CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLES: CINATROP

12 FEB 1973

DIR-144

February 5, 1973

Dr. Ordway Starnes
Field Director
Indian Agricultural Program
17 Kautilya Marg, Chanakyapuri
New Delhi 21, India

Dear Ordway:

I appreciate having a copy of your letter of January 24 to John Pino concerning the documentation of the R. F. Program in India.

Since I participated in setting up the first of the All India Coordinated Program, I would be very much interested in having a copy of any materials made available on the subject. Please put me on your mailing list.

With best regards.

Sincerely yours,

U. J. Grant
Director General

UJG.caa

DR B. K. SONI
B. V. Sc,, Ph. D.
Deputy Director General
(Animal Sciences)

Telegram : AGRISEC
Telephone : 382545
भारतीय कृषि अनुसन्धान परिषद
कृषि भवन, डा० राजेन्द्र प्रसाद रोड, नई दिल्ली ।
INDIAN COUNCIL OF AGRICULTURAL RESEARCH
KRISHI BHAWAN, Dr. RAJENDRA PRASAD ROAD, NEW DELHI-1

D.O.No. 9512/72/DDG(AS) 976

November 30, 1972

Dear Dr. Starnes,

I am grateful to you for sending a copy of the proceedings of the seminar on the subject "Systems of Swine Production in Latin America".

These proceedings are very useful to us in developing our plans of ~~swine~~ pig production in India.

With kind regards,

Yours sincerely,

(B. K. SONI)

Dr. Ordway Starnes,
Field Director,
Indian Agricultural Program,
17, Kautilya Marg,
Chanakyapuri,
NEW DELHI-21.

ICAR/Gen

November 8, 1972

Dr B.K. Soni
Deputy Director General (AS)
Indian Council of Agricultural Research
Krishi Bhavan
NEW DELHI

Dear Dr Soni:

There is herewith a copy of the proceedings of the seminar on the subject, "Systems of Swine Production in Latin America" sponsored by CIAT in the period 18-21 September.

This copy of the proceedings was supplied by Associate Director General, Dr McClung, for reference purposes. In that I am sure this copy of proceedings will be of more value to you than it will to our program which has no commitment to swine production, you may retain this as a reference if you wish.

With kind regards, I am,

Sincerely yours,

Ordway Starnes
Field Director
Indian Agricultural Program

Encl.

November 8, 1972

Mr David Evans
Associate Administrator
Conferences & Symposia
Centro Internacional de Agricultura Tropical
Apartado Aereo 67-13
CALI, Colombia

Dear Mr Evans:

This will thank you for your T&CS-241-72 of 13 October and enclosed copy of the proceedings of your seminar on "Systems of Swine Production in Latin America" held in the period 18-21 September.

We very much appreciate your making this copy available. I wish to commend you on having been able to produce the proceedings so quickly following the symposium. Please be assured that I will share the copy you have supplied with Dr Soni, Deputy Director General, ICAR, who for circumstances beyond his control was unable to be with you for the symposium.

Yours sincerely,

Ordway Starnes
Field Director
Indian Agricultural Program

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLES: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

T&CS-241-72
October 13, 1972

DR. ORDWAY STARNES
Field Director
Indian Agricultural Program
17 Kautilya Marg, Chanakyapuri
New Delhi, 21
India

Dear Dr. Starnes :

As per Dr. A. Colin McClung's instructions, we are sending you a copy of the papers on the recent Swine Production Systems Seminar, held here, in Cali.

Sincerely,

David Evans
Associate Administrator
Conferences & Symposia

DE:get
enclosure

c.c. : Dr. A. Colin McClung

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

APARTADO AEREO 67-13
CABLES: CINATROP
CALI - COLOMBIA

20 OCT 1972

313-ACM

Cali, October 11, 1972

Dr. Ordway Starnes
Field Director
Indian Agricultural Program
17 Kautilya Marg, Chanakyapuri
New Delhi, 21, India

Dear Ordway:

We too are sorry that Dr. Soni couldn't come to the Swine Seminar. We expected him to come until the very last minute and we still thought he might come for the other portion of the trip.

We too arranged for funds to be issued to him by American Express, New Delhi. We are now attempting to recover our money. If we run into communication problems, perhaps we will call on you for help.

I am asking our mail room to send you a copy of the papers given at the conference.

All best wishes.

Sincerely,

Colin

A. Colin McClung
Deputy Director General

ACM/hhv

cc: Mr. L. M. González

P.S. We will also send a copy of the documentation to D. Soni.

~~FED~~

October 5, 1972

Dr A. Colin McClung
Associate Director General
Centro Internacional de Agricultura Tropical (CIAT)
Apartado Aereo 67-13
CALI (Colombia)

Dear Colin,

I wish to thank you and CIAT for your offer of assistance and enumerable actions to permit Dr Soni, Deputy Director General, ICAR, to participate in the international Swine Conference at CIAT. I regret that despite our best efforts we failed but for reasons quite beyond our control.

I was keenly disappointed that Dr Soni was unable to participate in that I was departing for almost a week to participate in the Coordinated Pulses Research Workshop. As of the time that he was scheduled to depart I thought it advisable that I notify you that he was experiencing difficulty in obtaining clearance and to ask that he should alert you to his flight number and time of arrival in the event he obtained clearance at the last minute.

On returning to Delhi I found that he had been unable to get away and enquired into the matter in order to appreciate the obstacle that he had encountered. It is clear that there was no lack of interest on the part of the Director General, ICAR, Dr Swaminathan, nor within the Ministry of Agriculture. The clearance problem apparently arose in the Ministry of Finance or at an even higher level; thus did not reflect any change of opinion within Agriculture as to the value of the Conference nor of the wish of the people in Agriculture to participate. I have asked Dr Soni to please write you explaining his inability to participate.

I sincerely hope that you have encountered no difficulty with regard to financial commitments. We had authorized American Express to issue Dr Soni with the agreed per diem advance, and as this was not collected American Express has returned the funds to us. Thus our accountability in this instance is in good order.

This was a very disappointing experience and we have no reason to feel that this is indicative of any trends. I hope you had a successful Workshop and would be very grateful if you would place our name on your list to receive a copy of the proceedings.

With best regards, I am,

Sincerely yours,

Ordway Starnes
Field Director
Indian Agricultural Program

cc Dr U.J. Grant
Dr Clarence C. Gray

Dr. Soni cancelled his program for want of GOI clearance.

September 15, 1972

The American Express International
Travel Department
Wenger House
Connaught Place
New Delhi

Attention: Mr. Codinho

Gentlemen:

Dr. B.K. Soni, Deputy Director General, Indian Council of Agricultural Research, New Delhi, has been invited by the Centro International de Agricultura Tropical (CIAT), Cali, Colombia, to visit the Center and participate in the Swine Conference scheduled to be held there for a total period of approximately ten days beginning September 18, 1972. CIAT has provided a sum of US$1,174 to cover the travel and living expenses of Dr. Soni divided as follows:

Excursion economy air ticket Delhi/New York/Delhi	US$550.00
Regular economy air ticket New York/Cali/New York	US$424.00
Per diem to cover living expenses for apx. 10 days	US$200.00
	$ 1174.00

In view of the fact that Dr. Soni has to reach Cali by the 17th and the funds transmitted to you by the CIAT has not reached you, the Center has requested this office to arrange for the air tickets and funds. Therefore we are hereby requesting you to provide Dr. Soni the air tickets indicated above and an amount of US$200 in travelers checks. Enclosed is our check in the sum of US$202/20 (including commission) to cover the travelers checks. This amount will be reimbursed to us by the CIAT. We would appreciate your sending your invoice for the air tickets in the amount of US$974 to Dr. A. Colin McClung, Deputy Director, Centro Internacional de Agricultura Tropical, Apartado Aereo 67-13, Cali, Colombia for settlement.

By sending a copy of this letter to Dr. Soni we are requesting him to get in touch with you to finalise the arrangements.

Very truly yours,

Ordway Starnes
Field Director
Indian Agricultural Program

cc: Dr. B.K. Soni
Dr. A. Colin McClung
NY Mail (HH thru CCC)

COPY

THE ROCKEFELLER FOUNDATION
17, Kautilya Marg, Chanakyapuri
New Delhi 21, India

September 15, 1972

The American Express International
Travel Department
Wenger House
Connaught Place
New Delhi

Attention: Mr. Godinho

Gentlemen:

Dr. B.K. Soni, Deputy Director General, Indian Council of Agricultural Research, New Delhi, has been invited by the Centro International de Agricultura Tropical (CIAT), Cali, Colombia, to visit the Center and participate in the Swine Conference scheduled to be held there for a total period of approximately ten days beginning September 18, 1972. CIAT has provided a sum of US$1,174 to cover the travel and living expenses of Dr. Soni divided as follows:

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By sending a copy of this letter to Dr. Soni we are requesting him to get in touch with you to finalise the arrangements.

Very truly yours,

Ordway Starnes
Field Director
Indian Agricultural Program

CC: Dr. B.K. Soni
Dr. A. Colin McClung
NY Mail (HH thru CCG)

OVERSEAS COMMUNICATIONS SERVICE
& INDIAN POSTS AND TELEGRAPHS DEPT.

विदेश संचार सेवा व भारतीय डाक-तार विभाग
विदेश संचार

1972 SEP 5 AM 12 34

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INND CO COBX 045
CALICOL 45 4 11-42

STARNES ROCKFOUND NEWDELHI-INDIA

CIAT only

Pa Am
Delhi-New York

L. No. 9

CIAT APPROVING TOTAL OF 974 DOLLARS FOR AIRTIKET SONI PLUS 200 DOLLARS PERDIEM FORTEN DAYS STOP TELL SONI CONTACT AMERICAN EXPRESS DELI AND CABLE ARRIVAL FLIGHT STOP SHOULD ARRIVE CALI BY SEPTEMBER 17 FOR CONFERENCE STARTS SEPTEMBER 18 STOP REGARDS

MCCLUNG/ CINATROP

CFM STARNES 974 PLUS 200 DOLLARS FORTEN DAYS 17 18

NR0081

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ZCZC LNB885 MOW482X TCC403 VIA ITT BTB747CL440
INND CO COBX 031
CALICOL 31-29 14 1149

1972 SEP 15 AM 3 11

I. NO.
95

STARNES ROCKFUND NEWDELHI-INDIA

WE AUTHORIZED CABLE TRANSFER SON FUNDS AUGUST 31 STOP IF NOT RECEIVED PLEASE ADVANCE MONEY AND BILL US PER URCAB STOP ARRIVAL SEVENTEEN IMORTANT REGARDS

MCCLUNG/NINATROP

CFM STARNES 31

15 7.72

OVERSEAS COMMUNICATIONS SERVICE
& INDIAN POSTS AND TELEGRAPHS DEPT.

विदेश संचार सेवा व भारतीय डाक-तार विभाग

LT

CINATROP
CALI (COLOMBIA)

MCCLUNG PENDING AMERICAN EXPRESS RECEIPT
OF TRAVEL AND PERDIEM FUNDS
AND GOI CLEARANCE SONI WISHES
TO ARRIVE SEVENTEENTH STOP FAILING
RECEIPT OF YOUR FUNDS WE
WILL DISBURSE AND CLAIM FROM
CIAT

STARNES

Not to be cabled:

The Rockefeller Foundation
17 Kautilya Marg, Chanakyapuri
New Delhi 21

September 13, 1972

OVERSEAS COMMUNICATIONS SERVICE
& INDIAN POSTS AND TELEGRAPHS DEPT.

13 SEP 1972

NLR 0169

NNNN
ZCZC BDA876 IBA016 BO1306 CLWW185
INND HL COBX 016
CALICOL 16/14 12 1419

LT
STARNES
ROCKFOUND
NEWDELHI INDIA

PLEASE CABLE STATUS SONI VISIT AND ARRIVAL FLIGHT REGARDS
MCCLUNG/CINATROP

COLL LT

INTERNATIONAL TELEGRAPH OFFICE * DELHI * 13.9.72

145

विदेश संचार सेवा व भारतीय डाक-तार विभाग

September 5, 1972

Dear Dr. Swaminathan:

We have been advised by the International Center for Tropical Agriculture (CIAT), Cali, Colombia, that they have provided a sum of US$1,174 to enable Dr. Balbir Krishna Soni, Deputy Director General, Indian Council of Agricultural Research, to participate in the Swine Conference scheduled to be held at CIAT beginning September 18, 1972.

In addition to the conference they hope he can spend additional time at CIAT in consulting with various members of their staff. They have also suggested that it would be useful for Dr. Soni to visit a few other agricultural research and development centers in South America, including the Brazilian Livestock Exposition.

Out of US$1,174 provided $974 are earmarked for an economy class air ticket Delhi/New York/Cali/New York/Delhi and $200 towards per diem. Dr. Soni can obtain the air ticket and funds by contacting the American Express Company in New Delhi when he has the necessary approval.

CIAT expects Dr. Soni to arrive in Cali by September 17 since the conference starts on the 18th. A cable should be sent to McCLUNG CINATROP CALI (Colombia) notifying him of the date and time of arrival including the flight number.

We trust and are sure that CIAT hopes it will be possible to permit the acceptance of this offer.

Sincerely yours,

Dr. M.S. Swaminathan
Director General
Indian Council of Agricultural Research
Krishi Bhavan
New Delhi

Johnson E. Douglas
Assistant Field Director
Indian Agricultural Program

cc: Dr. B.K. Soni
Dr. A. Colin McClung
Dr. Clarence C. Gray, III

JFD

LT

CINATROP
CALI (COLOMBIA)

MCCLUNG REF DOUGLAS CABLE RE SONI TRAVEL NINEHUNDRED SEVENTYFOUR DOLLARS FOR AIRTICKET AND TWO HUNDRED DOLLARS PER DIEM FOR TEN DAYS AT CIAT REQUIRED STOP CAN CIAT APPROVE THE ADDITIONAL FIVE HUNDRED SEVENTYFOUR DOLLARS STOP IF SO TRANSMIT FUNDS TO AMERICAN EXPRESS

STARNES

Not to be cabled:

The Rockefeller Foundation
17 Kautilya Marg
Chanakyapuri, New Delhi 21

September 1, 1972

PANAM

474
200
174
1600
574

DELHI - NEW YORK — DELHI

14/120 ——— 550.00

(Rest in am can be arranged)

NEW YORK - CALI -

NEW YORK 14/30 320.00

$ 870.00

EXCURSION 550:00

NORMAL 424.00

974.00

200

174

NORMA R/T $1662.00

THE ROCKEFELLER FOUNDATION

To O.S.

From JWD Date 30/8/72

Mr. Abu Hakim called from Foreign Aid Section about their inability. I talked with Soni and sent cable.

LT

CINATROP
CALI (COLOMBIA)

MCCLUNG GOI NOW EXPRESSES INABILITY DEFRAY SONI TRAVEL COSTS STOP SWAMINATHAN LETTER FOLLOWS STOP APPARENTLY ICAR UNABLE SECURE FINANCE CLEARANCE STOP REQUEST CIAT ASSISTANCE ADVISE

DOUGLAS

Not to be cabled:

The Rockefeller Foundation
17 Kautilya Marg, Chanakyapuri
NEW DELHI 21

August 30, 1972

- 960 [illegible]
- 200 Pond [illegible] for [illegible]
~~1160~~ [illegible] add -

DR. M.S. SWAMINATHAN
Director General, I.C.A.R. and
Secretary to the Government of India.

Telephone: 382629
Telegram : AGRISEC

भारतीय कृषि अनुसंधान परिषद
कृषि भवन, डा० राजेन्द्र प्रसाद रोड, नई दिल्ली
INDIAN COUNCIL OF AGRICULTURAL RESEARCH
KRISHI BHAWAN, DR. RAJENDRA PRASAD ROAD, NEW DELHI-1.

29 AUG 1972
OS
VED

D.O.No. 20(8)72-DG/ 3381
August 28, 1972

Dear Dr. McClung,

Thank you very much for your kind letter dated August 19, 1972, inviting Dr. Soni to visit CIAT. I gained the impression during my discussion with Dr. Grant that you will be able to meet his travel expenses. I hope this will be possible and kindly send a cable. Meanwhile I am requesting him to make necessary arrangements for his visit and secure the permission of the Government of India to accept your invitation.

Yours sincerely,

(M. S. Swaminathan)

Dr. A. Colin McClung,
Deputy Director General,
Centro Internacional de Agricultura Tropical,
Apartado Aereo 67-=3, Apartado Nal. 737,
Cali - Colombia.

Copy to Dr. Ordway Starnes, Rockefeller Foundation, New Delhi.

M.S. Swaminathan
(M.S. Swaminathan)

630517

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLES: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

2 8 AUG 1972

178-ACM

Cali, August 19, 1972

Dr. M. S. Swaminathan
Indian Council of
Agricultural Research
Krishi Bhawan
New Delhi 1 - India

Dear Dr. Swaminathan:

The purpose of this letter is to extend a formal invitation to Dr. Balbir Krishna Soni, Deputy Director General of the Indian Council of Agricultural Research, to visit the Centro Internacional de Agricultura Tropical "CIAT", Cali - Colombia. It is our understanding that if Dr. Soni can accept this invitation, the Government of India will defray his ticket expenses. To assist further, this Center will provide US$600.oo for 30 days per diem expenses for Dr. Soni.

We would invite Dr. Soni to attend the Swine Conference scheduled to be held at our Center on September 18 to 21, and to spend approximately one additional week in consulting with various members of our staff. In addition, we think that it would be useful for Dr. Soni to visit other agricultural research or development centers in South America, including Brazilian Livestock Exposition. We presume that Dr. Soni would make his own arrangements for such visits but we would provide the per diem funds as mentioned above to permit him to spend approximately 15 days at such centers.

Since time is limited we have arranged to have the per diem funds transferred to the American Express office in New Delhi. If Dr. Soni can accept the invitationk he should contact them. Further, we would ask Dr. Soni to advise us of his expected flight of arrival in Cali.

Best Regards

Sincerely yours,

A. Colin McClung
Deputy Director General

ACM/hhv

cc: Dr. Ordway Starnes - Rockfound - New Delhi
Dr. Clarence Gray - Rockfound - New York
Dr. J. Maner

JED

August 21, 1972

Dr M.S. Swaminathan
Director General
Indian Council of Agricultural Research
Krishi Bhavan
NEW DELHI 1

Dear Dr Swaminathan,

Please recall our discussion during the International Centers Week in Washington re ICAR interest in becoming familiar with the program of work in CIAT as a means of identifying activities of interest to India and the establishment of a continuing relationship, if indicated.

CIAT Director General, Dr Grant, shares your interest and, as you suggested, I have discussed the matter further with Dr Soni. Dr Soni expressed interest in participating in the CIAT-sponsored Swine Conference in the period 18-21 September, and following this there would be ample opportunity for consulting with CIAT staff. Dr Soni considered that he would be able to visit certain livestock activities in South America prior to his arrival at CIAT.

Two alternatives whereby CIAT might assist in defraying associated costs have been considered. These were direct costs associated with Dr Soni's participation in the Swine Conference or per diem for the period of approximately thirty days. In conformity with Dr Soni's wishes CIAT agrees a per diem grant for a period of 30 days in amount of $600. We have requested that CIAT wire these funds to Dr Soni, care of American Express, New Delhi. This CIAT is doing and we will confirm with Dr Soni the availability of the funds in New Delhi.

