

PROGRESS REPORT 3

Contract AID/csd 1467

November 1, 1967 to May 31, 1968

**Factor Analysis for Accelerating Agricultural Productivity
in Less Developed Countries**

**To: Project Monitor
Agricultural and Rural Development Service
Office of the War on Hunger
Agency for International Development
Washington, D.C. 20523**

**From: Simon Williams
Principal Investigator
International Marketing Institute
16 Garden Street
Cambridge, Massachusetts 02138**

Date: June 1, 1968

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1. The attached "Tentative Investment Prospectus", in a way, serves to summarize much of the work which has been done between November, 1967 and June, 1968. However, as noted in the prospectus, there are many ongoing phases of the project which are only abstracted in this document and require more complete presentation to AID in order to fulfill the demands of complete presentation of the work being done under Contract cad 1467.

2. Before proceeding further, an explanation is called for as to the purpose and use of the "Tentative Investment Prospectus". From the earliest days of the project it was clear that there is a subtle, complex yet direct interaction between financing and political support which critically affects the development of private enterprise in rural areas of less developed countries. Therefore, as factor analysis has proceeded, continuous effort has been focussed on simultaneous discussion with the financial community of Mexico and the U.S. and with political leaders in both countries, although primary attention has been given to officials of government in Mexico. For the first year and one-half, this discussion was aimed at gaining understanding of the project and its basic philosophical orientation, as a first step, and through this, at gaining overt support. It is safe to report that in a general sense, this understanding and support have been achieved, although no agency has been asked to or has volunteered to take a specific action.

3. The Governor of the State of Jalisco, the Secretary of Agriculture and the President of Mexico (through the Secretary of Agriculture) are aware of the Model, as an experiment, and have given their oral approval. The central bank (the Bank of Mexico), as well as the two key public agricultural credit banks to be dealt with (Banco Ejidal and Banco Nacional Agropecuario) are keenly interested and have expressed a desire to cooperate. Every leading private bank in Mexico has been informed and is awaiting the specifics of the financial structure of the Model in order to advise in general and to respond in particular regarding possible participation. All of the leading U.S. banks operating in Mexico have been contacted for guidance and suggestions. One, the Bank of America, has expressed particular interest and both in Mexico and the U.S. has been providing analytical and creative consultation on matters of currency exchange, credit financing, institutional relationships within Mexico and between Mexico and the U.S. The U.S. Ambassador to Mexico, the U.S. Secretary of Agriculture, the U.S. Under Secretary of State for Latin American Affairs, the Office of Private Resources of AID, and the Office of Commercial and Financial Policy in the U.S. Department of Commerce have been advised of the project with clear and unequivocal support resulting should assistance be required. Several dozen U.S. corporations in the agribusiness field have been consulted on a continuing basis to measure progress in the field against the

demands of management for data basic to investment decisions. The private business sector in Mexico, particularly in Guadalajara, has been in steady consultation with the field staff relative to strategy and tactics in gaining political and financial backing.

4. Early in 1968, it became apparent that in Mexico it was necessary to reduce the project to concrete form, even though all of the research was yet to be completed. Enough had been said, in general terms. All interested parties began to exert strong pressure to obtain the hard investment facts of the Model. Noone was able to offer further guidance and specific action recommendations without these data. Thus, the "Tentative Investment Prospectus" was written. Since the English version had to be written first in order to prepare a Spanish translation, fifty copies of the prospectus were printed in English. These are being used in Mexico and the U.S. to obtain critical review. Suggested changes, if acceptable, will be incorporated in the finished investment prospectus which will be a part of the final report to AID. Spanish translation has been completed. As Progress Report 3 is being written, this translation is being printed. One hundred copies will be made and distributed in Mexico to serve as the basis for further study of political response and methods of financing. It may be noted that copies of all documents like the prospectus which are distributed in Mexico are given to U.S. Ambassador Freeman, the Economic Counselor

and the Agricultural Attache of the U.S. Embassy in Mexico City, along with current information on those being contacted and the nature of the response.

