; still, there are different factors inhibiting animal production and the processing and marketing steps necessary from farm to consumer. These problems have been generally recognizable and have been formidable enough to discourage action programs for closing the world's animal protein gap. Now the crisis nature of the problem is increasing. Even A.I.D., often in the forefront in support of the Green Revolution package concept, has just begun to think actively of an integrated approach in meeting the challenge of animal protein shortages, therefore;
2. More integration is involved in animal than in crop production;
3. More capital, land and other resources are required;

4. Animal production cycles are much longer than in crop production;
5. More complex and varied technical and managerial inputs are needed;
6. And, as fits the jargon of today's youth there is that time consuming process of "putting it all together." The reading of A.I.D. Livestock Specialist's end of tour reports will show in very descriptive terms the amount of skills and energy expended solely on single elements of A.I.D. overseas livestock programs in the last several years, and even then some resulted in less than a complete success within the time that was allotted to them by the Agency. Often, success was obtained by concentrating on single elements at the expense of a broader program.

Obviously, a new and promising, but, nevertheless demanding concept is being tried for the solution of the problems relating to animal protein supply in Colombia. However, without an increase in USAID staff, caution should be exercised in judging the success of the several separate elements as well as the overall program objectives described in I.B. The concept is being tested as a part of broader measures addressed to Agrarian Reform, another crisis issue and involves increasing the income base of small farmers with limited resources. And there again, the program is unique for another reason. The on-going program is designed to solve problems common to many areas of the world and could appropriately serve as an on-going demonstration and training ground for other countries, especially those of Latin America.

Nevertheless, for a fuller realization of this visionary concept it is strongly urged that additional U.S. personnel be assigned to the program. Additional U.S. funds would be required for U.S. personnel while program funds accruing from the sale of Title II feed can adequately supplement the GOC contribution of INCORAs staff. USAID should make available appropriate funds and hire a full time agricultural specialist for this program.

As designed, this program can now serve as a field application of the principles of the integrated concept in animal production. The Title II grant of grain is presently adequate for a good start at field testing this concept as well as new research information which may become available from A.I.D. supported programs in Colombia and abroad.

V. Recommendations

1. Program feed should be allocated for feeding trials to insure that quality is continually maintained and that feed conversion ratios under actual farm management conditions can be obtained to determine feeding levels that can be used under market conditions.
2. When feeding trials are made as part of a livestock and poultry demonstration, additional program funds should be used for appropriate tests, trials, economic and farm management studies.
3. USAID and GOC should adhere strictly to an expected three (3) month lapse between USAID call forwards and estimated arrival of grain in Colombian ports.
4. Integrated mill and mixing equipment should be purchased to include, among other improvements, automatic weighers, bag sewing, material flow or elevator machinery and portable bag elevators for both Candelaria and Bogota areas.
5. Feed milling consultants and/or program employees should be hired from program funds, when INCORA determines that they are necessary, for surveys, plant layout, and other technical aspects.
6. The "Fund Flow" sheet concerning financial reporting on Counterpart "C" should be accompanied by a projection of both commodity values and accounts receivable.
7. Consideration should be given to the initiation of a farm unit demonstration program using more fully the existing farm management records of INCORA's supervised credit program.

8. The possibility should be considered that the strictly business aspects of the program might eventually be done, over the long term, by program or cooperative paid business or cooperative managers.
9. Some technical consultants and longer term personnel, outside the present competence of INCORA and CECORA, should be considered for employment and hired from program funds.
10. Intermediate level technicians, farm youths, herdsmen and farm foremen should be given practical in-service training on the better participant farmers; board and other necessary costs being paid from program funds. This action would support Recommendation 7.
11. Program funds should be actively used, when other funds are not available, to supplement organized training programs conducted cooperatively by program personnel and SEMA and ICA when participant farmers, farm youths and program technicians are enrolled.
12. Consideration should be given to a long range plan with the Agricultural Universities to support selected tests, trials, studies and surveys with university teaching and student personnel when they are program related and offer solutions to Title II project problems; to be undertaken as the USAID staff level permits.
13. The Project Councils should continue to be used as the focal point for program related cooperative development efforts.