A copy of relevant cable from the Deputy Director General, CIAT, Dr McClung, is herewith. In the event the CIAT letter which follows is of interest to you, we will contact you again on its arrival.

May I say that we are pleased that Dr Soni will be able to follow up on the relationship which you have already established with CIAT and that he will have a useful visit on this occasion. While I will be out of Delhi during this week, Mr J.E. Douglas and others in our office stand ready to assist in this matter in any way. If my office may be advised of acceptance, we will be prepared to so advise CIAT.

With kind regards, I am,

Sincerely yours,

Encl.

Ordway Starnes
Field Director
Indian Agricultural Program

...2

cc Dr B.K. Soni
Deputy Director General (AS)
Indian Council of Agricultural Research
New Delhi

Dr A.C. McClung
International Center of Tropical Agriculture (CIAT)
Cali, Colombia

Dr C.C. Gray III
The Rockefeller Foundation
New York

OVERSEAS COMMUNICATIONS SERVICE
& INDIAN POSTS AND TELEGRAPHS DEPT.
विदेश संचार सेवा व भारतीय डाक-तार विभाग

05

19.8.72
DELHI

19AUG1972

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273

NNNN

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INND HL COBX 075
CALICOL 75 18 1813

LT
STARNES
ROCKFOUND
NEWDELHIINDIA

NDR 0245

PLEASE CONVEY FOLLOWING MESSAGE TO WAMINATHAN QUOTE CIAT PLEASED PROVIDE PER DIEM TRAVEL AWARD FOR BALBIR KRISHNA SONI TO PERMIT HIM VISIT THIS CENTER DURING SWINE CONFERENCE SEPTEMBER 18 TO 21 AND CONFER OUR STAFF FOLWING WEEK STOP AWARD CONSISTS OF 600 DOLLA FOR 30 DAY

~~CLL 18 21 IRPT 18 21 600 30~~

~~PAG 2~~

PER DIEM AND WOULD PERMIT HIM VISIT OTHER LIVESTOCK CENTERS STOP SONI SHOULD CONTACT AMERIC EXPRESS NEW DELHI FOR FUNDS UNQUOTE
LETTER FOLLOWS
MCCLUNG CINATROP

LT

CINATROP
CALI (COLOMBIA)

McCLUNG RESPONDING TO SWAMINATHANS INTEREST IN CIAT LINKAGES GRANT ADVISED DURING CENTERS WEEK OF CIAT WILLINGNESS DEFRAY VISIT BY GOI REPRESENTATIVE STOP BALBIR KRISHNA SONI DEPUTY DIRECTOR GENERAL PROPOSES TO VISIT FOR PURPOSES INDICATED STOP GOI CAN DEFRAY TRAVEL STOP EXCHANGE REQUIRED FOR PERDIEM STOP REQUEST CIAT GRANT SIX HUNDRED DOLLARS FOR THIRTY DAYS PERDIEM BY TRANSFERRING FUNDS TO AMERICAN EXPRESS NEWDELHI

STARNES

Not to be cabled:

The Rockefeller Foundation
17 Kautilya Marg, Chanakyapuri
NEW DELHI 21

August 16, 1972

OVERSEAS COMMUNICATIONS SERVICE
& INDIAN POSTS AND TELEGRAPHS DEPT.

विदेश संचार सेवा व भारतीय डाक-तार विभाग

NR0298

L. NO. 287

NNNN
ZCZC BDB850 HB1423 CDH460 CLWW58
CALI COL 29 14 1423

1972 AUG 15 PM 12.59

INTERNATIONAL TELEGRAPH OFFICE DELHI 15.8.72

STARNES
ROCKFOUND
NEWDELHI-INDIA

CABLE ON ICAR PARTICIPANT NOT CLEAR EITHER REGARDING NAME
OF PROPOSED GRANTEE OR SPECIFIC ALTERNATIVES IF TIEINERARY
AND FUNDING SOUGHT STOP PLEASE CLARIFY REGARDS

MCCLUNG CINATROP

CALL STARNES MCCLUNG

LT

CINATROP
CALI
(COLOMBIA)

GRANT SONI DDG OF ICAR DESIRES PARTICIPATE IN SWINE CONFERENCE BEGINNING EIGHTEEN SEPTEMBER AND TO IDENTIFY CIAT AND GOI INTERESTS STOP DESIRES ATTEND BRAZIL LIVESTOCK EXPOSITION ALSO REQUESTS FUNDS IN AMOUNT OF TWENTYFOUR DAYS PER DIEM OR IN LIEU RETURN AIR FARE AND FIFTEEN DAYS PER DIEM STOP CONFIRM AVAILABILITY OF FUND COPYING TO GRAY

BARNES

Not to be cabled:

Rbte

The Rockefeller Foundation
17 Kautilya Marg, Chanakyapuri
NEW DELHI 21

August 11, 1972

30
60

LT

ROCKFOUND
NEWYORK
(USA)

GRAY SENT FOLLOWING CABLE GRANT CIAT QUOTE SONI DDG OF ICAR DESIRES PARTICIPATE IN SWINE CONFERENCE BEGINNING EIGHTEEN SEPTEMBER AND TO IDENTIFY CIAT AND GOI INTERESTS STOP DESIRES ATTEND BRAZIL LIVESTOCK EXPOSITION ALSO REQUESTS FUNDS IN AMOUNT OF TWENTYFOUR DAYS PER DIEM OR IN LIEU RETURN AIR FARE AND FIFTEEN DAYS PER DIEM STOP CONFIRM AVAILABILITY OF FUND COPYING TO GRAY UNQUOTE

BARNES

Not to be cabled:

The Rockefeller Foundation
17 Kautilya Marg, Chanakyapuri
NEW DELHI 21

August 11, 1972

Este folleto contiene textos en Español y en Inglés.
El texto en Español aparece en el reverso.

Training Program

CROP PRODUCTION SPECIALISTS

III Graduate Course

Beginning date:
September 4, 1972

CIAT
CENTRO INTERNACIONAL
DE AGRICULTURA TROPICAL
CALI, COLOMBIA

The International Center of Tropical Agriculture, CIAT, has a Crop Production Specialists Training Program at the graduate level. Two 12-month training courses have already taken place under this program with 24 participants from six countries in Latin America. A third course is being projected for September 4, 1972.

The program aims to develop professionals with high capabilities to deal directly with the production of a group of crops in a "production system." The "learning by doing" method is emphasized. The economic-managerial aspect of production is stressed, and a communication approach used throughout the course makes it unique.

COURSE TERM

The starting date will be September 4, 1972 and the course will continue for 12 months.

PLACE

The first six months of training will take place at the CIAT headquarters farm near Cali, Colombia; during the second six months, activities will move to the National Center of Agricultural Research, Turipana, of the Instituto Colombiano Agropecuario, ICA, near Monteria, Cordoba and in neighboring farms.

NUMBER OF PARTICIPANTS

The admission to the course will be limited to 20 college graduates from up to 10 countries. The participants will be distributed in groups of four persons for certain activities.

OBJECTIVES

It is considered that the "production agronomist" who is to be successful in his endeavor must be a professional who is: (a) Technically knowledgeable and experienced, (b) Is skilled in farm production tasks, (c) Has a sound economic awareness, (d) Is capable of scientific field experimentation, and (e) Is an effective communicator of technology. These five characteristics have been adopted by this training program as its fundamental objectives, so that at the end of his training the professional would have acquired the following COMPETENCIES.

1. Technical competency. That is, the level of knowledge and understanding in relation to the production of crops, the practices involved and the physical environment in which production takes place. This includes the ability to correctly diagnose problems and abnormal situations as well as the correct application of appropriate treatments.

2. Economic competency. The ability to evaluate alternatives of production and marketing strategies for the products, and to make production decisions in the light of economic factors.

3. Scientific competency. The ability to carry on simple experimental replicated trials in the farm environment to test if the adoption of a given innovation represents an economic advantage.

4. Farming competency. That is, the willingness and skill necessary to perform personally the series of farming tasks involved in the production of a crop or crops. This includes the ability of the professional to carry on the physical work within the capacity of the farmer. Besides, he should have the knowledge and ability to operate and maintain the machinery used in production.

5. Communication competency. The ability to identify and coordinate specific behavioral objectives for pertinent audiences: farmers, professionals, executives, etc., whose behavioral change is necessary to obtain adoption of technology. This includes the ability to plan, prepare and present appropriate messages for audiences of different cultural levels.

An objective of particular importance is the ability to organize and promote similar training courses in the country of origin of the trainee, to obtain a multiplier training effect.

Furthermore, the "crop production specialist" must also be capable of integrating the various factors that intervene in production, in such a manner that the results would approach the maximum attainable.

SUBJECTS

The theory (conference) and practice (field work) of this training course concentrates on specialization in production of crops in the tropical lowlands

within the concept of the PRODUCTION SYSTEM with its multiple components such as environment, plants, machinery, labor, management, credits, inputs, markets, etc.

The following crops are included as subjects: RICE, CORN, SORGHUM, GRAIN LEGUMES (field beans, soybeans and cowpeas), CASSAVA, and VEGETABLE CROPS. Cotton and plantain may be also considered, if time allows, but with lesser emphasis, as rotation or alternate crops.

Besides the subject matter of TECHNOLOGY or agronomy of crop production systems and of the individual crops, the subjects of ECONOMICS–FARM MANAGEMENT and COMMUNICATION will be covered both in theory and in practice.

METHODS AND PROGRAMING

The methodology of the program is based on the principle of LEARNING BY DOING. Sixty percent of the time will be spent by each trainee collecting, planning, performing, and evaluating the work in the field, on the CIAT farm, as well as on the farmers' fields. The rest of the time the participants will attend conferences, seminars, discussions, round tables and will carry on library assignments, prepare reports, perform cost analyses from field data, and prepare for examinations.

The first six months of the course will take place on the CIAT farm near Cali, Colombia, where intensive field activities will be carried on during the mornings with the crops mentioned, from land preparation to harvest and marketing. The field work will be complemented by a series of conferences and discussion sessions on the subject matters previously mentioned.

At the end of this first period, the trainees will move to Turipana, the experiment farm of the Instituto Colombiano Agropecuario near Monteria, Colombia, where the participants will operate crop production fields and will also devote considerable time to training at private farms of the neighboring areas, taking active part in the management of the farm.

Particular emphasis will be placed at this stage on exercising the methods of effective communication. The series of conferences and discussion sessions will continue, although less time will be devoted to this activity.

During the last two weeks of the course, the participants will return to the CIAT headquarters near Cali, to evaluate their activities and to organize and take active part in a forum where their experiences in training will be discussed.

REQUIREMENTS

- -To hold a college degree in agriculture (Ingeniero Agronomo or equivalent).
- -To be in good physical and mental health.
- -To accept the objectives and methods of the training program herein described.
- -To be employed by an official, autonomous or private institution or enterprise, whose activities would be directly concerned with agricultural production.
- -The employer institution or enterprise shall continue the trainee's salary or part of it during his period of training and will give written assurance of continuation of employment when the professional returns to his country immediately after completion of his training.
- -To speak the Spanish language.

FINANCING

The cost per participant is US$5,400 for the twelve-month period, plus the cost of round trip, air travel. From this sum, CIAT provides the trainee with the following: room, board and laundry, a major portion of medical and hospitalization costs, travel expenses within Colombia that arise directly from training activities, required study and reference materials and the freight costs of sending these to the trainee's home country; a one-time relocation allowance upon arrival and a monthly stipend for personal expenses.

Scholarships from CIAT and BID

From its own funds and from a grant to CIAT by the Interamerican Development Bank, the Center has available several scholarships fully covering all costs and round trip transportation from the country of residence. The institutions qualifying to receive such scholarships will be notified of the number available to them.

Other Scholarships

Since the capacity of CIAT to provide training in this program is greater than the number of scholarships that CIAT and BID may provide, it will be possible to accept candidates financed by other institutions, national or international.

SELECTION OF PARTICIPANTS

CIAT invites those institutions or enterprises that wish to propose candidates for this course to write immediately to:

Dr. U. J. Grant
Director, CIAT
Apartado Aereo 67-13
Cali, Colombia

giving the names and titles of the candidates that the institution wishes to nominate. CIAT will then send the application forms, which must be received back in CIAT before June 10, 1972. Subsequently a representative of this Center will visit each country to interview the candidates and to discuss with the officials of the institutions the details of the program.

The candidates selected must take a medical examination before receiving final confirmation of admission. CIAT will take care of making the necessary arrangements to obtain visas and air travel reservations. The professionals admitted must arrive in Cali no later than September 3, 1972.

ADMINISTRATION

The program will be administered by the Leader, Training and Communication and will take place under the supervision of the Training Coordinator, Plant Science, with the cooperation of the Director of Plant Science.

CERTIFICATE OF COMPLETION

Upon satisfactory completion of the course, the participants will receive a certificate.

OTHER TRAINING ACTIVITIES

The Crop Production Specialists Training Program is one of several training programs offered by CIAT. A parallel program exists in Livestock Production. The second course of this program will start June 1, 1972 and a third course is planned for January 8, 1973.

The Center also offers opportunities for training in research of specific problems in scientific disciplines within one of the various commodity programs of CIAT: rice, corn, cassava, grain legumes, beef cattle, and swine and in the fields of: production systems, agricultural economics and station development and management. The persons and institutions interested in such training are invited to write to:

Leader, Training and Communication
CIAT
Apartado Aereo 67-13
Cali, Colombia



(1) La práctica de comunicación con agricultores y el adiestramiento directo en fincas particulares, son factores importantes en el curso.



(2) La ejecución directa de las labores de producción es parte fundamental del programa.



(3) Se dá mucho énfasis a la observación cuidadosa de los cultivos para diagnosticar los problemas en los campos y en las parcelas experimentales.

(4) Varios científicos especialistas del CIAT participan activamente en la instrucción en el campo.



(1) *Practicing communication with farmers and training on private farms play an important role in the course.*

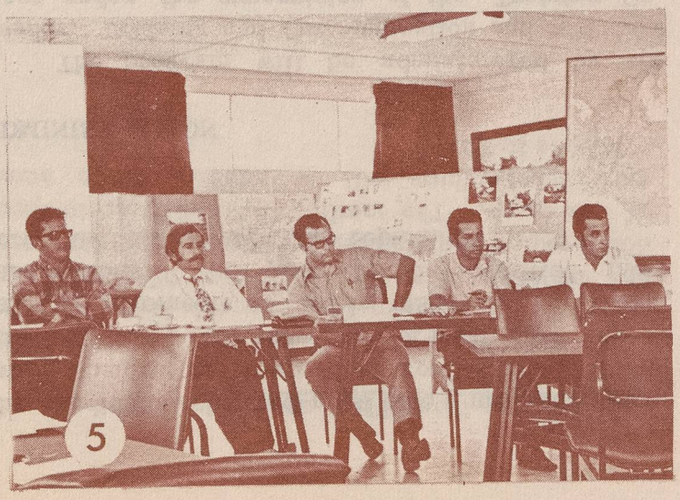
(2) *The direct performance of the field tasks is an essential part of the program.*

(3) *Emphasis is given to the careful observation of plants to diagnose problems in production fields and experimental plots.*

(4) *CIAT senior scientists take active participation in field instruction.*

(5) *The lectures and discussion sessions do reinforce the theoretical background in technology, economics and communication and allow for exchange of ideas.*

(5) Las conferencias y discusiones de clase refuerzan la base teórica sobre tecnología, economía y comunicación y permiten el intercambio de ideas.



This pamphlet contains texts in Spanish and English. For English see reverse.

Programa

de

Adiestramiento de Especialistas

en

PRODUCCION DE CULTIVOS

III Curso Posgraduado

Fecha de iniciación:
Septiembre 4, 1972

C I A T

CENTRO INTERNACIONAL
DE AGRICULTURA TROPICAL
CALI, COLOMBIA

El Centro Internacional de Agricultura Tropical tiene en marcha un "Programa de Adiestramiento de Especialistas en Producción de Cultivos" a nivel de posgrado, dentro del cual ya se han llevado a cabo dos cursos de doce meses de duración cada uno, con participación de 24 becarios de seis países de América Latina. Un tercer curso está proyectado para iniciarse en el próximo mes de septiembre de 1972.

Este programa se orienta hacia la formación de profesionales aptos a través de la ejecución directa de las actividades propias de la producción con un criterio económico. En el transcurso de todo el programa se aplica un enfoque de comunicación que es esencial para la transferencia exitosa de la tecnología a cualquier nivel y audiencia.

FECHA

El curso se iniciará el 4 de septiembre de 1972 y tendrá una duración de 12 meses.

LUGAR

Los primeros seis meses del adiestramiento se llevarán a cabo en la sede del CIAT cerca de Cali, Colombia y los últimos seis meses, en el Centro Nacional de Investigaciones Agropecuarias, Turipaná, cerca de Montería, Colombia y en fincas circunvecinas.

NUMERO DE PARTICIPANTES

La admisión se limitará a veinte profesionales graduados o egresados procedentes de hasta diez países diferentes de la América Tropical; los participantes serán distribuídos en grupos de cuatro para algunas de las actividades de adiestramiento.

OBJETIVOS

Se ha considerado que el ingeniero agrónomo especialista en producción, para que tenga éxito en su cometido, debe ser conocedor de la técnica, apto en la ejecución de las labores de campo, compenetrado con su criterio económico, capaz de llevar a cabo experimentos y efectivo en la transmisión de tecnología. Estas cinco características han sido adoptadas por este programa como objetivos fundamentales o sea que, al finalizar su período de adiestramiento, el profesional haya adquirido las siguientes APTITUDES:

1. Aptitud técnica, o sean, los conocimientos y comprensión en relación con la producción de cultivos, las prácticas involucradas y el medio ambiente físico en el cual se lleva a cabo la producción. Esto incluye la habilidad para diagnosticar correctamente problemas y situaciones anormales así como el conocimiento y la correcta aplicación de tratamientos apropiados.
2. Aptitud económica, o la capacidad para evaluar alternativas en la producción y estrategias para la comercialización del producto, calcular la relación beneficio/costo y hacer decisiones técnicas sobre la producción a la luz de los factores económicos.
3. Aptitud científica, la capacidad de conducir un ensayo experimental sencillo, replicado, en el propio ambiente de la finca, por medio del cual se pueda constatar que la introducción de una determinada innovación representa ventajas económicas. Tal competencia permitirá identificar factores que puedan requerir adaptaciones al ambiente.
4. Aptitud como agricultor, o sea, la capacidad, destreza y deseo de ejecutar la serie de labores relacionadas con la producción de un cultivo o cultivos determinados. Esto incluye la habilidad para desempeñar las faenas físicas que forman parte de su capacidad como agricultor y empresario. Además, con el adelanto de la mecanización, debe tener suficiente conocimiento y habilidad para operar implementos y ocuparse de su mantenimiento.
5. Aptitud en la comunicación, la capacidad para identificar actitudes o comportamientos específicos de diferentes grupos humanos, por ejemplo, ganaderos, agricultores, empleados de haciendas o personal bajo adiestramiento. Esto incluye el aprovechamiento del doble canal de la comunicación y saber cómo estimularla y obtenerla. También incluye la habilidad para planear, preparar y presentar mensajes apropiados, tomando en cuenta el nivel cultural, social y económico de las diferentes audiencias. Un aspecto particularmente importante es la habilidad para organizar y promover cursos similares en los países de origen de los becarios con lo cual se logra un efecto multiplicador del adiestramiento recibido por ellos.