5. There is no question that the "Tentative Investment Prospectus" is both a research instrument and a tool for investment promotion . There is simply no way to separate the study of financial alternatives and political interaction, as factors affecting agricultural development, from the interest aroused among potential investors. However, what is being emphasized at every moment is the construction of a methodology capable of integrating all of the factors of production and rural development through private initiative. As it is emerging in the course of the study in Mexico, the method of analysis has become elegantly bound to a course of action practically ensuring that the research report will be utilized promptly.

6. It may be noted from the investment prospectus that the question of how to finance the credit system has loomed large as a key factor in the analysis of the Model. In pursuit of an answer, it has become necessary to explore fully both the means through which credit now is made available to small scale farmers and the history of repayment which defines the risk attendant to such credit under varying conditions of contracting, supervision and follow-up. This inquiry is continuing. To date, the credit experience of the majority of U.S. companies operating in Mexico, in the agricultural or related fields, has been reviewed.

Interviews have been conducted with the credit managers of:

Anderson Clayton and Company

Ortho Chemicals- Chevron Chemical Company

Productos de Maiz (Corn Products Company)

Del Monte

Diamond Chemicals

Du Pont

Ford Motor Company

Niagara Chemicals (FMC Corporation)

General Foods

Heinz

International Harvester

La Hacienda (International Milling Company)

John Deere

Pennsalt

Monsanto

Ralston Purina

7. Further interviews are scheduled with some of these companies and others, e.g. Massey-Ferguson, Campbell Soup, Gerber. In addition, the credit experiences of the leading government banks- Banco Ejidal, Banco Agropecuario, Banco Agricola, Banco de Comercio Exterior and Banco de Mexico (Fondo de Garantia), are being gathered. Finally, the credit history of the private banks and other private organizations of Mexican

origin is being gathered. All of this is intended both to generate new ideas and to underscore the credit worthiness of the farmers, given the proper conditions.

8. The data covering the cultural, social and political aspects of the farmers with whom the Model corporation would have to deal, is being analyzed and a report is in process. Certain data, such as those bearing on credit demand, income from corn farming and farming practices, have been isolated for use in preparing the investment prospectus. However, the full report will require several additional months to complete. As an indication of the scope of this phase of the study, copies of the questionnaires used in the field are attached, with a brief covering summary.

9. During the crop year of 1968, an enlarged demonstration and test planting program will be carried on, as described below. The purposes of this program are:

a. to maintain the interest and close working relationships established between the research staff and the farmers during 1967, to ensure the management of the Model, if it is financed and in operation by 1969, maximum confidence and cooperation;

b. to refine the practices applied during 1967 to ensure maximum yield at lowest cost; and,

c. to determine where the best land in the valley lies so that the Model can start operations with the greatest odds of success.

10. The plantings planned for 1968 are:

a. 15 one hectare (2.5 acres) plots, with soil tests made at each, aimed at a high production check on all the soil types and topographic conditions characterizing the valley. Some of these plots have been deliberately selected from the farmland of leaders in the communities; others have been as deliberately chosen from among the poorest farmers. This will help gain support and yet avoid any charge of favoritism. These tests will use:

- . H309 hybrid seed, 40,000 plants/hectare.
- . fertilizer -150-30-0, based on the results of fertilizer studies made in 1967 and analyzed by the International Maize and Wheat Crop Improvement Center (CIMMYT) and applied in three stages, with all the phosphorus and one-third of the nitrogen being put on at the time of planting.
- . 2 kg. of Aldrin per hectare will be broadcast before planting time for pre-emergence insect control.
- . herbicides will be applied as a post emergence spray, in accordance with recommendations of CIMMYT.
- . all land will be prepared using animals and implements, as normally applied in the valley.
- . insecticides will be applied as needed during the season.

b. 2 hectares, one prepared with animals and one prepared with tractors, all other conditions being the same as in (a), above.