14. AID/USAID assistance should be provided for the Project Councils as an on-going Title IX activity; initial support should include approximately ten (10) training grants to the U.S., Brazil and other appropriate third countries for about two months.
15. A full time U.S. agricultural specialist should be assigned to the program.

ANNEX I

TABLE I. Percentage Distribution of Holdings, Land Area, and Farming Population, by Size of Holding, Colombia, 1960. 1)

Size of Holding, in Hectares	Holdings	Area in Holdings Hectares	Farming Popula- tion	Number of Hec- tares per farm Capita
Numbers (000)	1,210	27,338	6,566	
Percent	100.0	100.0	100.0	4.16
Under 0.5 ha.	13.7	0.1	12.5	.05
0.5 - 0.9	10.9	0.3	8.1	.18
1.0 - 1.9	15.8	1.0	12.4	.33
2.0 - 2.9	9.7	1.0	8.4	.50
3.0 - 3.9	7.6	1.1	7.1	.66
4.0 - 4.9	4.8	0.9	4.7	.81
5.0 - 9.9	14.0	4.2	15.0	1.18
10.0 - 19.9	9.5	5.8	11.2	2.15
20.0 - 49.9	7.1	9.7	9.2	4.36
50.0 - 99.9	3.3	9.8	4.6	8.84
100 - 199	1.9	11.0	2.9	15.68
200 - 499	1.1	14.6	2.2	27.80
500 - 999	0.3	10.0	0.9	47.83
1,000 - 2,499	0.2	10.3	0.5	81.87
2,500 - and over	0.1	20.2	0.3	293.72

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TABLE 2. Percentage Distribution of Holders According to Tenure, by Size of Holding, Colombia, 1960.

Size of Holding	Percent Distribution of Holders by Tenure				
	Total	Owners	Tenants	Squatters	Others *
All holdings	100.0	62.4	23.4	3.9	10.3
Under 0.5 ha.	100.0	66.7	28.1	1.4	3.8
0.5 - 0.9	100.0	58.5	31.8	1.6	8.1
1.0 - 1.9	100.0	55.5	30.8	2.3	11.4
2.0 - 2.9	100.0	54.3	28.9	2.7	14.1
3.0 - 3.9	100.0	59.0	24.9	2.7	13.4
4.0 - 4.9	100.0	58.9	23.6	3.1	14.4
5.0 - 9.9	100.0	64.1	19.3	3.4	13.2
10.0 - 19.9	100.0	68.1	15.1	5.3	11.5
20.0 - 49.9	100.0	71.4	10.6	8.8	9.2
50.0 - 99.9	100.0	71.4	7.1	14.5	7.1
100 - 199	100.0	73.7	5.9	12.5	6.4
200 - 499	100.0	76.4	5.0	12.5	6.1
500 - 999	100.0	80.9	3.9	8.6	6.6
1,000 - 2,499	100.0	80.3	3.3	9.8	6.6
2,500 has and over	100.0	69.0	2.5	19.6	8.9

* Includes holders operating holdings "under other single forms of tenure" and "under more than one form of tenure."

TABLE 3. Percentage Distribution of Selected Classes of Livestock and Poultry, by Size of Holding, Colombia, 1960.

Size of Holding	Percentage Distribution							
	Horses	Mules	Asses	Cattle	Sheep	Goats	Hogs	Chicke
All holdings	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Under 5.0 has.	19.9	12.7	37.5	6.0	42.5	31.3	38.7	49.5
5.0 - 9.9	14.6	11.4	10.9	5.2	17.6	13.8	12.6	14.8
10.0 - 19.9	14.5	14.2	10.3	6.7	12.1	14.0	11.6	11.2
20.0 - 49.9	15.5	18.1	13.8	10.9	10.5	13.8	12.8	10.2
50.0 - 99.9	9.5	12.4	10.2	10.6	5.5	8.6	8.5	5.6
100 - 199	7.6	10.4	7.5	12.2	4.9	7.3	6.3	3.6
200 - 499	7.5	9.9	5.6	16.7	3.3	5.7	5.1	3.3
500 - 999	4.2	5.2	2.0	11.5	1.7	3.4	2.2	1.0
1000 - 2499	3.2	3.4	1.5	10.2	1.1	1.3	1.3	0.5
2500 has and over	3.5	2.3	0.7	10.0	0.8	0.8	0.9	0.3

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TABLE 4. Percent of Holdings by Size Reporting Horses, Mules and Asses, and Average Numbers Per Holding, Colombia, 1960.