Además, el especialista en producción de cultivos adquirirá conocimientos sobre un número considerable de especies vegetales que integren un "sistema de producción" y una base de conocimientos y destrezas agronómicas y en las ciencias sociales que le permitan ampliar con facilidad y por sus propios medios su capacidad de trabajo con nuevas especies y ante nuevas situaciones. Este especialista también debe ser capaz de integrar los diversos factores que intervienen en la producción, en tal forma que los resultados se aproximen al máximo lograble.

MATERIAS

La enseñanza teórica y la práctica están enfocadas hacia la especialidad de la producción de cultivos, en las tierras bajas del trópico, dentro del concepto de SISTEMA DE PRODUCCION con sus múltiples componentes: medio ambiente, plantas, insumos, financiamiento, mano de obra, administración, maquinaria, mercadeo, etc.

Las materias que se impartirán en el curso incluyen los siguientes cultivos: ARROZ, MAIZ, SORGO, LEGUMINOSAS DE GRANO (frijol, soya y caupí), YUCA y HORTALIZAS. El algodón y el plátano podrán también ser incluídos en el curso pero con menor énfasis, como cultivos de rotación y alternos. Además de los aspectos de TECNOLOGIA agronómica del sistema de producción en general y dentro de éste, los que correspondan a cada cultivo en particular, se estudiarán y pondrán en práctica las materias de ECONOMIA AGRICOLA-ADMINISTRACION DE EMPRESAS AGRICOLAS y COMUNICACION.

METODOS Y PROGRAMACION

Este programa de adiestramiento está fundamentado en el principio de APRENDER POR EJECUCION. La mayor parte del tiempo (un sesenta por ciento), se empleará en planear, ejecutar personalmente y evaluar el trabajo de campo, tanto en la granja del CIAT como en fincas de agricultores. El resto del tiempo (cuarenta por ciento), el becario asistirá a conferencias, seminarios, sesiones de discusión y mesas redondas; efectuará trabajos de consulta en la biblioteca, preparación de informes y exámenes, y análisis de costo de producción.

Los primeros seis meses del curso se llevarán a cabo en la granja de la sede del CIAT, cerca de Cali, Valle, Colombia, en donde, de una manera intensiva, se harán los trabajos de campo con los cultivos mencionados, desde preparación de tierras hasta cosecha y mercadeo. Las actividades de campo a efectuarse en las mañanas y algunas tardes, tendrán lugar durante esos primeros seis meses y serán complementadas por series de conferencias y discusiones sobre las materias del curso: tecnología, economía-administración y comunicación.

Al finalizar este primer período del curso, el grupo de becarios se trasladará al Centro Nacional de Investigaciones Agropecuarias, Turipaná, del Instituto Colombiano Agropecuario, cerca de Montería, Córdoba, (un área de terrenos aluviales) en donde los participantes operarán parcelas de cultivos y además, dedicarán tiempo considerable a recibir adiestramiento directamente en fincas de agricultores de las áreas circundantes, tomando parte activa en la administración de las fincas, con énfasis particular en ejercitar métodos efectivos de comunicación. En esta segunda fase, se continuarán las series de conferencias y discusiones.

Oportunamente, los participantes harán una visita de una semana a la Estación Experimental Carimagua, del Instituto Colombiano Agropecuario, en los Llanos Orientales de Colombia, en donde harán observaciones sobre suelos y cultivos de un área de oxisoles. Además se visitarán dos proyectos regionales de desarrollo agrícola en Colombia. Durante las dos últimas semanas del curso los becarios regresarán a la sede del CIAT con el propósito de hacer una evaluación de sus actividades así como también organizar y tomar parte en un foro de discusión en relación con las experiencias obtenidas durante el adiestramiento.

REQUISITOS

- -Poseer el título de Ingeniero Agrónomo o su equivalente.
- -Estar en buena salud física y mental.
- -Aceptar los objetivos y métodos de adiestramiento descritos en este folleto.
- -Ser profesional empleado por una institución o empresa oficial, autónoma o privada cuyas actividades estén directamente relacionadas con la producción agrícola.
- -Haber obtenido un acuerdo con la institución o empresa en la cual trabaja que garantice la continuación del pago de su sueldo (o por lo menos la mitad del mismo) durante la duración del adiestramiento y una garantía de que la institución continuará empleando al técnico adiestrado a su regreso al país.
- -Hablar el idioma español.

FINANCIAMIENTO

Por participante el costo es de US$5.400.oo por los doce meses de duración, sin incluir el valor del pasaje de ida y vuelta. De esta suma, el CIAT proveerá al becario lo siguiente: Alojamiento, alimentación, lavandería, parte de los gastos médicos y de hospitalización, gastos de viajes requeridos dentro de Colombia y envío de material de estudio y referencia al país de origen después de concluído el adiestramiento, los materiales y equipo de estudio y práctica de campo que el becario necesite, un estipendio mensual para gastos personales y una suma única para gastos de reubicación a su llegada al CIAT.

Becas del CIAT y BID

A través de sus propios fondos y de una donación otorgada por el Banco Interamericano de Desarrollo, el CIAT está en capacidad de otorgar algunas becas para participantes en este curso, las cuales cubren los costos mencionados y el pasaje aéreo de ida y vuelta al país de residencia. Oportunamente se notificará a las instituciones correspondientes en cada país acerca del número de becas disponibles.

Otras becas

En vista de que la capacidad de admisión es mayor que el número de becas que el CIAT y el BID pueden otorgar, se podrán aceptar participantes financiados por otras instituciones nacionales o internacionales.

SELECCION DE BECARIOS

Se invita a las instituciones que deseen presentar candidatos para participar en este curso, a que escriban de inmediato a:

Dr. U.J. Grant
Director, CIAT
Apartado Aéreo 67-13
Cali, Colombia.

indicando el nombre y cargo de cada uno de los candidatos que la institución desea proponer. El CIAT enviará enseguida, los respectivos formularios de solicitud. Las solicitudes deberán ser recibidas en el CIAT antes del 10 de junio de 1972. Posteriormente un representante de este Centro visitará cada país con el propósito de entrevistar a los profesionales propuestos y discutir con los ejecutivos de las instituciones los detalles del programa. Una vez hecha la selección de candidatos, éstos deberán aprobar un examen médico antes de recibir confirmación de su admisión al curso. El CIAT se encargará de hacer los arreglos necesarios en relación con visas y viajes. Los profesionales seleccionados deberán llegar a Cali a más tardar el tres de septiembre de 1972.

ADMINISTRACION E INSTRUCCION

El programa será administrado por el Líder de Adiestramiento y Comunicación; se llevará a cabo bajo la supervisión del Coordinador de Adiestramiento en Ciencias Agrícolas, con la cooperación del Director de la División de Ciencias Agrícolas.

El cuerpo de instructores estará constituído por el personal de Adiestramiento y Comunicación, los científicos especialistas del CIAT y de las instituciones y empresa privada colombianas que se inviten a colaborar en este programa.

CERTIFICADO FINAL

Al completar el curso satisfactoriamente, cada participante recibirá un certificado que acredita el adiestramiento recibido.

OTRAS OPORTUNIDADES DE ADIESTRAMIENTO DE POSGRADO

El Programa de Adiestramiento de Especialistas en Producción de Cultivos es uno de los varios programas de adiestramiento que el CIAT ofrece en la actualidad y en los próximos años.

Existe un programa paralelo en Producción Pecuaria. El segundo curso de ese programa de 12 meses de duración, se iniciará el próximo primero de junio y el tercero está proyectado para el 8 de enero de 1973 (fecha no confirmada aún).

Además, el Centro ofrece oportunidades de adiestramiento en investigación sobre problemas específicos o disciplinas científicas dentro de los programas de arroz, yuca, maíz, leguminosas de grano, ganado de carne, porcinos, sistemas de producción agrícola y desarrollo y manejo de estaciones experimentales. Las personas e instituciones que tengan interés en tales programas de adiestramiento pueden escribir a:

Líder, Adiestramiento y Comunicación
CIAT
Apartado Aéreo 67-13
Cali, Colombia.

DR. M.S. SWAMINATHAN
Director General, I.C.A.R. and
Secretary to the Government of India.

24 AUG 1972
OS
FRD

Telephone : 382629
Telegram : AGRISEC

ICAR

भारतीय कृषि अनुसंधान परिषद
कृषि भवन, डा० राजेन्द्रप्रसाद रोड, नई दिल्ली
INDIAN COUNCIL OF AGRICULTURAL RESEARCH
KRISHI BHAWAN, DR. RAJENDRA PRASAD ROAD, NEW DELHI-1.

D.O.No.20(8)/72-DG/3299
August 22, 1972.

Dear Dr.Starnes,

Thank you very much for your kind letter dated August 21, 1972.

I am very happy that CIAT has invited Dr.Soni to attend the Swine Conference. I am requesting him to prepare for attending the conference and also fulfil an invitation from Brazil.

With my best regards,

Yours sincerely,

M. S. Swaminathan

(M.S.Swaminathan)

cc RT - Delhi / Cal; Columbia

Dr.Ordway Starnes,
Field Director, Indian Agricultural Program,
The Rockefeller Foundation, 17, Kautilya Marg,
Chanakyapuri, NEW DELHI-21.

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLES: CINATROP

~~OS~~

File CIAT

TC-307-72
June 5, 1972

Dr. Ordway Starnes
Field Director
Indian Agricultural Program
The Rockefeller Foundation
17, Kautilya Marg, Chanakyapuri
New Delhi 21, India

Dear Ordway:

We were as much surprised to get your letter about the crop production course announcement as you were to get the announcement itself. The same day, we received inquiries from Pakistan and Poland. Upon investigation, we found that the automatic sort on our mailing plates evidently misbehaved during the addressing process and the new operator was not aware of this. Thanks for bringing this to our attention, and please give our best regards to your family and associates.

Sincerely,

Francis C. Byrnes, Leader
Training and Communication

FCB:cee

P. S. Recently I enjoyed a two-day visit to Kenya, including an afternoon with the Mwea rice project. It and everything I saw in the Nairobi area was most fascinating. You must have enjoyed your tour of duty there.

CIAT

18 May 1972

Thru: Dr. U.J. Grant

Dr. Francis C. Byrnes
Communications Specialist
CIAT
Apartado Aereo 6713
Cali, Colombia

Dear Francis:

This will thank you for your 27 April notice of the next crop production specialists training course to begin September 4, 1972.

We very much appreciate being kept informed of your offerings, and should we take this up with our Indian associates it is very likely that there would be interest. However, as the ecology of Colombia differs markedly from India and as a requirement of the participant is proficiency in Spanish, it does not seem advisable that we consider your offering with Indian workers.

With kind regards, I am

Sincerely yours,

Ordway Starnes
Field Director
Indian Agricultural Program

CIAT

APARTADO AEREO 67-13
CABLES: CINATROP
CALI - COLOMBIA

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

1 2 MAY 1972

27 April 1972

Enclosed is information about CIAT's next CROP PRODUCTION SPECIALIST TRAINING course to begin September 4, 1972. Also attached you will find a brief report on the previous course which was similar to the one projected.

CIAT will be able to provide a limited number of scholarships for participants of several countries. Furthermore, this Center will admit candidates financed by other agencies or institutions, either national or international. The cost of a scholarship is US$5,400 for the 12-month course. This covers all expenses including room, board and incidentals, excepting the cost of round trip, air travel.

The requisites that candidates must fill and other details of the course are described in the brochure attached.

We cordially invite you, at your earliest convenience, to propose candidates for CIAT's scholarships as well as candidates that could be financed by your agency. The solicitudes shoud be sent to:

Dr. U. J. Grant, Director
Centro Internacional de Agricultura Tropical
Apartado Aereo 67-13
Cali, Colombia.

We will appreciate receiving your solicitudes before June 15, 1972.

Very truly yours,

Francis C. Byrnes
Leader,
Training and Communication

Enc.
FCB/ovd.

APARTADO AEREO 67-13
CABLES: CINATROP
CALI - COLOMBIA

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

EL SEGUNDO CURSO DE ADIESTRAMIENTO DE ESPECIALISTAS EN PRODUCCION DE CULTIVOS

El segundo CAEPC se inició el 8 de marzo de 1971 con catorce ingenieros agrónomos de seis países: República Dominicana 2, Honduras 1, Costa Rica 2, Panamá 2, Colombia 4 y Ecuador 3. La filosofía básica y la metodología de instrucción son esencialmente pragmáticas.

Se estableció como objetivo, que al finalizar el curso los participantes hubieran adquirido cinco capacidades o aptitudes que los convirtieran en agrónomos efectivos para la actividad de producción. Estas capacidades son:

1. Aptitud técnica, o sea, el nivel de conocimientos que el profesional debe poseer en relación con los cultivos que el agricultor produce, las prácticas de producción implicadas y el medio ambiente en el cual se lleva a cabo la producción. Esto incluye la habilidad de diagnosticar, en forma correcta, problemas típicos y anormalidades, más el conocimiento y el entendimiento sobre la aplicación de tratamientos adecuados.

2. Aptitud económica, o sea, la capacidad de evaluar estrategias alternativas sobre insumos de producción y comercialización de productos, como para determinar si es que la adopción de una innovación es suficiente para aumentar económicamente la producción en grado substancial. Una estrategia efectiva que debe basarse en, y no debe de ir más allá de, la disponibilidad de los insumos necesarios para la producción y los factores de comercialización del producto.

3. Aptitud científica, o sea, un entendimiento básico de la filosofía de la ciencia y una habilidad para llevar a cabo experimentos con replicaciones, cuyo objetivo sea el comprobar si es que la adopción de una innovación es suficiente condición para lograr un aumento económico substancial para el productor.

4. Aptitud como agricultor, o sea, el deseo y la capacidad para llevar a cabo la serie de trabajos físicos implicados en el hecho de producir un cultivo específico o cultivos dentro de un sistema de producción. Esto incluye la habilidad del profesional para llevar a cabo la serie de trabajos físicos que están dentro de la capacidad o aptitud del agricultor. Además, debe de adquirir el conocimiento del equipo agrícola utilizado y los procesos relacionados.

5. Aptitud en la comunicación, o sea, la capacidad para identificar y coordinar objetivos específicos de comportamiento para audiencias pertinentes, cuyo cambio en el comportamiento es necesario para lograr la adopción de tecnología económicamente apli-

cable. Esto incluye la habilidad para planificar, preparar y presentar mensajes apropiados y para obtener información de respuesta de las audiencias pertinentes, las cuales pueden incluir, dentro del medio ambiente del agricultor, los siguientes elementos: el dueño de la tierra, la agencia de crédito, el distribuidor de insumos, el vendedor al por mayor, el vendedor al por menor y aún, el consumidor. El mensaje más apropiado para una audiencia de agricultores, por supuesto, es el que promueve la innovación cuya ventaja ha sido validada en un ambiente similar si bien no idéntico a aquel del agricultor.

ACTIVIDADES

La programación del curso fué tal que aproximadamente un 60 por ciento de los doce meses de duración fué dedicado a actividades de adiestramiento en el campo (granja del CIAT y fincas de agricultores del área) y un 40 por ciento del tiempo se utilizó en sesiones de conferencias-discusiones, seminarios y trabajo de biblioteca.

El procedimiento de "aprender por ejecución" fué utilizado a través de:

a) Los varios aspectos de la tecnología de producción en un sistema agrícola diversificado, cubriendo una gama amplia de niveles de tecnología, desde la más simple del agricultor de subsistencia, hasta la más sofisticada del productor moderno y eficiente. Los cultivos con los que se trabajó fueron: arroz, maíz, sorgo, fríjol, soya y quince especies hortícolas.

b) El método científico de llevar a cabo ensayos con diseño experimental en los terrenos del ICAT y en parcelas de agricultores comerciales.

c) Los aspectos económicos y administrativos, records de cultivos, análisis de costos, mercadeo y relaciones beneficio/costo, etc.

d) Los métodos y habilidades de la comunicación efectiva practicando la transmisión de información y habilidades técnicas, innovaciones y actitudes a los agricultores y a otros profesionales.

Conferencias-Discusiones

Se llevaron a cabo dos series, de cuatro meses y medio cada una, de conferencias-discusiones durante las tardes, dieciseis horas semanales. Veinte y nueve científicos del CIAT y diez y seis de otras instituciones y empresas privadas de Colombia, contribuyeron a proporcionar la instrucción de clases; cubriendo un grupo integral de temas dentro de las áreas de comunicación, economía-administración y tecnología de

cultivos. Además, los becarios asistieron a varios seminarios internos del CIAT sobre diversos temas y participaron en un seminario internacional sobre "Políticas Arroceras para América Latina".

Prácticas de campo en la Granja del CIAT, Palmira

Dentro de las actividades de campo los participantes del curso cultivaron en la granja del CIAT, Palmira, campos de entre dos y nueve hectáreas con arroz, maíz, sorgo, fríjol y soya. Durante la primera estación de cultivos (marzo a septiembre), el grupo de catorce practicó en los campos bajo la dirección de los instructores del programa. En la segunda estación de cultivo, los becarios, en grupos de tres o cuatro, tomaron bajo su responsabilidad "fincas de producción" de entre nueve y doce hectáreas (doce y diez y ocho plazas o manzanas), divididas en secciones de dos a tres hectáreas, dedicadas a cada uno de cuatro cultivos diferentes y manejadas como fincas comerciales, más otros lotes aparte dedicados a arroz. En cada una de esas "fincas de producción" en la granja del CIAT, cada grupo de tres o cuatro participantes llevó a cabo las siguientes actividades:

a) Planeación de un sistema de producción basado en los cultivos mencionados.

b) Ejecución personal directa de todas las prácticas de producción por lo menos una vez, prácticas que cubrieron una gama amplia de tecnología.

c) Planeación y ejecución de un "día de campo" para agricultores del área.

d) Diseño y ejecución de experimentos.

e) Llevada cuidadosa de "records" de los cultivos, con atención particular a los costos, los cuales fueron luego contabilizados y analizados en relación a los ingresos obtenidos.

Además de las experiencias con cultivos agronómicos, el curso proporcionó a los particpantes la oportunidad de llevar a cabo prácticas intensivas en manejo de una "unidad de producción de hortalizas". Adjunto a la unidad de hortalizas se organizó un campo semi-experimental de "sistemas de cultivo múltiple o intercalado" inicialmente desarrollado en el IRRI, Filipinas; utilizando cuatro combinaciones diferentes de cultivos tales como arroz, maíz, fríjol, batatas y hortalizas como repollo, rábano, cebolla, habichuelas y otros. Cada esquema estuvo bajo la responsabilidad de uno de los grupos de tres o cuatro participantes ya mencionados a cargo de las "fincas de producción". Este sistema busca la máxima eficiencia de utilización de la tierra.

Prácticas en las Fincas de Agricultores Vecinos

Una vez que los becarios hubieron pasado por las experiencias guiadas durante una estación de cultivos, con cinco cultivos agronómicos y quince especies hortícolas, en la

granja del CIAT y al finalizar el primer ciclo de conferencias-discusiones en comunicación, economía y tecnología del producción; éllos llevaron a cabo una práctica de comunicación de una semana, con agricultores pequeños en diferentes partes del Valle del Cauca como un ejercicio preparatorio para entrar luego en otra práctica más extensa de comunicación y extensión con agricultores pequeños del área de "El Bolo", cerca al CIAT. Durante cinco meses, dos días por semana, los participantes llevaron a cabo prácticas de asistencia técnica en producción de cultivos y efectuaron ensayos con repeticiones con el fin, estos últimos, de practicar "validación de tecnología" en el campo del agricultor bajo condiciones locales.