c. 1 hectare, prepared with animals, wherein one-half has 1 kg. of Aldrin banded on with the first application of fertilizer and one-half has 1 kg. of Aldrin broadcast before planting. All other conditions are the same as in (a), above.

d. 1 hectare divided as follows:

- . 1/5 - 40,000 plants/hectare density with 150-30-0 fertilizer, three applications
- . 1/5 - 48,000 plants/hectare density with 150-30-0 fertilizer, three applications
- . 1/5 - 56,000 plants/hectare density with 150-30-0 fertilizer, three applications
- . 1/5 - 48,000 plants/hectare density with 180-36-0 fertilizer, three applications
- . 1/5 - 56,000 plants/hectare density with 210-42-0 fertilizer, three applications

2 kg. of Aldrin will be broadcast before planting; animals will be used to prepare the land; and herbicides will be applied with a post-emergence spray.

e. 1 hectare, divided in half - one-half will receive pre-emergence atrazine, broadcast, as a weed control and a follow-up post-emergence spray, if needed; one-half will receive only a post-emergence herbicide spray, in accordance with CIMMYT recommendations. All other

conditions will be as in (a), above.

f. 4 hectares, with fertilizer applied as follows:

- . 150-30-0 all at once; one hectare; animal preparation.
- . 150-30-0 applied in three stages; with all of the phosphorus at the first application; one hectare; animal preparation.
- . Anhydrous NH_3 several days before planting; all phosphorus at the time of planting; one hectare; preparation; 150-30-0.
- . Anhydrous NH_3 , as above, except land prepared with tractor, 150-30-0.

All other conditions as in (a), above.

g. 3 hectares, in land traditionally flooded during the corn season but in 1968 available at the request of research staff by means of opening floodgates of an ancient dam. Fertilizer will vary:

- 1 hectare - none
- 1 hectare - 100-30-0
- 1 hectare - 150-30-0

Three applications of fertilizer will be made, with all the phosphorus at the time of the first application. One-half of each hectare will be treated with pre-emergence herbicide; the other half will receive post-emergence herbicide spray only. All other conditions will be as in (a), above.

h. 1 hectare, for data on the yield of silage. The hectare will be divided in quarters, as follows:

- . 1/4 - H366; 50,000 plants/hectare; 150-30-0, three applications
- . 1/4 - H309; 50,000 plants/hectare; 150-30-0, three applications
- . 1/4 - H366; 60,000 plants/hectare; 180-40-0, three applications
- . 1/4 - H309; 60,000 plants/hectare; 180-40-0, three applications

Herbicides will be applied with a post-emergence spray; 1 kg. of Aldrin will be banded in with the first application of fertilizer; the land will be prepared with animals.

i. 1 hectare, for data on the yield of silage- everything the same as in (h), above, except that 2 kg. of Aldrin will be broadcast.

j. 1 hectare, for data on the yield of silage- all conditions the same as in (h), above, except that all fertilizer will be applied at once.

11. In summary, the ongoing work, to be concluded during the remaining months of 1968, includes:

a. Analysis of sources and cost of the agricultural credit required; determination of the methods to be used to obtain guarantees for this credit, including an effort to obtain assurances that these guarantees will be extended should the Model Corporation be financed, as the desired follow-up to the contract research; drawing up a procedure for the administration of the credit system, including preparation of the contract which might be used between the farmer and the corporation.

b. Analysis of the sources and cost of investment capital, including equity and long term borrowing; analysis of the mechanisms through which U.S. and Mexican private capital can best be engaged in a joint venture; setting up the legal basis and the administration of the Trust Fund and the corporation itself.

c. Analysis and pretest of the procedures to be followed in getting approval by all agencies concerned with ejidal affairs in Mexico, leading to assurances of support in the future should the Model proceed and then require the use of ejidal land for the dairy and swine operations.

d. Field plantings trials and demonstrations, as described.

e. Preparation of the final report covering the cultural and social life of the farmers in the communities involved.

f. Organization of all phases of the research into a final report.