Size of Holding	Percent of Holdings Rptng	Average Number Per Holding	Percent of Holdings Rptng	Average Number Per Holding	Percent of Holdings Rptng	Average Number Per Holding
All holdings	30.5	2.4	12.6	2.2	12.4	1.9
Under 0.5 has.	4.5	1.5	1.2	1.7	8.0	1.6
0.5 - 0.9	8.7	1.3	1.8	1.4	7.5	1.4
1.0 - 1.9	15.8	1.4	3.3	1.4	10.2	1.4
2.0 - 2.9	22.8	1.4	5.7	1.4	11.5	1.6
3.0 - 3.9	30.3	1.5	7.7	1.4	10.5	1.6
4.0 - 4.9	34.7	1.6	9.9	1.5	11.0	1.7
5.0 - 9.9	44.3	1.8	14.9	1.5	11.0	1.7
10.0 - 19.9	53.9	2.1	24.0	1.8	13.4	2.0
20.0 - 49.9	59.4	2.7	33.2	2.2	20.2	2.3
50.0 - 99.9	63.2	3.4	40.4	2.6	28.0	2.7
100 - 199	69.9	4.4	49.5	3.2	33.7	3.0
200 - 499	77.2	6.4	60.2	4.1	36.2	3.3
500 - 999	85.3	10.6	87.9	4.9	39.5	3.6
1000 - 2499	87.8	16.6	79.3	7.5	46.8	4.7
2500 has. and over	91.6	43.2	86.8	11.5	44.0	6.1

TABLE 5. Percent of Holdings by Size Reporting Cattle, Sheep, and Goats and Average Numbers Per Holding, Colombia, 1960.

Size of Holding	Percent of Holdings Rptng	Average Number Per Holding	Percent of Holdings Rptng	Average Number Per Holding	Percent of Holdings Rptng	Average Number Per Holding
All holdings	36.4	21.9	11.6	6.2	2.9	5.8
Under 0.5 ha.	6.0	3.1	6.6	3.6	0.1	4.7
0.5 - 0.9	14.9	2.4	11.0	3.7	1.3	4.6
1.0 - 1.9	23.4	2.9	12.3	4.1	1.9	4.2
2.0 - 2.9	31.0	3.4	13.2	4.5	2.8	3.6
3.0 - 3.9	38.1	3.9	14.4	5.0	3.2	3.9
4.0 - 4.9	41.9	4.4	13.8	5.5	3.8	3.7
5.0 - 9.9	49.7	6.0	14.3	6.4	4.0	4.1
10.0 - 19.9	58.5	9.7	12.2	7.5	4.2	5.9
20.0 - 49.9	65.6	18.5	10.5	10.0	4.0	8.0
50.0 - 99.9	69.4	36.9	8.7	13.9	4.1	10.6
100 - 199	76.2	69.3	9.2	20.6	4.9	13.5
200 - 499	82.6	142.0	11.0	19.1	6.1	13.6
500 - 999	88.8	302.5	14.0	26.3	7.0	23.4
1000 - 2499	92.0	539.6	14.9	32.1	8.3	16.1
2500 has. and over	95.7	1278.0	15.0	60.7	6.9	31.0

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TABLE 6. Percent of Holdings by Size Reporting Pigs and Chickens and Average Numbers Per Holding, Colombia, 1960.