Además, se seleccionó una finca grande en el lugar denominado Rozo, del Valle del Cauca, con la colaboración de cuyo dueño se introdujo con mucho éxito arroz, como un cultivo nuevo en la zona, en un lote de treinta hectáreas de terreno marginal en donde el drenaje imperfecto había hecho fracasar otros cultivos.

El grupo de becarios viajó en noviembre al área de Rio Negro, Antioquia, Colombia, a visitar el Proyecto de Desarrollo del Oriente Antioqueño, un proyecto de desarrollo agrícola tipo "Proyecto Puebla" en marcha.

Actividades de Finalización

Las dos últimas semanas del curso (febrero 18-25) se dedicaron a:

a) Exámenes y evaluación del adiestramiento.

b) Una evaluación de los trabajos efectuados con énfasis en análisis de costos.

c) Preparación y presentación de informes sobre las varias actividades del curso.

d) Por último, se llevaron a cabo una serie de cuatro mesas redondas con duración de dos días sobre el tema general "Sistemas de Producción y los Elementos: Hombre, Ciencia-Tecnología, Capital y Naturaleza", discutiéndose los tópicos de aspectos tecnológicos, socio-económicos, institucionales-empresariales y educación-extensión.

El segundo curso de Adiestramiento de Especialistas en Producción de Cultivos concluyó con la entrega de diplomas a los catorce participantes el día viernes 25 de febrero de 1972.

EL PROXIMO CURSO INTERNACIONAL DE ADIESTRAMIENTO DE ESPECIALISTAS EN PRODUCCION DE CULTIVOS ESTA PROGRAMADO PARA INICIARSE EL CUATRO DE SEPTIEMBRE DE 1972.

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Las solicitudes se pueden enviar a:

Dr. U. J. Grant, Director
Centro Internacional de Agricultura Tropical
Apartado Aéreo 67-13
Cali, Colombia.

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

APARTADO AEREO 67-13
CABLES: CINATROP
CALI - COLOMBIA

file CIAT

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12 MAY 1972

N.G.

27 April 1972

Enclosed is information about CIAT's next CROP PRODUCTION SPECIALIST TRAINING course to begin September 4, 1972. Also attached you will find a brief report on the previous course which was similar to the one projected.

CIAT will be able to provide a limited number of scholarships for participants of several countries. Furthermore, this Center will admit candidates financed by other agencies or institutions, either national or international. The cost of a scholarship is US$5,400 for the 12-month course. This covers all expenses including room, board and incidentals, excepting the cost of round trip, air travel.

The requisites that candidates must fill and other details of the course are described in the brochure attached.

We cordially invite you, at your earliest convenience, to propose candidates for CIAT's scholarships as well as candidates that could be financed by your agency. The solicitudes shoud be sent to:

Dr. U. J. Grant, Director
Centro Internacional de Agricultura Tropical
Apartado Aereo 67-13
Cali, Colombia.

We will appreciate receiving your solicitudes before June 15, 1972.

Very truly yours,

Francis C. Byrnes
Leader,
Training and Communication

Enc.
FCB/ovd.

APARTADO AEREO 67-13
CABLES: CINATROP
CALI - COLOMBIA

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

EL SEGUNDO CURSO DE ADIESTRAMIENTO DE ESPECIALISTAS EN PRODUCCION DE CULTIVOS

El segundo CAEPC se inició el 8 de marzo de 1971 con catorce ingenieros agrónomos de seis países: República Dominicana 2, Honduras 1, Costa Rica 2, Panamá 2, Colombia 4 y Ecuador 3. La filosofía básica y la metodología de instrucción son esencialmente pragmáticas.

Se estableció como objetivo, que al finalizar el curso los participantes hubieran adquirido cinco capacidades o aptitudes que los convirtieran en agrónomos efectivos para la actividad de producción. Estas capacidades son:

1. Aptitud técnica, o sea, el nivel de conocimientos que el profesional debe poseer en relación con los cultivos que el agricultor produce, las prácticas de producción implicadas y el medio ambiente en el cual se lleva a cabo la producción. Esto incluye la habilidad de diagnosticar, en forma correcta, problemas típicos y anormalidades, más el conocimiento y el entendimiento sobre la aplicación de tratamientos adecuados.

2. Aptitud económica, o sea, la capacidad de evaluar estrategias alternativas sobre insumos de producción y comercialización de productos, como para determinar si es que la adopción de una innovación es suficiente para aumentar económicamente la producción en grado substancial. Una estrategia efectiva que debe basarse en, y no debe de ir más allá de, la disponibilidad de los insumos necesarios para la producción y los factores de comercialización del producto.

3. Aptitud científica, o sea, un entendimiento básico de la filosofía de la ciencia y una habilidad para llevar a cabo experimentos con replicaciones, cuyo objetivo sea el comprobar si es que la adopción de una innovación es suficiente condición para lograr un aumento económico substancial para el productor.

4. Aptitud como agricultor, o sea, el deseo y la capacidad para llevar a cabo la serie de trabajos físicos implicados en el hecho de producir un cultivo específico o cultivos dentro de un sistema de producción. Esto incluye la habilidad del profesional para llevar a cabo la serie de trabajos físicos que están dentro de la capacidad o aptitud del agricultor. Además, debe de adquirir el conocimiento del equipo agrícola utilizado y los procesos relacionados.

5. Aptitud en la comunicación, o sea, la capacidad para identificar y coordinar objetivos específicos de comportamiento para audiencias pertinentes, cuyo cambio en el comportamiento es necesario para lograr la adopción de tecnología económicamente apli-

cable. Esto incluye la habilidad para planificar, preparar y presentar mensajes apropiados y para obtener información de respuesta de las audiencias pertinentes, las cuales pueden incluir, dentro del medio ambiente del agricultor, los siguientes elementos: el dueño de la tierra, la agencia de crédito, el distribuidor de insumos, el vendedor al por mayor, el vendedor al por menor y aún, el consumidor. El mensaje más apropiado para una audiencia de agricultores, por supuesto, es el que promueve la innovación cuya ventaja ha sido validada en un ambiente similar si bien no idéntico a aquel del agricultor.

ACTIVIDADES

La programación del curso fué tal que aproximadamente un 60 por ciento de los doce meses de duración fué dedicado a actividades de adiestramiento en el campo (granja del CIAT y fincas de agricultores del área) y un 40 por ciento del tiempo se utilizó en sesiones de conferencias-discusiones, seminarios y trabajo de biblioteca.

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b) El método científico de llevar a cabo ensayos con diseño experimental en los terrenos del ICAT y en parcelas de agricultores comerciales.

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Las solicitudes se pueden enviar a:

Dr. U. J. Grant, Director
Centro Internacional de Agricultura Tropical
Apartado Aéreo 67-13
Cali, Colombia.

Este folleto contiene textos en Español y en Inglés.
El texto en Español aparece en el reverso.

Training Program

CROP PRODUCTION SPECIALISTS

III Graduate Course

Beginning date:
September 4, 1972

CIAT
CENTRO INTERNACIONAL
DE AGRICULTURA TROPICAL
CALI, COLOMBIA

The International Center of Tropical Agriculture, CIAT, has a Crop Production Specialists Training Program at the graduate level. Two 12-month training courses have already taken place under this program with 24 participants from six countries in Latin America. A third course is being projected for September 4, 1972.

The program aims to develop professionals with high capabilities to deal directly with the production of a group of crops in a "production system." The "learning by doing" method is emphasized. The economic-managerial aspect of production is stressed, and a communication approach used throughout the course makes it unique.

COURSE TERM

The starting date will be September 4, 1972 and the course will continue for 12 months.

PLACE

The first six months of training will take place at the CIAT headquarters farm near Cali, Colombia; during the second six months, activities will move to the National Center of Agricultural Research, Turipana, of the Instituto Colombiano Agropecuario, ICA, near Monteria, Cordoba and in neighboring farms.

NUMBER OF PARTICIPANTS

The admission to the course will be limited to 20 college graduates from up to 10 countries. The participants will be distributed in groups of four persons for certain activities.

OBJECTIVES

It is considered that the "production agronomist" who is to be successful in his endeavor must be a professional who is: (a) Technically knowledgeable and experienced, (b) Is skilled in farm production tasks, (c) Has a sound economic awareness, (d) Is capable of scientific field experimentation, and (e) Is an effective communicator of technology. These five characteristics have been adopted by this training program as its fundamental objectives, so that at the end of his training the professional would have acquired the following COMPETENCIES.

1. Technical competency. That is, the level of knowledge and understanding in relation to the production of crops, the practices involved and the physical environment in which production takes place. This includes the ability to correctly diagnose problems and abnormal situations as well as the correct application of appropriate treatments.

2. Economic competency. The ability to evaluate alternatives of production and marketing strategies for the products, and to make production decisions in the light of economic factors.

3. Scientific competency. The ability to carry on simple experimental replicated trials in the farm environment to test if the adoption of a given innovation represents an economic advantage.

4. Farming competency. That is, the willingness and skill necessary to perform personally the series of farming tasks involved in the production of a crop or crops. This includes the ability of the professional to carry on the physical work within the capacity of the farmer. Besides, he should have the knowledge and ability to operate and maintain the machinery used in production.

5. Communication competency. The ability to identify and coordinate specific behavioral objectives for pertinent audiences: farmers, professionals, executives, etc., whose behavioral change is necessary to obtain adoption of technology. This includes the ability to plan, prepare and present appropriate messages for audiences of different cultural levels.

An objective of particular importance is the ability to organize and promote similar training courses in the country of origin of the trainee, to obtain a multiplier training effect.

Furthermore, the "crop production specialist" must also be capable of integrating the various factors that intervene in production, in such a manner that the results would approach the maximum attainable.

SUBJECTS

The theory (conference) and practice (field work) of this training course concentrates on specialization in production of crops in the tropical lowlands

within the concept of the PRODUCTION SYSTEM with its multiple components such as environment, plants, machinery, labor, management, credits, inputs, markets, etc.

The following crops are included as subjects: RICE, CORN, SORGHUM, GRAIN LEGUMES (field beans, soybeans and cowpeas), CASSAVA, and VEGETABLE CROPS. Cotton and plantain may be also considered, if time allows, but with lesser emphasis, as rotation or alternate crops.

Besides the subject matter of TECHNOLOGY or agronomy of crop production systems and of the individual crops, the subjects of ECONOMICS–FARM MANAGEMENT and COMMUNICATION will be covered both in theory and in practice.

METHODS AND PROGRAMING

The methodology of the program is based on the principle of LEARNING BY DOING. Sixty percent of the time will be spent by each trainee collecting, planning, performing, and evaluating the work in the field, on the CIAT farm, as well as on the farmers' fields. The rest of the time the participants will attend conferences, seminars, discussions, round tables and will carry on library assignments, prepare reports, perform cost analyses from field data, and prepare for examinations.

The first six months of the course will take place on the CIAT farm near Cali, Colombia, where intensive field activities will be carried on during the mornings with the crops mentioned, from land preparation to harvest and marketing. The field work will be complemented by a series of conferences and discussion sessions on the subject matters previously mentioned.

At the end of this first period, the trainees will move to Turipana, the experiment farm of the Instituto Colombiano Agropecuario near Monteria, Colombia, where the participants will operate crop production fields and will also devote considerable time to training at private farms of the neighboring areas, taking active part in the management of the farm.

Particular emphasis will be placed at this stage on exercising the methods of effective communication. The series of conferences and discussion sessions will continue, although less time will be devoted to this activity.

During the last two weeks of the course, the participants will return to the CIAT headquarters near Cali, to evaluate their activities and to organize and take active part in a forum where their experiences in training will be discussed.

REQUIREMENTS

- -To hold a college degree in agriculture (Ingeniero Agronomo or equivalent).
- -To be in good physical and mental health.
- -To accept the objectives and methods of the training program herein described.
- -To be employed by an official, autonomous or private institution or enterprise, whose activities would be directly concerned with agricultural production.
- -The employer institution or enterprise shall continue the trainee's salary or part of it during his period of training and will give written assurance of continuation of employment when the professional returns to his country immediately after completion of his training.
- -To speak the Spanish language.

FINANCING

The cost per participant is US$5,400 for the twelve-month period, plus the cost of round trip, air travel. From this sum, CIAT provides the trainee with the following: room, board and laundry, a major portion of medical and hospitalization costs, travel expenses within Colombia that arise directly from training activities, required study and reference materials and the freight costs of sending these to the trainee's home country; a one-time relocation allowance upon arrival and a monthly stipend for personal expenses.

Scholarships from CIAT and BID

From its own funds and from a grant to CIAT by the Interamerican Development Bank, the Center has available several scholarships fully covering all costs and round trip transportation from the country of residence. The institutions qualifying to receive such scholarships will be notified of the number available to them.

Other Scholarships

Since the capacity of CIAT to provide training in this program is greater than the number of scholarships that CIAT and BID may provide, it will be possible to accept candidates financed by other institutions, national or international.

SELECTION OF PARTICIPANTS

CIAT invites those institutions or enterprises that wish to propose candidates for this course to write immediately to:

Dr. U. J. Grant
Director, CIAT
Apartado Aereo 67-13
Cali, Colombia

giving the names and titles of the candidates that the institution wishes to nominate. CIAT will then send the application forms, which must be received back in CIAT before June 10, 1972. Subsequently a representative of this Center will visit each country to interview the candidates and to discuss with the officials of the institutions the details of the program.

The candidates selected must take a medical examination before receiving final confirmation of admission. CIAT will take care of making the necessary arrangements to obtain visas and air travel reservations. The professionals admitted must arrive in Cali no later than September 3, 1972.

ADMINISTRATION

The program will be administered by the Leader, Training and Communication and will take place under the supervision of the Training Coordinator, Plant Science, with the cooperation of the Director of Plant Science.

CERTIFICATE OF COMPLETION

Upon satisfactory completion of the course, the participants will receive a certificate.

OTHER TRAINING ACTIVITIES

The Crop Production Specialists Training Program is one of several training programs offered by CIAT. A parallel program exists in Livestock Production. The second course of this program will start June 1, 1972 and a third course is planned for January 8, 1973.

The Center also offers opportunities for training in research of specific problems in scientific disciplines within one of the various commodity programs of CIAT: rice, corn, cassava, grain legumes, beef cattle, and swine and in the fields of: production systems, agricultural economics and station development and management. The persons and institutions interested in such training are invited to write to:

Leader, Training and Communication
CIAT
Apartado Aereo 67-13
Cali, Colombia



(1) La práctica de comunicación con agricultores y el adiestramiento directo en fincas particulares, son factores importantes en el curso.



(2) La ejecución directa de las labores de producción es parte fundamental del programa.



(3) Se dá mucho énfasis a la observación cuidadosa de los cultivos para diagnosticar los problemas en los campos y en las parcelas experimentales.

(4) Varios científicos especialistas del CIAT participan activamente en la instrucción en el campo.

(5) Las conferencias y discusiones de clase refuerzan la base teórica sobre tecnología, economía y comunicación y permiten el intercambio de ideas.



(1) *Practicing communication with farmers and training on private farms play an important role in the course.*

(2) *The direct performance of the field tasks is an essential part of the program.*

(3) *Emphasis is given to the careful observation of plants to diagnose problems in production fields and experimental plots.*

(4) *CIAT senior scientists take active participation in field instruction.*

(5) *The lectures and discussion sessions do reinforce the theoretical background in technology, economics and communication and allow for exchange of ideas.*



This pamphlet contains texts in Spanish and English. For English see reverse.

Programa

de

Adiestramiento de Especialistas

en

PRODUCCION DE CULTIVOS

III Curso Posgraduado

Fecha de iniciación:
Septiembre 4, 1972

C I A T
CENTRO INTERNACIONAL
DE AGRICULTURA TROPICAL
CALI, COLOMBIA

El Centro Internacional de Agricultura Tropical tiene en marcha un "Programa de Adiestramiento de Especialistas en Producción de Cultivos" a nivel de posgrado, dentro del cual ya se han llevado a cabo dos cursos de doce meses de duración cada uno, con participación de 24 becarios de seis países de América Latina. Un tercer curso está proyectado para iniciarse en el próximo mes de septiembre de 1972.

Este programa se orienta hacia la formación de profesionales aptos a través de la ejecución directa de las actividades propias de la producción con un criterio económico. En el transcurso de todo el programa se aplica un enfoque de comunicación que es esencial para la transferencia exitosa de la tecnología a cualquier nivel y audiencia.

FECHA

El curso se iniciará el 4 de septiembre de 1972 y tendrá una duración de 12 meses.

LUGAR

Los primeros seis meses del adiestramiento se llevarán a cabo en la sede del CIAT cerca de Cali, Colombia y los últimos seis meses, en el Centro Nacional de Investigaciones Agropecuarias, Turipaná, cerca de Montería, Colombia y en fincas circunvecinas.

NUMERO DE PARTICIPANTES

La admisión se limitará a veinte profesionales graduados o egresados procedentes de hasta diez países diferentes de la América Tropical; los participantes serán distribuídos en grupos de cuatro para algunas de las actividades de adiestramiento.

OBJETIVOS

Se ha considerado que el ingeniero agrónomo especialista en producción, para que tenga éxito en su cometido, debe ser conocedor de la técnica, apto en la ejecución de las labores de campo, compenetrado con su criterio económico, capaz de llevar a cabo experimentos y efectivo en la transmisión de tecnología. Estas cinco características han sido adoptadas por este programa como objetivos fundamentales o sea que, al finalizar su período de adiestramiento, el profesional haya adquirido las siguientes APTITUDES:

1. Aptitud técnica, o sean, los conocimientos y comprensión en relación con la producción de cultivos, las prácticas involucradas y el medio ambiente físico en el cual se lleva a cabo la producción. Esto incluye la habilidad para diagnosticar correctamente problemas y situaciones anormales así como el conocimiento y la correcta aplicación de tratamientos apropiados.
2. Aptitud económica, o la capacidad para evaluar alternativas en la producción y estrategias para la comercialización del producto, calcular la relación beneficio/costo y hacer decisiones técnicas sobre la producción a la luz de los factores económicos.
3. Aptitud científica, la capacidad de conducir un ensayo experimental sencillo, replicado, en el propio ambiente de la finca, por medio del cual se pueda constatar que la introducción de una determinada innovación representa ventajas económicas. Tal competencia permitirá identificar factores que puedan requerir adaptaciones al ambiente.
4. Aptitud como agricultor, o sea, la capacidad, destreza y deseo de ejecutar la serie de labores relacionadas con la producción de un cultivo o cultivos determinados. Esto incluye la habilidad para desempeñar las faenas físicas que forman parte de su capacidad como agricultor y empresario. Además, con el adelanto de la mecanización, debe tener suficiente conocimiento y habilidad para operar implementos y ocuparse de su mantenimiento.
5. Aptitud en la comunicación, la capacidad para identificar actitudes o comportamientos específicos de diferentes grupos humanos, por ejemplo, ganaderos, agricultores, empleados de haciendas o personal bajo adiestramiento. Esto incluye el aprovechamiento del doble canal de la comunicación y saber cómo estimularla y obtenerla. También incluye la habilidad para planear, preparar y presentar mensajes apropiados, tomando en cuenta el nivel cultural, social y económico de las diferentes audiencias. Un aspecto particularmente importante es la habilidad para organizar y promover cursos similares en los países de origen de los becarios con lo cual se logra un efecto multiplicador del adiestramiento recibido por ellos.