Size of Holding	Pigs		Chickens	
	Percent of Holdings Reporting	Average Number Per Holding	Percent of Holdings Reporting	Average Number Per Holding
All holdings	45.9	3.7	79.0	18.1
Under 0.5 has.	38.8	3.3	79.7	15.1
0.5 - 0.9	31.5	2.5	69.9	13.5
1.0 - 1.9	35.9	2.5	73.2	14.1
2.0 - 2.9	41.1	2.6	77.9	15.1
3.0 - 3.9	44.6	2.6	80.5	16.2
4.0 - 4.9	47.9	2.8	83.4	16.5
5.0 - 9.9	51.7	3.0	83.7	18.1
10.0 - 19.9	58.1	3.6	84.1	20.9
20.0 - 49.9	62.8	4.8	83.0	24.6
50.0 - 99.9	65.3	6.7	81.7	29.9
100 - 199	66.5	8.7	81.1	34.6
200 - 499	67.7	11.4	81.2	51.6
500 - 999	67.4	16.3	81.7	49.2
1000 - 2499	66.5	21.1	83.5	49.1
2500 - has. and over	73.9	34.0	90.1	67.6

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TABLE 7. Number of Animal Units Per Hectare of Land Under Permanent Meadows and Pastures, Colombia, 1960.

Size of Holding	Number of Animal Units *	Number of Hectare in Permanent Meadows and Pastures	Average Number of Animal Units Per Hectare
	A	B	A/B
All holdings	10,895,925	14,605,954	0.7
Under 5.0 has.	1,112,705	218,662	5.1
5.0 - 9.9	742,866	333,885	2.2
10.0 - 19.9	868,849	546,871	1.6
20.0 - 49.9	1,268,394	1,061,244	1.2
50.0 - 99.9	1,128,845	1,165,202	1.0
100 - 199	1,227,223	1,445,056	0.8
200 - 499	1,603,432	2,134,629	0.8
500 - 999	1,082,186	1,609,421	0.7
1000 - 2499	947,305	1,787,641	0.5
2500 has. and over	914,120	4,303,343	0.2

* One animal unit equals 1 horse, mule or ass, 1 head of cattle, 10 lambs, 6 2/3 sheep, 10 swine and 100 chickens. Ducks, turkeys, geese and other poultry were not included in the tabulation.

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ANNEX II, Names and Positions of Persons contacted

Medellin

María Victoria Zuluaga	Director, Femenine Credit & Coordination of Feedgrain Program
Dr. Luis Eliecer Suárez	Veterinarian
Gustavo Cardona	Manager, Cooperativa Agrocabuyera
José Loaiza	Auditor, Cooperativa Agrocabuyera
Alvaro Morales	Manager, COMADAN

Fómequo

Dr. Efrón Torres	Veterinarian, Program Coordinator
Jairo Medellín	Manager, Agricultural Cooperative

La Mesa - Regional Committee Meeting

Luis Abella	INCORA's regional Director La Mesa
Alvaro Herrera	Manager, Cooperativa del Tequendama
Ernesto Vélez	Chief of INCORA's Credit Division Bogota
Camilo Hadad	Technical Advisor of INCORA-AID Feedgrain Program, Bogota
Humberto Gutiérrez	Administrative Advisor of INCORA-AID Feedgrain Program, Bogota
Jairo Suárez	Manager of Processing Plant in Candelaria
Jairo Medellín	Manager of Agricultural Cooperative
Jaime López	INCORA's Regional Director, Zipaquira
Pedro Prasca	INCORA's Regional Director, Fusagasuga

Fusagasuga

Pedro Prasca	INCORA's Regional Director
Jaime Cabrera	Veterinarian, Coordinator of Program

Donna Cecilia	Administrator of FANAL's Training Center
<u>Cali - (Palmira and Candelaria)</u>	
Jairo Suárez	Veterinarian, Manager of Processing Plant in Candelaria
Luis Rengifo	Swine Producers Plant Administrator
Jaime Pereira	Coordinator of Feedgrain Program in Palmira Region
Numar Jiménez	INCORA's field supervisor
<u>AID - Bogota'</u>	
William D. Bair	Chief, Special Activities Division
Pedro J. Chacón	Food Program Advisor
Joe Sconce	ADO/USAID
Howard Harper	Rural Development Officer/USAID
James Schwinden	Agricultural Division/USDA/PASA
Paul Sundheimer	Agricultural Division
<u>ICA/CIAT, CALI</u>	
Alex Warren	Poultry Specialist
Dr. Jerome H. Maner	Swine Specialist, ICA/CIAT
Dr. Eduardo Santos	Veterinarian/ICA
Paul Famin	Ext. Advisor/Nebraska Contract