Además, el especialista en producción de cultivos adquirirá conocimientos sobre un número considerable de especies vegetales que integren un "sistema de producción" y una base de conocimientos y destrezas agronómicas y en las ciencias sociales que le permitan ampliar con facilidad y por sus propios medios su capacidad de trabajo con nuevas especies y ante nuevas situaciones. Este especialista también debe ser capaz de integrar los diversos factores que intervienen en la producción, en tal forma que los resultados se aproximen al máximo lograble.

MATERIAS

La enseñanza teórica y la práctica están enfocadas hacia la especialidad de la producción de cultivos, en las tierras bajas del trópico, dentro del concepto de SISTEMA DE PRODUCCION con sus múltiples componentes: medio ambiente, plantas, insumos, financiamiento, mano de obra, administración, maquinaria, mercadeo, etc.

Las materias que se impartirán en el curso incluyen los siguientes cultivos: ARROZ, MAIZ, SORGO, LEGUMINOSAS DE GRANO (frijol, soya y caupí), YUCA y HORTALIZAS. El algodón y el plátano podrán también ser incluídos en el curso pero con menor énfasis, como cultivos de rotación y alternos. Además de los aspectos de TECNOLOGIA agronómica del sistema de producción en general y dentro de éste, los que correspondan a cada cultivo en particular, se estudiarán y pondrán en práctica las materias de ECONOMIA AGRICOLA-ADMINISTRACION DE EMPRESAS AGRICOLAS y COMUNICACION.

METODOS Y PROGRAMACION

Este programa de adiestramiento está fundamentado en el principio de APRENDER POR EJECUCION. La mayor parte del tiempo (un sesenta por ciento), se empleará en planear, ejecutar personalmente y evaluar el trabajo de campo, tanto en la granja del CIAT como en fincas de agricultores. El resto del tiempo (cuarenta por ciento), el becario asistirá a conferencias, seminarios, sesiones de discusión y mesas redondas; efectuará trabajos de consulta en la biblioteca, preparación de informes y exámenes, y análisis de costo de producción.

Los primeros seis meses del curso se llevarán a cabo en la granja de la sede del CIAT, cerca de Cali, Valle, Colombia, en donde, de una manera intensiva, se harán los trabajos de campo con los cultivos mencionados, desde preparación de tierras hasta cosecha y mercadeo. Las actividades de campo a efectuarse en las mañanas y algunas tardes, tendrán lugar durante esos primeros seis meses y serán complementadas por series de conferencias y discusiones sobre las materias del curso: tecnología, economía-administración y comunicación.

Al finalizar este primer período del curso, el grupo de becarios se trasladará al Centro Nacional de Investigaciones Agropecuarias, Turipaná, del Instituto Colombiano Agropecuario, cerca de Montería, Córdoba, (un área de terrenos aluviales) en donde los participantes operarán parcelas de cultivos y además, dedicarán tiempo considerable a recibir adiestramiento directamente en fincas de agricultores de las áreas circundantes, tomando parte activa en la administración de las fincas, con énfasis particular en ejercitar métodos efectivos de comunicación. En esta segunda fase, se continuarán las series de conferencias y discusiones.

Oportunamente, los participantes harán una visita de una semana a la Estación Experimental Carimagua, del Instituto Colombiano Agropecuario, en los Llanos Orientales de Colombia, en donde harán observaciones sobre suelos y cultivos de un área de oxisoles. Además se visitarán dos proyectos regionales de desarrollo agrícola en Colombia. Durante las dos últimas semanas del curso los becarios regresarán a la sede del CIAT con el propósito de hacer una evaluación de sus actividades así como también organizar y tomar parte en un foro de discusión en relación con las experiencias obtenidas durante el adiestramiento.

REQUISITOS

- -Poseer el título de Ingeniero Agrónomo o su equivalente.
- -Estar en buena salud física y mental.
- -Aceptar los objetivos y métodos de adiestramiento descritos en este folleto.
- -Ser profesional empleado por una institución o empresa oficial, autónoma o privada cuyas actividades estén directamente relacionadas con la producción agrícola.
- -Haber obtenido un acuerdo con la institución o empresa en la cual trabaja que garantice la continuación del pago de su sueldo (o por lo menos la mitad del mismo) durante la duración del adiestramiento y una garantía de que la institución continuará empleando al técnico adiestrado a su regreso al país.
- -Hablar el idioma español.

FINANCIAMIENTO

Por participante el costo es de US$5.400.oo por los doce meses de duración, sin incluir el valor del pasaje de ida y vuelta. De esta suma, el CIAT proveerá al becario lo siguiente: Alojamiento, alimentación, lavandería, parte de los gastos médicos y de hospitalización, gastos de viajes requeridos dentro de Colombia y envío de material de estudio y referencia al país de origen después de concluído el adiestramiento, los materiales y equipo de estudio y práctica de campo que el becario necesite, un estipendio mensual para gastos personales y una suma única para gastos de reubicación a su llegada al CIAT.

Becas del CIAT y BID

A través de sus propios fondos y de una donación otorgada por el Banco Interamericano de Desarrollo, el CIAT está en capacidad de otorgar algunas becas para participantes en este curso, las cuales cubren los costos mencionados y el pasaje aéreo de ida y vuelta al país de residencia. Oportunamente se notificará a las instituciones correspondientes en cada país acerca del número de becas disponibles.

Otras becas

En vista de que la capacidad de admisión es mayor que el número de becas que el CIAT y el BID pueden otorgar, se podrán aceptar participantes financiados por otras instituciones nacionales o internacionales.

SELECCION DE BECARIOS

Se invita a las instituciones que deseen presentar candidatos para participar en este curso, a que escriban de inmediato a:

Dr. U.J. Grant
Director, CIAT
Apartado Aéreo 67-13
Cali, Colombia.

indicando el nombre y cargo de cada uno de los candidatos que la institución desea proponer. El CIAT enviará enseguida, los respectivos formularios de solicitud. Las solicitudes deberán ser recibidas en el CIAT antes del 10 de junio de 1972. Posteriormente un representante de este Centro visitará cada país con el propósito de entrevistar a los profesionales propuestos y discutir con los ejecutivos de las instituciones los detalles del programa. Una vez hecha la selección de candidatos, éstos deberán aprobar un examen médico antes de recibir confirmación de su admisión al curso. El CIAT se encargará de hacer los arreglos necesarios en relación con visas y viajes. Los profesionales seleccionados deberán llegar a Cali a más tardar el tres de septiembre de 1972.

ADMINISTRACION E INSTRUCCION

El programa será administrado por el Líder de Adiestramiento y Comunicación; se llevará a cabo bajo la supervisión del Coordinador de Adiestramiento en Ciencias Agrícolas, con la cooperación del Director de la División de Ciencias Agrícolas.

El cuerpo de instructores estará constituído por el personal de Adiestramiento y Comunicación, los científicos especialistas del CIAT y de las instituciones y empresa privada colombianas que se inviten a colaborar en este programa.

CERTIFICADO FINAL

Al completar el curso satisfactoriamente, cada participante recibirá un certificado que acredita el adiestramiento recibido.

OTRAS OPORTUNIDADES DE ADIESTRAMIENTO DE POSGRADO

El Programa de Adiestramiento de Especialistas en Producción de Cultivos es uno de los varios programas de adiestramiento que el CIAT ofrece en la actualidad y en los próximos años.

Existe un programa paralelo en Producción Pecuaria. El segundo curso de ese programa de 12 meses de duración, se iniciará el próximo primero de junio y el tercero está proyectado para el 8 de enero de 1973 (fecha no confirmada aún).

Además, el Centro ofrece oportunidades de adiestramiento en investigación sobre problemas específicos o disciplinas científicas dentro de los programas de arroz, yuca, maíz, leguminosas de grano, ganado de carne, porcinos, sistemas de producción agrícola y desarrollo y manejo de estaciones experimentales. Las personas e instituciones que tengan interés en tales programas de adiestramiento pueden escribir a:

Líder, Adiestramiento y Comunicación
CIAT
Apartado Aéreo 67-13
Cali, Colombia.

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLES: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

10 FEB 1971

GBB
JED

CIAT

DIR-114

February 5, 1971

Dr. Guy B. Baird
Field Director
IARI
The Rockefeller Foundation
17, Katuilya Marga, Chahakyapuri
New Delhi, India

Dear Guy:

I am sure that you know more about the arrangements between IARI and the Rockefeller Foundation than I do. I did have the enclosed letter though from Dr. Swaminathan. I assumed that you had a copy of it but it is what I based my letter to you on.

In any case, we are interested in collaborating with IARI in the training of a few Indians who, I am sure, would benefit by the opportunity of getting to know the situation in Latin America and in getting closely acquainted with the germ-plasm in the corn, yuca and other crops that is available here, and perhaps not available in such great depth elsewhere.

With best regards to you and the family.

Sincerely yours,

U. J. Grant
Director

UJG.caa

encl.

Dr. M.S.Swaminathan
Director

PA/F/ 841

Indian Agricultural Research Institute
New Delhi-12. (INDIA)

NSR

Dated the 14th December, 1970

17

Dear Dr. Grant,

Thank you very much for your kind letter No. DIR-1263 dated December 4, 1970. I am most grateful to you for the excellent arrangements you had made for my visit to Ciat and to Bogota. Let me congratulate you once again on the outstanding start you have given to Ciat. I have little doubt that your Institute would become the Centre of origin of many important findings in the field of tropical agriculture.

Dr. Clarence Gray from New York is here now and he told me that the Rockefeller Foundation would extend full support to the Joint IARI-CIAT Post Graduate Training Programme. We can, therefore, proceed with working out the details.

I am looking forward to receiving a few cuttings of LLANERA and other high protein strains of Cassava.

My wife and I send you and your family our greetings and best wishes for Christmas and the New Year.

With my best regards,

Yours sincerely,

M.S.Swaminathan

(M.S.Swaminathan)

Dr. U.J. Grant,
Director,
Centro Interncional De Agricultura Tropical,
Aparado Aereo 67-13
Apartado Nal. 737
CALI-COLOMBIA

vipi

CIAT

~~GBB~~
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FAL

THE ROCKEFELLER FOUNDATION

NEW YORK

Address reply to :
17, Kautilya Marg, Chanakyapuri
NEW DELHI 11, INDIA
Telephones : 35533, 35534, 35535
Cable Address : ROCKFOUND

February 15, 1971

Dear Francis,

Thank you for your letter of February 4 requesting information on studies in parts of northern India on aspects of agricultural development. I am sending you air freight report of a study focussed on progressive farmers for the year 1967-68. The report, entitled "Changing Agriculture and Rural Life in A Region of Northern India", is in two volumes, second of which consists of tabulated statistics and a bibliography. You will find Volume I of greater interest, and Chapter II summarises features of the research design and sampling method.

The same Uttar Pradesh Agricultural University is carrying forward further study of selected major problems in current agricultural development for the year 1969-70. This time the emphasis is on representative farmers of different size classes of owned holdings from the very small or marginal (less than 2.5 acres), to the large (15 up to 30), and for one region the very large (30 acres and up). This has brought in an extraordinary amount of valuable information on production, marketing, credit, tenurial conditions, consumption and investment. The data, largely processed, is being analysed with an aim of reports in the not distant future. A Preliminary Report (non-analytical) was released last November, and a copy of this is also being sent you.

I could send you materials on the objectives, methodology, and detailed research design of either of these two projects, but they run into considerable bulk, partly because of the size of sample - 403 in the first study and approximately 300 including about half that number for each of two regions, but even more for the amount of information sought to be obtained. In the latest 1969-70 study we already have 35 punch cards of data per farm; so even the detailed index of data is voluminous.

I have been hoping to visit you at CIAT sometime when I could present both the findings and what might be relevant in methodology and research organization. As of this moment, however, I don't know when such a visit might be worked out.

I note you are nearing completion of analysis of the data on 300 small farmers on conditions of corn production. Happily, in our current study, we have close to 60 cases of marginal farmers and close to 80 of small farmers and we too have data that should be.

ARCHIVAL COPY

helpful in explaining levels of production in relation to inputs and other factors.

Expect to be in touch with you. I hope we can have more active exchange of mutually interesting items.

Sincerely,

Chad Gilpatric

Chadbourne Gilpatric

Mr Francis C. Byrnes
Leader, Training and Communication
Centro Internacional de Agricultura Tropical
CALI (Colombia)

cc Dr G.B. Baird ✓

ARCHIVAL COPY

CIAT

January 27, 1971

Dr. U.J. Grant
Director
CIAT
Apartado Aereo 67-13
Cali - Colombia

Dear Jerry:

In response to your letter of January 16, I am inclined to think that there has been some misunderstanding regarding the reported arrangement between IARI and CIAT. Certainly, I am not aware of any formal action taken by our New York office to support an arrangement for training between the two institutions. I wonder if this has not been confused with the actual arrangement worked out and supported by the Foundation for joint training between IRRI and IARI. In any case, we consider it logical, and hope that corresponding arrangements can be worked out in due course with CIAT.

With personal regards,

Sincerely yours,

Guy B. Baird
Field Director
Indian Agricultural Program

cc. CCG

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLES: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

23 JAN 1971

GBB

DIR-033

January 16, 1971

Dr. Guy B. Baird
Field Director
Indian Agricultural Program
The Rockefeller Foundation
17, Kautilya Marg, Chanakyapuri
New Delhi 11, India

Dear Guy:

Thank you for your letter of December 21 concerning Dr. Swaminathan's visit to CIAT. He did express considerable interest in having some people trained here, and I believe that we can offer some useful training to some Indian students.

Since receiving your letter I have heard from Dr. Swaminathan that the New York office has approved the plan for training between IARI and CIAT. I have seen nothing from the New York office on this so far. I expect to visit New York sometime late this month or early next month and will take up the matter with Dr. Gray when I see him.

With best regards.

Sincerely yours,

U. J. Grant
Director

UJG.caa

CIAT

27 JAN 1971

GBB | BB

DIR-049

January 18, 1971

Dr. M. S. Swaminathan
Director
IARI
New Delhi 12, India

Dear Dr. Swaminathan:

We will be most happy to send you cuttings of the Llanera Cassava along with a few others that we have available. Would you please send us the necessary import permits if such are required. Otherwise give us detailed shipping instructions.

We would expect to make cuttings, wrap these as best as we can so that they will be viable when they arrive and send them by airfreight to you. I would hope they could arrive in good time and without damage.

I will be looking forward to hearing from you.

With best regards.

Sincerely yours,

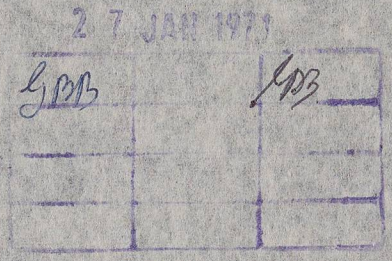
U. J. Grant
Director

UJG.caa

cc. Dr. E. Alvarez-Luna
Dr. G. Baird

27 JAN 1971

GBB GBB



DIR-045

January 18, 1971

Mr. Leonard Saccio
US Ambassador to Colombia
c/o American Embassy
Edificio Bavaria
Bogota

Dear Mr. Saccio:

I have just learned from Dr. Guy B. Baird, Field Director of the Rockefeller Foundation Program in India, that you have been named US Ambassador to Colombia. Permit me to take this opportunity to welcome you to this great country and to offer our services any way that we could be of any help.

We are here trying to help with the food production problem in Latin America and will welcome a visit from you at your earliest convenience.

We are in constant contact with the American Consul in Cali, Mr. John de Witt, who has visited CIAT on a number of occasions.

With our best wishes.

Sincerely yours,

U. J. Grant
Director

UJG.caa

cc. Dr. G. B. Baird

CIAT

December 2, 1970

Dr. Fernando Monge
Director of the Library
Centro Internacional de Agricultura
Tropical
CIAT, Apartado Aereo 67-13
Cali, Colombia

Dear Dr. Monge:

We have received your letter and brochures concerning the Centro Internacional de Agricultura Tropical (CIAT), and are pleased to have them for reference. Of course, this office wishes to be on your distribution list for your publications. The Rockefeller Foundation under a Memorandum of Understanding works with the Government of India on agricultural research and higher education in agriculture. Therefore, it is of great importance to us to be in a position to foster links between the various international institutes of agriculture, including CIAT, and related national programs in this country.

At this time, I would like to suggest that the following institutions be placed on the mailing list for CIAT publications. You may wish to write to each sending a questionnaire such as the one enclosed in your letter to us:

1) Director General
Indian Council of Agricultural Research
Krishi Bhavan
New Delhi - 1, India

2) Director
Indian Agricultural Research Institute
New Delhi - 12, India

3) Director
Indian Veterinary Research Institute
Izatnagar
U.P., India

4) Director
National Dairy Research Institute
Karnal
Haryana, India

5) Director of Research
U.P. Agricultural University
Pantnagar
Dist. Nainital
U.P., India

6) Director of Research
Punjab Agricultural University
Ludhiana
Punjab, India

7) Director of Research
Haryana Agricultural University
Hissar
Haryana, India

8) Director of Research
University of Udaipur
Udaipur
Rajasthan, India

9) Director of Research
Jawaharlal Nehru Krishi Vishwa Vidyalaya
Jabalpur
M.P., India

10) Director of Research
University of Agricultural Sciences
9, XI Main, 16th Cross
Malleswaram
Bangalore - 3
Mysore, India

11) Director of Research
Andhra Pradesh Agricultural University
Ashok Vihar
Banjara Hills
Hyderabad - 34
A.P., India

12) Director of Research
Orissa University of Agriculture & Technology
Bhubaneswar
Orissa, India

13) Director of Research
Assam Agricultural University
Jorhat
Assam, India

Please let us know if we can provide additional information.

Sincerely yours,

Guy B. Baird
Field Director
Indian Agricultural Program

CIAT

December 30, 1970

Dear Jerry:

Mr. Leonard Saccio, Director of USAID in India, has just been named as Ambassador to Colombia, and is expected to leave here in early January. We have got to know the Saccios quite well, and I hope that you will look them up at your earliest opportunity. I am sure he will be interested in learning about CIAT and making a visit there when convenient.

With best wishes for the New Year,

Sincerely yours,

Guy B. Baird
Field Director
Indian Agricultural Program

Dr. U.J. Grant
Director, CIAT
Apartado Aereo 6713
Cali
Colombia

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLES: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

Gentlemen:

The Centro Internacional de Agricultura Tropical, CIAT, is a newly formed institution financed mainly by the Rockefeller, Ford and W. K. Kellogg Foundations.

CIAT is concerned with the development of production systems which will contribute to increase agricultural production and productivity in the tropical regions of the world.

At present our library department is engaged in building a distribution list for our publications. We are attaching to this letter a questionnaire to be filled out with information that will enable us to send you those publications most closely related to the interests and characteristics of your institution. Please return it to us in the enclosed self-addressed envelope.

Thank you very much for your cooperation.

Sincerely yours,

Fernando Monge, Ph. D.
Director of the Library

Duplicates

ICAR - Library
IARI
IVRI
NDRI

UPAU
PAU
HAU
Univ. of Udaipur
JNKVV
MUAS
APAU
OUAT
AAU

Name and address of your institution:

	Yes	No
1. Is it an international institution?	_____	_____
2. Is it an agricultural industry?	_____	_____
3. Does it have an educational program?	_____	_____
At what level:		
Vocational?	_____	_____
University or college?	_____	_____
Graduate training?	_____	_____
4. Does it issue publications?	_____	_____
Does it issue regular series, such as a journal?	_____	_____
5. Does it have research in animal and/or plant sciences?	_____	_____
6. Does it have a library or libraries related to plant or animal sciences?	_____	_____
7. Would it be interested in credit and marketing publications?	_____	_____
8. Would it be interested in publications referring to technical assistance and extension?	_____	_____
9. Would it be interested in socio-economic research?	_____	_____

CIAT

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLES: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

DIR- 858

August 17, 1970

Dr. G. B. Baird
The Rockefeller Foundation
17 Kautilya Marg
Chanakyapuri,
New Delhi, India

Dear Dr. Baird:

This will introduce Dr. Victor Manuel Patiño who is collaborating with CIAT and the State of El Valle in Colombia in collecting yuca and other crops. He is presently on a trip to check collections in India, Thailand, and other areas. Your collaboration with Dr. Patiño and any courtesies extended to him will be most appreciated by all of us in CIAT.

Our thanks in advance.

Sincerely yours,

U. J. Grant
Director

UJG.caa

August 31, 1970

Mr H. B. Singh
Head, Division of Plant Introduction
Indian Agricultural Research Institute
New Delhi.

Dear Mr Singh:

Just a few days ago I received a cable from Dr U.J. Grant, Director of CIAT (The International Center for Tropical Agriculture, Colombia) advising of the visit of Dr Victor Patino. Dr Patino is interested in studying the Cassava (Tapioca) collections at the Central Tuber Crops Research Institute in Trivandurm, and investigating the possibility of obtaining a permit to transmit some of the material to CIAT. This international institute is working on the improvement of Cassava and is attempting to build up a more complete collection of germplasm.

I sent the following telegram to the Officer-in-Charge of the Tuber Crops Institute in Trivandurm:

> "DOCTOR VICTOR PATINO OF INTERNATIONAL CENTER FOR TROPICAL AGRICULTURE COLOMBIA ARRIVING DELHI SEPTEMBER FOURTH STOP DESIRES STUDY CASSAVA COLLECTIONS YOUR INSTITUTE STOP AFTER INITIAL DISCUSSIONS WITH ICAR AND PLANT INTRODUCTION HERE WOULD TRAVEL TO TRIVANDUM STOP WILL THIS BE CONVENIENT"

Before any definite arrangements are made for Dr Patino to go to Trivandum, I want him to meet you, and be fully informed of the various considerations involved in the possible shipment of collections of material from India to CIAT in Colombia. Therefore, I would like to have Dr Patino contact you shortly after his expected arrival on September 4 (Friday). I shall call asking for an appointment.

If meanwhile, additional information is desired, please let me know.

Sincerely yours,

Guy B. Baird
Field Director
Indian Agricultural Program

In charge
— Prof. C. A. NINAN
Dept. of Botany
Univ. Campus
KARIYAVATTOM
TRIVANDRUM

cc: Director General, ICAR
Dy. Director General (CS), ICAR
Director, IARI

EXPRESS
TELEGRAM

OFFICER IN CHARGE
CENTRAL TUBER CROPS RESEARCH INSTITUTE
VAZHUTHACAUD
TRIVANDRUM

DOCTOR	VICTOR	PATINO	OF	INTERNATIONAL	CENTER
FOR	TROPICAL	AGRICULTURE	COLOMBIA	ARRIVING	DELHI
SEPTEMBER	FOURTH	STOP	DESIRES	STUDY	CASSAVA
COLLECTIONS	YOUR	INSTITUTE	STOP	AFTER	INITIAL
DISCUSSIONS	WITH	ICAR	AND	PLANT	INTRODUCTION
HERE	WOULD	TRAVEL	TO	TRIVANDRUM	STOP
WILL	THIS	BE	CONVENIENT		

BAIRD

Not to be telegraphed:

August 31, 1970

The Rockefeller Foundation
17 Kautilya Marg, Chanakyapuri
New Delhi 11.

NNNN

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GUY B BAIRD ROCKFOUND NEWLEDHI INDIA VIARCAKABLE

DOCTOR VICTOR PATINO WILL ARRIVE DELHI SEPTEMBER FOURTH TO STUDY CASSAVA COLLECTIONS TRIVANDRUM AND POSSIBILITY OBTAINING EXPORT FACILITIES STOP WILL APPRECIATE YOUR HELP HIM FIND OUT EXACT STATUS POSSIBILITIES MATERIAL COLLECTED COULD BE SHIPPED TO COLOMBIA

GRANT CINATROP

18 AUG 1970

COL B

GBB

L.No. 185/18

INTERNATIONAL TELEGRAPH OFFICE * DELHI * INDIA 18.8.70

OVERSEAS COMMUNICATIONS SERVICE & INDIAN POSTS AND TELEGRAPHS DEPT

विदेश संचार सेवा व भारतीय डाक-तार विभाग

Lv. Delhi	09.05	IC-182
Ar Bombay	11.00	
Lv. Bombay	14-15	IC-165
Ar Cochin	17-15	
Lv. Cochin	17-50	IC-502
Ar Trivandrum	18-30	

Lv. Delhi	12.15	IC-439
Ar Madras	15.05	
Lv. Madras	06.05	IC 501
Ar Trivandrum	08.40	
Lv. Trivandrum	09-30	IC-501
Ar Cochin	10-10	

C.O
CIAT

The Rockefeller Foundation
111 WEST 50th STREET, NEW YORK, N.Y. 10020

AGRICULTURAL SCIENCES

CABLE: ROCKFOUND, NEW YORK
TELEPHONE: COLUMBUS 5-8100

July 20, 1970

Through Dr. Guy B. Baird

24 JUL 1970

Dear Johnny:

Many thanks for the biodata on Dr. Swaminathan. This reached me in Colombia just as our Board meeting began, so I was able to make good use of the information. The Board agreed that we would add a representative from Asia and from Africa. We did not decide, however, at this meeting who those representatives would be. Dr. Swaminathan certainly stands high on the list as a candidate from Asia. We will not take a final decision on this until early 1971. I wouldn't mention this matter to Dr. Swaminathan yet.

It appears quite likely that I will be in India for a few days around the middle of August. My tentative schedule calls for me to be there from August 20-28, but this is still subject to change. I'll let Guy know as soon as my plans become firm.

I hope to have the pleasure of seeing you soon.

Sincerely yours,

Jocko

Lewis M. Roberts
Associate Director

Mr. Johnson E. Douglas
NEW DELHI MAIL

LMR:sj

COPY

~~GBB~~
7/6

THE ROCKEFELLER FOUNDATION
111 West 50th Street
New York, N. Y. 10020

July 20, 1970

Through Dr. Guy B. Baird

Dear Johnny:

Many thanks for the biodata on Dr. Swaminathan. This reached me in Colombia just as our Board meeting began, so I was able to make good use of the information. The Board agreed that we would add a representative from Asia and from Africa. We did not decide, however, at this meeting who those representatives would be. Dr. Swaminathan certainly stands high on the list as a candidate from Asia. We will not take a final decision on this until early 1971. I wouldn't mention this matter to Dr. Swaminathan yet.

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I hope to have the pleasure of seeing you soon.

Sincerely yours,

Lewis M. Roberts
Associate Director

Mr. Johnson E. Douglas
NEW DELHI MAIL

LMR:sj

FORM 453

CIAT- Columbia

July 8, 1970

Dear Jocko:

It was good to have your letter of June 22 and to know of your interest in Dr Swaminathan. We agree that he is an extremely capable individual and a scientist with a well-known reputation not only in India but also internationally. We would endorse Dr Swaminathan as a possible candidate for CIAT's Board.

Another person of comparable stature in India is Dr. A.B. Joshi, formerly Deputy Director General (Crop Sciences) of the Indian Council of Agricultural Research. Dr Joshi has recently left to assume a one-year assignment in the UAR on a UNDP project; therefore, I am not proposing his name or sending bio-data on him.

As requested we are enclosing bio-data on Dr Swaminathan. We hope you are successful in proposing him.

Sincerely,

Johnson E. Douglas
Assistant Field Director
Indian Agricultural Program

Encl:

Dr Lewis M. Roberts
Associate Director
NEW YORK MAIL

Full Name in English	:	MONKOMBU SAMBASIVAN SWAMINATHAN
Full Name in Hindi (Devanagari script)	:	
Date & Place of Birth	:	7th August, 1925 : KUMBAKONAM, Madras State
Short biographical sketch including distinctions obtained and achievements	:	Born on 7th August, 1925. Educated at the Madras Agricultural College, Coimbatore (B.Sc.Ag.); Indian Agricultural Research Institute, New Delhi (Assoc.IARI); Agricultural University, Wageningen, The Netherlands and University of Cambridge, U.K. (Ph.D.). Worked at the University of Wisconsin, United States during 1952-53 as a Project Associate in Genetics. Presently, Director of the Indian Agricultural Research Institute, New Delhi.

Dr. M.S. Swaminathan is a Scientist known internationally for his outstanding contributions in the field of Genetics. The 'Swaminathan School' of Radiation Genetics is widely known abroad for the pioneering work on the indirect effects of radiations and the use of atomic energy in crop improvement. One of his important findings, which showed that irradiation of food and culture media leads to the generation of radio-mimetic compounds, has attracted the attention of radiation-food technologists all over the world. The recent demonstration by his group that the colour of the wheat grain can be speedily changed from red to amber and that the quantity and quality of proteins of wheat and rice can be improved very greatly through mutational manipulation have opened up hopes for facing successfully the problem of protein hunger. The wheat varieties developed by the use of mutagens and approved for release are Sharbati Sonora and N.P.836. Sharbati Sonora yields about 6 tonnes per hectare and has 16.5% protein. Among the varieties developed in India, it has the highest lysine content.

Dr. Swaminathan conceived in 1962 the programme of breeding dwarf, non-lodging varieties of wheat using the Norin genes for dwarfing and initiated the introduction of dwarf, non-lodging spring wheat material from Mexico. He has been actively associated with the development of all aspects of this programme, which has led to the opening of altogether new vistas in wheat production. His successful accomplishment of a cross between Corchorus olitorius and C. capsularis through reciprocal grafting and pollen irradiation, opened up a new era in jute breeding. The experimental manipulation of genes in a purposeful direction has been his primary research interest in recent years and this has provided the key to the initiation of the "High Yielding Varieties Programme".

Dr. Swaminathan is an active proponent of the concept that science as an instrument of social and economic progress is very important to the current needs of India, and that scientists should give time to their obligations to Society. He has thus taken a leading role in several extension programmes and is responsible for the organisation of the National Demonstration Programme and for the development of the Jawahar Jounti Seed Village, which have been described by eminent authorities as major breakthroughs in the rapid transfer of information from the scientist to the farmer. Recently, he has been active in arousing public consciousness about the danger of intellectual dwarfism which awaits India, if the problem of protein malnutrition in the young is not faced and solved soon.

Dr. Swaminathan has travelled widely in connection with his studies, research work, presentation of papers and delivering lectures. While a student, he won many prizes, cups and scholarships. For his work in Biological Sciences, he was awarded the Shanti Swarup Bhatnagar Memorial Award of 1961. On the occasion of the Centenary of Mendel's discovery of Laws of heredity, he was awarded in 1965 the Mendel Memorial Medal of the Czechoslovak Academy of Sciences for his contributions to the growth of genetics, he being the only Asian who was so honoured. He is also the recipient of Timirazev Academy Medal, the Indian Journal of Genetics Medal and the Birbal Sahni Medal of the Indian Botanical Society for his outstanding contributions to Botany. He was the first Indian who was selected as a Vice-President of the International Congress of Genetics and he served in this capacity at the International Congress of Genetics held at the Hague in 1963. The President of India honoured him with the award 'Padma Shri' on January 26, 1967. He is a Fellow of the National Institute of Sciences of India and the Indian Academy of Sciences. Under his guidance, nearly 30 students have taken the Ph.D. degree and over 50 students have taken the M.Sc. degree or Assoc. IARI Diploma.

Particulars of books, etc. if any, published and any significant work done	Has published several scientific monographs and over 180 scientific papers.

SOCD/

OUR SCIENTISTS-1

AN OUTSTANDING GENETIST

(This is the first in a series on young and outstanding scientists of India who have made notable contributions in their respective fields.)

At 40 Dr. Monkombu Sambasi van Swaminathan - who recently received the Birbal Sahni Medal of the Indian Botanical Society - already ranks among the topmost genetists of India with international recognition.

Dr Swaminathan, who now heads the botany division of the Indian Agricultural Research Institute in New Delhi, has been engaged for over a decade in research in plant genetics. Many are the contributions which have won for him honours from national and international scientific bodies. But modest as he is, he wants to attribute the credit to his students and fellow workers in the Institute. The highest national honour received by him so far is the Shanti Swarup Bhatnagar Memorial Award of 1961.

International recognition came to him in August 1965 when at a world meet of genetists at Brno, the Czechoslovak Academy of Sciences honoured him with the Mendel Memorial Award - which has not been conferred before on any Indian or even an Asian genetist. The other awards received by him were the Indian Journal of Genetics Medal (1964) and Timiraezev Academy of Agricultural Medal (1965). He was also the first Indian to be selected Vice-President of the International Congress of Genetists (1963).

Dr Swaminathan was born in Kumbakonam in 1925. His father was a medical practitioner. Dr Swaminathan took to agricultural science. He specialised in genetics because he saw in it the means to increase farm output. His later findings proved him right and showed that great spurts in crop yields could be accomplished through genetic manipulations, in conjunction with changes in agronomic practices.

Among his contributions may be mentioned the "Swaminathan Artificial Stigma Method" for successfully crossing two Mexican tuberbearing potato species. All previous attempts to make this cross had failed and the technique recommended by Dr. Swaminathan was taken up for follow-up action by foreign genetists. Similarly he accomplished the crossing of two jute yielding species which is of great value in improving the yield of jute.

More recently his primary interest has been in experimental manipulation of genes to improve the yields of wheat and cotton. As part of his research he organised a radiation genetics school in the Indian Agricultural Research Institute for studying indirect effects of radiation of plants. This work has a great bearing on the evaluation of the wholesomeness of irradiated food and some of his findings have been recently confirmed by genetists of the Cornell University (U.S.A.).

While all these have secured for Dr. Swaminathan a place among the top men of science, his most significant contribution to Indian agriculture is the initiation of Dwarf Wheat Breeding programme, which offers promise

of making the country surplus in wheat output within the next few years.

Dr. Swaminathan believes in the practical application of science to supply the basic needs of the country. An example of this is the Jawahar Jount seed village near the IARI, A creation of his, the whole village is a seed farm engaged in breeding high yielding varieties of wheat and jowar evolved through genetic manipulations.

Dr. Swaminathan is married and has three daughters. He has no particular hobby. Keeping himself up to date with the latest developments in the field of genetics and attending to the needs of his family take up whatever time left after research and teaching work at the Institute -B.S.P.

The Rockefeller Foundation
111 WEST 50th STREET, NEW YORK, N.Y. 10020

AGRICULTURAL SCIENCES

CABLE: ROCKFOUND, NEW YORK
TELEPHONE: COLUMBUS 5-8100

June 22, 1970

Dear Johnny:

At the forthcoming meeting of the Board of CIAT in mid-July, we are going to elect at least one and perhaps two or three new members to the Board. I think the time has come when we should have some representation on the Board from Asia and Africa, which we do not have at the present time. I am not totally sure, however, that the majority of the Board will agree with me, but I think they will. I want to go to the meeting at least with one or two good candidates to recommend from both Asia and Africa. It seems to me that Dr. Swaminathan would make a good addition to the Board. I would appreciate very much having your recommendations on him for this position. Do you have anyone else that you would recommend above Dr. Swaminathan? If you feel that Dr. Swaminathan is a top-flight candidate for CIAT's Board, will you please send me a complete curriculum vitae on him. If you have others to recommend, I shall also appreciate your sending me their personal history records. Please do not mention to Dr. Swaminathan or anyone else that they are being considered for this position, because I do not know at this point just what the reaction of CIAT's Board is going to be.

With many thanks for your assistance and with warm regards,

Sincerely yours,

L. M. Roberts sj

Lewis M. Roberts
Associate Director

Mr. Johnson E. Douglas
INDIA MAIL

LMR:sj
Dictated by Dr. Roberts
and signed in his absence.

COPY

THE ROCKEFELLER FOUNDATION
111 West 50th Street
New York, N. Y. 10020

June 22, 1970

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Sincerely yours,

Lewis M. Roberts
Associate Director

Mr. Johnson E. Douglas
INDIA MAIL

LMR:sj
Dictated by Dr. Roberts
and signed in his absence.

FORM 453

7:6

Banco de Bogotá

Bogotá, Colombia

Presidencia

May 13, 1970

Mr. Guy B. Baird
The Rockefeller Foundation
Indian Agricultural Program
17 Kautilya Marg
New Delhi -11, India

Dear Guy:

I recall with particular satisfaction our very interesting visit to the Agricultural Research Station in New Delhi during my visit to India last month. It was very thoughtful of you to show Mr. Carvajal and myself around the Station, where we were particularly impressed by the grain development program.

Hoping to see you again soon, I remain,

Yours very truly,

Jorge Mejía S.

scr.

Fk - CIAT

THE ROCKEFELLER FOUNDATION

To GBB

From JED Date 27/4

Galvez saw Joshi - Joshi agreed to supply material - suggested a letter from Grant to Pal officially requesting- CIAT might send personnel in November - December to evaluate and collect. R.F. might need to help ship. Instructions attached. Galvez sent note to Magoon but did not feel it would serve any purpose to go down. He felt a botanist should evaluate collection. Joshi says collection from other countries, probably duplicates CIAT material some. They have some hybrids- CIAT should try and perhaps part of collections.

INSTRUCTIONS FOR CIAT AIRFREIGHT AND OCEAN SHIPMENTS

1. Address all shipments to:
   Dr. U. J. Grant, Director
   Centro Internacional de Agricultura Tropical, CIAT
2. If shipped by Air to Cali the address is:
   (Same as in No.1)
   and c/o Aduana Interior
   Calipuerto, Cali, Colombia.
3. If shipped by Air to Bogotá the address is:
   (Same as in No. 1)
   and c/o Aduana Interior
   Aeropuerto El Dorado
   Bogotá, Colombia
4. If shipped by Ocean freight to Buenaventura, Cartagena or Barranquilla, the address is:
   (Same as in No. 1)
   and C/O Aduana Buenaventura, Colombia
   or C/O Aduana Cartagena
   or C/O Aduana Barranquilla

   For example:
   An ocean shipment to Buenaventura should read:
   Dr. U. J. Grant, Director
   Centro Internacional de Agricultura Tropical, CIAT
   c/o Aduana Buenaventura, Colombia
5. Shipping Papers: (All copies by Airmail)
   The original and 5 copies of: the bill of lading or the original and 5 copies of: "Packing list and Commercial Invoice" should be sent to:
   Dr. U. J. Grant
   Centro Internacional de Agricultura Tropical, CIAT
   Apartado Aéreo 6713
   Cali, Colombia-S.A.
6. All packing lists should be in English and Spanish.
7. All packing lists and commercial invoices should contain the following statements:

   "ESTA IMPORTACION ESTA EXENTA DE IMPUESTOS Y NO NECESITA REGISTRO DE IMPORTACIONES DE ACUERDO CON EL DECRETO NUMERO 301 de MARZO 7, 1968. Continuing with a short description of items such as: personal effects, or laboratory equipment, or microscopes, etc.

   DECLARAMOS BAJO JURAMENTO QUE LOS PRECIOS DE ESTA FACTURA SON LOS MISMOS QUE CARGAMOS AL CLIENTE Y QUE LA MERCANCIA A QUE ELLA REFIERE, ES ORIGINARIA DE LOS ESTADOS UNIDOS DE AMERICA. EN FE DE LO EXPUESTO FIRMAMOS LA PRESENTE DECLARACION EN_____A LOS_____DIAS DEL MES DE _____DE 197

   CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL, CIAT

   _____
   LEONARD A. MANUEL - SPECIAL ATTORNEY

   SWORN AND SUBSCRIBED TO BEFORE ME THIS_____(Date)

   _____
   NOTARY PUBLIC

8. Cables should be sent when perishable goods are shipped. Avoid holidays and Weekends.

U. J. Grant
Director

Colombia (CIAT)

April 7, 1970

Dear Jocko:

This is just a note to let you know that we were able to make contact with Jorge Mejia, Hernando Gomez and Don Manuel Carvajal. We met them and their wives at reception given by the Colombian Ambassador. Then later in the week I took Jorge and Mr Carvajal to the Indian Agricultural Research Institute. We spent most of the morning there and I believe they enjoyed getting a little picture of agricultural research in India. The time was perfect to look at the wide range of wheat in the field.

Thank you very much for alerting me to their visit to India.

Sincerely yours,

Guy B. Baird
Field Director
Indian Agricultural Program

Mr L. M. Roberts
NEW YORK MAIL

Columbia Agr R

Telegram : KRISHIPUSA

No. F-24/316

DIVISION OF GENETICS,
INDIAN AGRICULTURAL RESEARCH INSTITUTE,
NEW DELHI-12.

Dated the 12th January, 1970

Dr. H. K. Jain,
Head, Division of
Genetics.

My dear Dr. Baird,

Thank you for your letter of January 5, 1970 enclosing an English translation of the published Colombian work on opaque-2 maize. We ~~The~~ find the English version extremely useful and I am grateful for all the trouble you have taken in this regard.

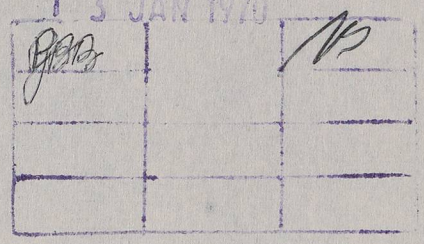
With kind regards,

Yours sincerely,

H.K. Jain

(H. K. Jain)

Dr. G. B. Baird,
Field Director,
Indian Agricultural Programm
The Rockefeller Foundation,
17, Kautilya Marg,
Chanakaya Puri,
New Delhi-11



13 JAN 1970

GBB		NB

Columbian Ag Program

BGB

January 5, 1970

Dr H.K. Jain, Head
Division of Genetics
I.A.R.I.
New Delhi 12

Re: Your No. 12950 of December 5/6, 1969

Dear Dr Jain:

Enclosed herewith is the original material and my English translation on the Colombian work and activities on opaque-2 maize. In some cases the translation is rather rough, but hopefully will convey the basic information.

Sincerely yours,

GB

Guy B. Baird
Field Director
Indian Agricultural Program

Encl:

March 18, 1970

Dear Jocko:

I was pleased to receive your letter of March 8 written from Bogota. Yes, I believe I remember Jorge Mejia, and am pleased to learn that he, Hernando Gomez, and Don Manuel Carvajal and their wives expect to visit India during the period March 31 - April 5. I will contact the Colombian Embassy here and try to arrange a time for us to get together. It is noted that they will be staying at the Oberoi.

Bill Myers and Sterling are due in tomorrow, and will be here for about 8 days. Norm Borlaug will come in during the latter part of their visit. As you can imagine, we will have a rather busy schedule during this period, but have looked forward to their visit here for quite some time.

Best wishes to Betty and the children.

Sincerely yours,

Guy B. Baird
Field Director
Indian Agricultural Program

Dr L.M. Roberts
New York Mail

611475
611195 R.K. Razdan

GBB 16 MAR 1970



HOTEL TEQUENDAMA BOGOTA·COLOMBIA
Teléfono 81-20-60 Cables: INHOTELCOR

Bogota
Mar 8

Dear Guy,

I believe you must know Jorge Mejia personally. He was one of the best Ministers of Egr we ever had to work with here in Colombia. Jorge is a son of Don Manuel Mejia, "Mr Coffee." Jorge is now head of the Banco de Bogotá.

Pres. Lleras has asked Jorge and two others to represent him at the inauguration of Colombia's exhibit at Expo 70. The others are Hernando Gomez, Minister of Development (used to be Ministry of Economia) and Don Manuel Carbajal, private businessman

INTER-CONTINENTAL HOTELS

HOTEL TEQUENDAMA BOGOTA·COLOMBIA

Teléfono 81-20-60 Cables: INHOTELCOR

from Cali. The three of them with wives will visit India during the period Mar 31 - April 5. Jorge would like to talk to you about the agricultural program in India. Would you please check with the Colombian Embassy in New Delhi to see if you can arrange a time on their schedule to get together. They will stay at the Oberoi.

Anything you can do to be helpful to Jorge and Companieras will be greatly appreciated.

All the best to you, Betty and the Children.

Yours,

Jocko.

INTER-CONTINENTAL HOTELS

CIAT
Colombia

November 10, 1969

Dr H. K. Jain, Head
Division of Genetics
I.A.R.I.
New Delhi 12

Re: Your letter No. F.24/9948 of September 26, 1969
and my letter to Dr Grant of October 8, 1969

Dear Dr Jain:

Enclosed is a copy of a letter received from Dr Eduardo Alvarez-Luna, Assistant Director of Plant Sciences, CIAT, together with material enclosed with that letter concerning Opaque-2 maize. I hope this will be useful to you.

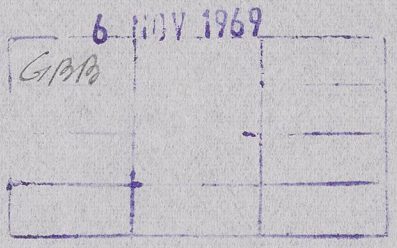
Sincerely yours,

Guy B. Baird
Field Director
Indian Agricultural Program

Encl:

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLE: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL



091-DCAg.

October 29, 1969

Dr. Guy B. Baird
Field Director
Indian Agricultural Program
The Rockefeller Foundation
17, Kautilya Marg, Chanakyapuri
New Delhi 11, India

Dear Dr. Baird:

Your recent letter to Dr. U. J. Grant has been referred to me for reply.

In regard to your interest on the report of the cooperative work on Opaque-2 Corn in Colombia, I can offer you the following information.

The Rockefeller Foundation published in its Quarterly I of 1969, an article prepared by Dr. Francis C. Byrnes, Head of our Training and Communications Unit on the work conducted cooperatively among the Rockefeller Foundation, the Colombian Agricultural Institute and the Metabollic Unic of the University of Valle, on the evaluation of Opaque-2 Corn for human nutrition. In addition, Dr. Jerome Maner has been working on utilization of Opaque-2 Corn in the feeding of swine with very good results. The work of Dr. Maner has not been published as yet in a formal publication.

The cooperative efforts to develop improved varieties with high lysine has crystalized in the form of two hybrids which have been released by the Colombian Agricultural Institute, Corn Department. I am including two publications from ICA describing these new hybrids.

Recently Corn Products Corporation International has developed, through its affiliates in Colombia, Maizena, S. A., a commercial product which has been named "Duryea" for infant feeding and as a substitute of the old "Maizena". I am enclosing the publications that were made available on the day this product was presented to the market. These materials are the only ones that we have available on the Opaque-2 Corn work in Colombia.

We will keep in mind your interest on any information that may be published on the high lysine corn work in Colombia and will send it to you when it becomes available.

If you find necessary to have additional copies of the information we are sending now, please let us know and we will try to obtain them for you.

With my best regards, I remain,

Sincerely yours,

Eduardo Alvarez-Luna
Assistant Director
Plant Sciences

E A L
d v g

Encl.

cc: Dr. U. J. Grant

Telegram : KRISHIPUSA

No. 12950

DIVISION OF GENETICS,
INDIAN AGRICULTURAL RESEARCH INSTITUTE,
NEW DELHI-12.

Dr. H.K.Jain,
Head, Division of
Genetics.

Dated the 5th December, 1969
6th

My dear Dr. Baird,

I am very grateful for your ~~officer~~ er to translate in English the Colombian work on opaque-2 maize. I am sending herewith the literature which we received recently through your kind help.

With kind regards,

Yours sincerely,

H.K.Jain

(H.K.Jain)

Dr. Guy.B.Baird,
Field Director,
Indian Agricultural Programme,
The Rockefeller Foundation,
17, Kautilya Marg,
Chankayapuri, New Delhi-11

- 8 DEC 1969

GBB

Encl: As above

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLE: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

6 NOV 1969
GBB

091-DCAg.

October 29, 1969

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Indian Agricultural Program
The Rockefeller Foundation
17, Kautilya Marg, Chanakyapuri
New Delhi 11, India

Dear Dr. Baird:

Your recent letter to Dr. U. J. Grant has been referred to me for reply.

In regard to your interest on the report of the cooperative work on Opaque-2 Corn in Colombia, I can offer you the following information.

The Rockefeller Foundation published in its Quarterly I of 1969, an article prepared by Dr. Francis C. Byrnes, Head of our Training and Communications Unit on the work conducted cooperatively among the Rockefeller Foundation, the Colombian Agricultural Institute and the Metabollic Unic of the University of Valle, on the evaluation of Opaque-2 Corn for human nutrition. In addition, Dr. Jerome Maner has been working on utilization of Opaque-2 Corn in the feeding of swine with very good results. The work of Dr. Maner has not been published as yet in a formal publication.

The cooperative efforts to develop improved varieties with high lysine has crystalized in the form of two hybrids which have been released by the Colombian Agricultural Institute, Corn Department. I am including two publications from ICA describing these new hybrids.

Recently Corn Products Corporation International has developed, through its affiliates in Colombia, Maizena, S. A., a commercial product which has been named "Duryea" for infant feeding and as a substitute of the old "Maizena". I am enclosing the publications that were made available on the day this product was presented to the market. These materials are the only ones that we have available on the Opaque-2 Corn work in Colombia.

We will keep in mind your interest on any information that may be published on the high lysine corn work in Colombia and will send it to you when it becomes available.

If you find necessary to have additional copies of the information we are sending now, please let us know and we will try to obtain them for you.

With my best regards, I remain,

Sincerely yours,

Eduardo Alvarez-Luna
Assistant Director
Plant Sciences

E A L
d v g

Encl.

cc: Dr. U. J. Grant

Columbia program

November 10, 1969

Dr Eduardo Alvarez-Luna
Assistant Director
Plant Sciences
CIAT, Apartado Aereo 67-13
Apartado Nal 737
Cali - Colombia

Dear Dr Alvarez:

Thank you very much for your letter of October 29 with enclosures on Opaque-2 maize in Colombia. We would appreciate receiving further information from CIAT on your high lysine maize work as it becomes available.

Sincerely yours,

Guy B. Baird
Field Director
Indian Agricultural Program

cc. Dr U.J. Grant

CIAT - Columbia

September 24, 1969

Dr James M.Spain
Soil Scientist
Centro Internacional de Agricultura Tropical
Cali, Colombia

Dear Jim:

I have received your letter of August 29, 1969 and am happy to learn that you received the material which we sent earlier.

Even though some of the publications may be marked with the RF library or my name, you may certainly keep them. I am sure that we have duplicate copies in our files.

Unfortunately, I will not be attending the ASA meetings in Detroit this year, perhaps we can meet some other time.

Best regards.

Sincerely yours,

BCW

Bill C. Wright
Associate Field Director
Indian Agricultural Program

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLE: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

- 8 SEP 1969

BCW

August 29, 1969

Dr. Bill C. Wright
Assistant Field Director
The Rockefeller Foundation
17, Kautilya Marg, Chanakyapuri
NEW DELHI 11, INDIA

Dear Bill:

Thanks for your letter of July 21 and the publications, all of which were waiting for me when I returned recently from vacation. I appreciate the tremendous effort you have gone to in providing me with very valuable information. It has been quite helpful in preparing for the ACS meetings next month. You are right when you say that I have bitten off a man-size chew!

I noted that some of the publications which you sent are marked RF Library, and others are marked with your name. Do you wish to have these publications returned when I am through with them? If not, I would like to keep them for our library; but will certainly gladly return them promptly, if so indicated.

Will you be in Detroit for the ASA meetings? I hope so, as I would welcome very much the opportunity to visit at length and compare some notes.

Sincerely yours,

James M. Spain
Soil Scientist

JMS:gip

DCW
CIAT

October 8, 1969

Dr U.J. Grant, Director
International Center of Tropical
Agriculture (CIAT)
Apartado Aereo 6713
Cali, Colombia

Dear Jerry:

Dr H.K. Jain, Head, Division of Genetics, Indian Agricultural Research Institute, understands that our cooperative work in Colombia on opaque-2 maize has been published in the form of a report. If this is true, please send to me 5 copies of it for use here.

Sincerely yours,

Guy B. Baird
Field Director
Indian Agricultural Program

cc. Dr H.K. Jain, Head
Division of Genetics
I.A.R.I., New Delhi 12

No. F. 24/ 9948 Telegram : KRISHIPUSA

DIVISION OF GENETICS,
INDIAN AGRICULTURAL RESEARCH INSTITUTE,
NEW DELHI-12

Dated the 25th Sept.69 19 .

26th

Dr. H.K.Jain,
Head, Division of
Genetics.

My dear Dr. Baird,

I understand that the Rockefeller Foundation's work on opaque-2 maize in their Colombia programme has been published in the form of a printed report. I shall be grateful if a copy of this report is made available to us.

With kind regards,

Yours sincerely,

H.K.Jain

(H.K.Jain)

Dr. G.B.Baird,
Field Director,
The Rockefeller Foundation,
Indian Agricultural Programme,
17, Kautilya Marg, Chankaya Puri,
New Delhi-11

27 SEP 1969

GBB

BCW

September 5, 1969

Mr Charles A. Francis
Instituto Colombiano Agropecuario
Centro Nacional De Investigaciones
Agropecuarias "Tulio Ospina"
Apartado Aereo 51764
Medellin, Colombia

Dear Mr Francis:

I am a little late in responding to your letter of August 5. Due to the pressure of budget preparations, important visitors and the annual Wheat Researchers' Workshop, I have had to put a lot of the correspondence on the back burner. It was helpful to have from you a description of your thesis study being done in Colombia.

We have just completed a summary of the Rockefeller Foundation's involvement in Indian agriculture covering the last 10 to 12 years. But it is still in manuscript form, so I cannot send you a copy of this. However, I am enclosing a mimeographed statement prepared a couple of years ago, which describes, in a general way, the activities in which we are involved.

Several things have happened since the mimeographed report was prepared. We are now very hopeful of an international sorghum and millets project which would be centered here in India and built on the national research projects for these crops. It would have the same general objectives as IRRI or CIMMYT with respect to intensified international approach to crop improvement, but would be more of a part of the national effort here with a strong international base. In this sorghum and millets work, we would hope to have a broad inter-discipline approach involving breeding, plant physiology, genetics, agronomy, entomology, pathology and soil science. The Foundation has indicated its seriousness in the matter by a recent Trustee action in which more than $200,000 were appropriated in support of this project. It also appears that PL480 rupee support might be made available for a large part of the non-dollar costs.

I hope you will keep us informed of your progress and write to me or any of our staff if you have specific questions regarding the nature of our cooperative agricultural program here in India.

Sincerely yours,

Guy B. Baird
Field Director
Indian Agricultural Program

APARTADO AEREO 51764
APARTADO NAL. 2902
TELEFONOS: 750-239 y 750-436

INSTITUTO COLOMBIANO AGROPECUARIO

Al contestar cítese este número

CENTRO NACIONAL DE INVESTIGACIONES AGROPECUARIAS "TULIO OSPINA"
MEDELLIN

August 5, 1969

16 AUG 1969

GBB	17/8	
BCW		BCW
LRN		LRN
Return to GBB		

Talk to Lee about this

Dr. Guy B. Baird
Field Director, Indian Agricultural Program
The Rockefeller Foundation
17, Kautilya Marg, Chanakyapuri
New Delhi 11
India

Dear Dr. Baird:

Thank you for your letter of July 31 discussing the Rockefeller Foundations program in India. We certainly are interested in both the work that you are doing and the possibilities of future involvement with the foundation.

As you mentioned, I will be finishing up sometime next spring, and hope for a June degree from Cornell. So far, I have been working on maize, with an emphasis on both physiology and breeding. We are of the opinion that yield plateaus now exist in production because there is not enough emphasis on application of know physiologic information on the improvement of plant type. My thesis study here in Colombia is primarily concerned with plant type, adaptation, and growth analysis -- and all of these things are being considered over a range of genotypes adapted to different areas of the country. We are studying production of grain and of total dry matter in terms of yield per unit of land area, per unit of leaf area, and per unit of solar energy intercepted. We also have some work under way to isolate insensitivity to photoperiod, certainly a world-wide problem which is preventing the successful exchange of materials among different latitudes.

These are the types of work that we have in progress right now. I would be interested in continuing with some applications of physiology in plant breeding after finishing the degree. I think that there are tremendous opportunities for improvement of many of the tropical starch and protein crops on which very little work has been done, and I would certainly consider working on some other crop than maize.

I would certainly appreciate knowing more about the cooperative program which the Rockefeller Foundation has in India, and will keep you informed about my progress toward the degree. I look forward to hearing from you.

Sincerely,

Chuck Francis

Charles A. Francis

CIAT - Columbia.

Files - CIAT

COPY

THE ROCKEFELLER FOUNDATION
17, Kautilya Marg, Chanakyapuri
New Delhi 11, India

July 21, 1969

Dr James S. Spain
Soil Scientist
International Center of Tropical Agriculture
Apartado, Aereo 6713
Cali, Colombia

Dear Jim:

This is in reply to your letter of June 2, 1969, asking for some information to help you prepare a paper for the American Chemical Society meetings this fall. I must say that you have bitten off a man-size chew. Good luck!

I am enclosing a list of materials which we have sent to you via air mail book post in a separate package. There are many more things I could have sent relating to all of the topics that you listed in your letter. I have tried to choose some of the more pertinent documents which I hope you will find useful. If you do not find exactly what you need in these materials, please send me a specific request and I will try to give the information to you as quickly as possible.

Sincerely yours,

Bill

Bill C. Wright
Assistant Field Director

encl a/a

cc: GBB

List of Publications sent to Dr James S. Spain, Soil Scientist, International Centre of Tropical Agriculture, Apartado, Aereo 6713, Cali, Colombia by Regd Book Post (AIR MAIL) on July 18, 1969

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1. Land and Soil -- by Dr S.P. Raychaudhuri
2. Estimates of Fertilizer Consumption in India in 1970-71 -- by Roy L. Donahue, The Fertilizer Association of India, New Delhi
3. Fourth Five Year Plan - 1969-74 - Draft - Planning Commission, Govt. of India
4. Report 1967-68 - Ministry of Food & Agriculture, Government of India
5. Fertilizer Statistics - 1967-68 - Fertilizer Association of India, New Delhi
6. Soil Survey : UPAU -- Farm and Dairy Farm, U.P., India
7. Developments in Fertilizer Production in India - FAI, New Delhi, Nov. 1968
8. Supply Projections for Agricultural Commodities - 1968-69 - 1983-84, USAID
9. Agricultural Development in Jowar and other Millets : Production, Targets, High Yielding Varieties, Prices and Marketing -- by D. Jha, B.M. Sharma, and L.S. Venkatraman -- IARI, May 1969.
10. Exploration into the Production Economics of High Yielding Varieties - WDH
11. India's Rice Development Moves From Unsteady Infancy to Vigorous Adolesence - by W. David Hopper and W.H. Freeman
12. Planning "Yardsticks" for Fertilizer and Irrigation - by W.D. Hopper
13. Mainsprings of Agricultural Growth in India - by W.D. Hopper
14. Agronomy of Hybrid Maize - by V.H. Shah
15. An Analysis of Response of Hybrid Maize to Nitrogen - by V.H. Shah
16. The Role of Agronomy in India's Dwarf Wheat Production - by B.C. Wright
17. Water Management: The Key to Increased Production in New Dwarf Wheats - BCW
18. Fertilizer Needs of Wheat - by Bill C. Wright
19. Recommendations for Growing Dwarf Wheats
20. N,P,K Fertilizer Distribution by Years - 1952 - 1970 -- USAID
21. Fertilizer News - December 1968 and January 1969 -- FAI, New Delhi
22. Fertilizer and Farm -- article from 'Eastern Economist', Dec.27, 1968
23. Fertilizer Use -- copy of the article from Fertilizer News, Feb. 1969
24. Marketing Fertilizer in India in the future -- from Fertilizer News, Feb.1969
25. Development of Fertilizer Use -- from Fertilizer News, Feb. 1969.

List of Publications sent to Dr J.S. Spain (Contd.)

26. Fertilizer Promotion -- from Fertilizer News, March 1969.

27. Use of Mass Communication Media in Fertilizer Promotion - Fertilizer News, March '69

28. Seminar on Science and Indian Agriculture in 1975 -- Fertilizer News, March '69

29. National Demonstrations -- Fertilizer News, May 1969

30. On-the-Farm Evaluation-cum-Demonstration -- Seed-cum-Fertilizer Drill, IADP, New Delhi, April 1966

31. Rows of Progress -- Ford Foundation, New Delhi

32. The Role of Agronomy in Crop Production - by G.B. Baird

33. Twenty Year Projection of India's Foodgrain and Fertilizer Demand and Supply -- from The World Food Problem - Vol.II -- A Report of the President's Science Advisory Committee Washington, USA, 1967

34. Fertilizer in the Nineteen Seventies - Production Pattern - from Fertilizer News, May 1969

35. Brief on Indian Agriculture -- US Embassy, New Delhi, April 1969

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLE: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

June 2, 1969

Dr. Guy B. Baird
17 Kautilya Marg
Chanakyapuri
New Delhi, 21, India

Dear Dr. Baird:

I am writing to request your cooperation in a project I have just undertaken.

I am in the process of preparing a paper for the American Chemical Society meetings this fall. It is related to fertilizer use in the tropics and sub-tropics as affected by agronomic research and other factors. I would appreciate your help in obtaining information regarding geographic regions with which you are most familiar. I would like to have any references to published information you know of and copies of reports or bulletins where available.

I am suggesting the following as an outline of the kind of information I need:

1. Fertilizer use trends over the past ten or more years and projected use patterns.

    a. Total tonnage; tons of N, P, K, lime, micronutrients
    b. Types of fertilizers, grades
    c. Other changes

2. Principal factors affecting fertilizer use and relative importance of each.

    a. New high yielding, fertilizer responsive varieties
    b. Improved cultural practices
    c. Credit availability
    d. Technical assistance or extension programs
    e. Availability and/or price of fertilizer
    f. Availability and/or price of other production inputs
    g. Farm commodity prices
    h. Markets and storage facilities
    i. Others

ARCHIVAL COPY

In addition to the above information, I would also appreciate references to publications which include maps or summaries on land use capabilities, land use, major soil characteristics, population density and distribution of crops. If you have copies of such publications available that you could lend or give to me I would appreciate them.

I know that your time is very valuable and scarce. To avoid duplication of effort, I am listing the names of other colleagues to whom I am writing so that you might coordinate your response with those who might provide the same or similar information. I would also appreciate suggestions as to other scientists who might be in a position to provide needed information.

Sincerely yours,

J. M. Spain

JMS/caa

Drs. Reggie Laird
Norman E. Borlaug
John Niederhauser
John Gibler
Billy C. Wright
A. Colin McClung
Herbert Albrecht
T.S. Hsiek
H.N. Mukerjee
Leopoldo de Guzman

ARCHIVAL COPY

Colombian Agr Program

17 MAY 1969

GPB		M

May 6th 1969
No. S00-162

Dr. P.H. Graham
Division of Microbiology
IARI- New Delhi
India.

Dear Dr. Graham

I have received copies of your recent correspondence with Dr. U.J. Grant I am writing to give you, in summary form, an idea of the projected soils program in CIAT.

As you probably already know, CIAT's research program is very much production oriented. This is not to say that fundamental research will not be an essential part of our Soils Program, however, research priorities will be decided on the basis of the probable contribution of proposed research to the solution of problems which are serious limiting factors to crop and animal production in the hot, humid tropics.

Soil research will be developed as a part of a total team effort in the plant science area. The major crops of concern will initially be: pastures and forages, rice, corn, grain legumes and starch crops. We will be putting particular enphasis on the highly weathered acid soils found predominantly on smooth land surface presently under jungle or savannah.

We are especially interested in legume microbiology as it relates to efficient forage and grain legume production. We are also interested in exploring the area of non-symbiotic nitrogen fixation to see if this area merits further study. We are interested in the role and fate of organic matter in tropical soils as well as the cycling of nutrients, expecially bases, as affected by residue management and cropping sequences.

Within the framework of general CIAT objectives, the individual senior scientist will have a great deal of latitude in developing his research program. He will of course, be expected to perform first as a member of a team or several teams whose primary objectives will be increased production and production efficiency.

In addition to research objectives CIAT will also develop teaching and extension-communication programs with the goal of translating research

results into agricultural production. Training activities will range from the training of operators and farm managers to the supervision of thesis research for graduate students. We do not plan formal course work which would lead to degrees. There will also be opportunities for independent research for a limited number of visiting senior scientists.

Our headquarters are in Palmira, near Cali, Colombia with an elevation of 1000 meters and annual rainfall of approximately 1000 mm. The climate is warm with an average temperature of approximately 24°C. However the nights are quite cool and the relative humidity is not excessive. Cali is at 4°North latitude so about the only seasonal changes are those related to rainfall distribution which is bimodal. Most of the staff lives in Cali, where we have found primary and secondary schools to be satisfactory and where good medical facilities are readily available. The cost of living in Cali is average to low compared to that which we were accustomed to in the United States. We find Cali a very pleasant place to live with varied and abundant opportunities for family activities.

I hope the above information will answer some of your questions. I would be happy to reply to specific inquiries which you might have.

Sincerely,

James M. Spain
Soils Scientist

jms/ec.

cc: Dr. U.J.Grant
Dr. Guy Baird

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLE: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

Colombia Ag Programs

0 APR 1969

DIR-C/617

April 24, 1969

Dr. P. H. Graham
Division of Microbiology
IARI, New Delhi

Dear Dr. Graham:

I am indeed sorry that we did not acknowledge receipt of the resumé of your qualifications and background experience. I had given this to Dr. James Spain, leader of our soils investigations, for his information and failed to acknowledge receipt to you.

We are certainly interested in people with your experience and background of training, and if there is any possibility that we would have a position in which you would be interested we will be in contact with you in the relatively near future.

Would you be interested in an initial one or two year appointment? This appointment, if available, would be in Palmira, Colombia where the CIAT headquarters is being developed. Do you speak Spanish? Spanish is required for this position since it is a Spanish speaking country. We do not require that all staff members speak Spanish fluently when they arrive, but we do require that they learn Spanish rapidly.

If you have some definite interest in the possibility of an appointment with CIAT I would suggest that you might wish to talk with Dr. Guy Baird who can give you considerably more information about the philosophy, purpose etc. of the international centers.

Sincerely yours,

U. J. Grant
Director

UJG/caa
c.c. Dr. G. Baird
Dr. J. M. Spain

ARCHIVAL COPY

Dr. Guy B. Baird - INDIA MAIL
Columbian Agr Programs

The Rockefeller Foundation

111 WEST 50th STREET, NEW YORK, N. Y. 10020

AGRICULTURAL SCIENCES

CABLE: ROCKFOUND, NEW YORK
TELEPHONE: COLUMBUS 5-8100

14 APR 1969

GBB.		M
BCW		BCW
JSQ (photo copy) sent 15/4/69		

April 9, 1969

Dear Ing. Rodriguez:

Your recent letter addressed to the President of The Rockefeller Foundation has been referred to me for reply. I note that you would like to have varieties and lines of wheat, sorghum, millets, maize, and forages to test in the tropical region of Abapo-Izozog in the Department of Santa Cruz. I personally visited the Santa Cruz region last October, and I seriously doubt that you will find any of the varieties of wheat to be very well adapted to the hot, humid conditions there. I would suggest that you contact Ing. Maximo Cabrera, Head of the Wheat Improvement Program at the Estacion Experimental "La Tamborada," (Casilla 747, Cochabamba) for a collection of wheats to try at Santa Cruz. Ing. Cabrera has a very broad collection of many different types of wheat from the Mexican and Colombian programs, as well as from the United States Department of Agriculture. He is very knowledgeable about wheat and has had many years of experience in wheat experimentation in Bolivia. He could certainly be of assistance to you in providing materials and in helping you to obtain additional materials from the International Maize and Wheat Improvement Center (CIMMYT) in Mexico. It is my understanding that Dr. John Gibler, one of the outstanding wheat specialists of CIMMYT, will be visiting Bolivia within the next month or so. Ing. Cabrera knows of Dr. Gibler's plans and would, I am sure, be pleased to put you in touch with Dr. Gibler while he is there.

With reference to sorghum materials, let me suggest that you write to Dr. Guy B. Baird, the Director of our cooperative agricultural program in India. He will see that your request reaches the proper hands. His address is: 17 Kautilya Marg, Chanakyapuri, New Delhi 11, India. Probably the best collection of sorghum and millets that are to be found anywhere in the world have been brought together in this program in India.

ARCHIVAL COPY

For varieties and lines of maize, let me suggest that you write to Dr. Dale D. Harpstead, whose address is: Centro Internacional de Agricultura Tropical, Apartado Aereo 67-13, Cali, Colombia. Dr. Harpstead has visited Bolivia several times assisting with the corn improvement programs at Cochabamba and at the General Saavedra Experiment Station at Santa Cruz. He is thoroughly familiar with the conditions in the Santa Cruz region and would, I am sure, be most helpful in selecting appropriate materials to be tested in the Abapo-Izozog zone. When you write him, you may also wish to request him to assist you in obtaining a collection of forage plants, both grasses and legumes, from the Instituto Colombiano Agropecuario, that would be worth while testing in the Santa Cruz region.

Trusting that this information which I have given you will be helpful, I remain,

Sincerely yours,

Lewis M. Roberts
Associate Director

Ing. Eduardo Rodriguez A.
Supervisor Tecnico de la Corporacion
Gestora del Proyecto Abapo-Izozog
Avenida 20 de Octubre
Edificio "CONAVI," 10° Piso
La Paz, Bolivia

LMR:sj

cc: Ing. Maximo Cabrera
Dr. John W. Gibler
Dr. Dale D. Harpstead
Dr. Guy B. Baird

ARCHIVAL COPY

CORPORACION GESTORA DEL PROYECTO
ABAPO – IZOZOG (CORGEPAI)
LA PAZ – BOLIVIA

Avenida 20 de Octubre, esquina Fernando Guachalla
~~AVENIDA CAMACHO~~ Edificio "CONAVI", 10° piso
~~NUMERO~~
TELEFONOS: 26155 . 26158
INTERNO: 902
DIRECCION TELEGRAFICA:
"CORGEPAI"

	EEB	MAR 17 1969	EES	
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↳	LMR		4/12	4/9/69

LPZ-PAI-71-69
La Paz, 11 de marzo de 1969

Señor Presidente de Rockefeller Fundation
111 West 50th. Street
New York, 10020
U. S. A.

Señor Presidente:

Habiendo iniciado los trabajos experimentales en la zona de Abapó-Izozog, en el Dpto. de Santa Cruz, me permito solicitarle tenga a bién instruir al personal de su dependencia enviarnos colecciones de las siguientes especies de plantas económicas:

- Variedades de trigos semi-enanos
- Trigos multilineales
- Variedades de sorgos
- Variedades de Millets
- Variedades de maíz
- Variedades y especies de plantas forrajeras (gramíneas y leguminosas)

La zona para la cual solicitamos muestras pequeñas de semillas, de acuerdo a sus disponibilidades, está localizada en una región sub-tropical a 400 metros sobre el nivel del mar, con invierno seco de abril a septiembre y con 100 mm de lluvia anual (muy seco). Temperatura media 23°C y una humedad relativa de 30 a 50%. El verano húmedo de octubre a mayo con 800 mm de lluvia anual (muy húmedo). Temperatura media anual de 28°C y con una humedad relativa de 40 a 70%.

Hacemos notar también que el Proyecto en el futuro será irrigada, por tanto los cultivos experimentales serán también regados por medio de bombas en esta primera fase, especialmente aquellos que se cultiven en el periodo invernal, como el caso del trigo.

Agradeceremos a Uds. que las semillas de trigos especialmente nos pudieran ser enviadas a la brevedad posible a fin de iniciar los ensayos en el período de invierno.

Agradeciendo a Ud. por su cooperación en este asunto y ofreciéndole intercambio de material de Bolivia, lo saludo muy atentamente,

Ing. Eduardo Rodriguez A.
Supervisor Técnico de la Corporación
Gestora del Proyecto Abapó-Izozog

ERA/eac

ARCHIVAL COPY

March 7, 1969

Dr U. J. Grant
Director, CIAT
Apartado Aereo 58-13
Bogota
Colombia

Re: Your # B250 of February 25, 1969

Dear Jerry:

I have met Dr P.H. Graham who is currently assigned to the Division of Microbiology at the Indian Agricultural Research Institute. He was in my office recently, and was quite concerned about the teaching and research program of the Microbiology Division. I was very favorably impressed by his analysis and suggestions for improvement. He expressed himself well, gave me the impression of genuine concern to provide effective assistance to IARI and confidence that he could do so if given opportunities.

I realize my single encounter with him provides very limited basis for providing you with useful information regarding his candidacy for a position with CIAT. Of course, I could talk with some of the members of the Division of Microbiology at IARI, but do not believe that a great deal would be learned of value in this case. He certainly seems to be held in high regard by the Head of the Division, Dr Sundara Rao.

If after receiving and reviewing his curriculum vitae and related materials you wish to investigate further, please let me know, and I shall arrange to spend some time with him and provide you a more useful appraisal.

Sincerely yours,

Guy B. Baird
Field Director
Indian Agricultural Program

ARCHIVAL COPY

APARTADO AEREO 58-13
BOGOTA, COLOMBIA
CABLE: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

5 MA. 1969
GBB

B 250

February 25, 1969

Dear Guy:

I have received a letter from Dr. P. H. Graham a soil microbiologist at IARI. I wonder if you know Dr. Graham well enough to make a recommendation on his capabilities. We are in the process of trying to locate an outstanding soil microbiologist,and if you think Dr. Graham might be a candidate for this position we would most appreciate having your recommendations.

Sincerely yours,

U. J. Grant
Director

Dr. Guy B. Baird
17 Kautilya Marg,
Chanakyapuri,
New Delhi 21, India

UJG/caa

APARTADO AEREO 58-13
BOGOTA, COLOMBIA
CABLE: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

B 265

February 26, 1969

Dr. P. H. Graham
Division of Microbiology
IARI, New Delhi

Dear Dr. Graham:

I have your letter concerning your interest in the possibility of a position with the Centro Internacional de Agricultura Tropical. We are interested in having some work done in soil microbiology, and we are interviewing a number of candidates for such a position. If you would wish to send us your curriculum vitae and a record of your training and experiences I would most appreciate having them.

Sincerely yours,

U. J. Grant
Director

UJG/caa
c.c. Dr. G. B. Baird

March 6, 1969

Dr U.J. Grant
Centro Internacional De Agricultura Tropical
Apartado Aereo 58-13
Bogota, Colombia

Dear Jerry:

I was quite interested to learn through your letter of February 18th of the work going on in Colombia with Opaque-2. I am calling this to the attention of Bob Renfro of our staff and Dr Joginder Singh, Senior Maize Breeder at IARI whom you may know.

Please put us on the mailing list for the Proceedings of the International Seminar Part II which is to be held in April of this year concerning human nutrition. This subject is becoming increasingly important here and we are giving more attention to quality of the cereal crops as well as overall increased production. Opaque-2 gene has been incorporated in some of the materials here and hopefully there will be releases in the near future. We will try to keep you fully informed.

With personal regards,

Sincerely yours,

Guy B. Baird
Field Director
Indian Agricultural Program

cc: BLR

P.S. Please note letter from UJG then check with Joginder Singh to see if materials are desired. Thanks.

Guy B. Baird

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

APARTADO AEREO 58-13
BOGOTA, COLOMBIA
CABLE: CINATROP

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February 18, 1969

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GBB

Dr. Guy B. Baird
Field Director
Indian Agricultural Program
The Rockefeller Foundation
17, Kautilya Marg, Chanakyapuri
New Delhi 11, India

Dear Guy:

Thank you very much for your kindness in thinking of sending copies of the Annual Progress Report of the Scheme for Studies on Protein Quality of Sorghum, Millets, Wheat and Other Cereal Grains for the period 1967-68. We really appreciate having this information.

You may be interested in some of the work that is going on in Opaque-2 in Colombia. Dale Harpstead has now in production the first double cross hybrid with lines all including the Opaque-2 gene. This material might be of some interest to you in India. If so, we will be glad to send your plant breeders this material.

There is an International Seminar being held this year in April with several members of the Associations of Medicine etc., in this hemisphere attending. We hope this will be useful in informing people about the work going on in human nutrition. Results, so far, at the University of Valle, indicate that children fed only Opaque-2 as a source of protein are getting along very well. Additional information with swine indicates the same.

With best regards,

Sincerely yours,

U. J. Grant
Director

UJG/caa

Address of Mr Alberto P. Marina, Director General of Maizena S.A., during the Symposium - Introduction Concerning the Product DURYEA in the Auditorium of the University of The Valle

Sirs:

It is a great honor to me as Director of Maizena S.A. to welcome you and to initiate this function which we consider to be of great importance for the significance it will have in solving, in part, the nutritional problems of Colombia and of the whole world.

Maizena S.A., founded in Colombia in 1933 and affiliated with CPC International Inc. (before Corn Products Co. of United States, the largest company internationally concerned with the overall processing of the grain of maize for elaboration of industrial products and items for consumption in the home) would not have been absent in the development and commercial utilization of the first product in Colombia and in the world produced with opaque maize containing the high level of lysine.

The philosophy of the policy of our company is that the field of nutrition is where the real revolution of our time is operating, and that we must pay attention to the over-riding necessity of foods which is increasing from day-to-day along with the increase in population. It is possible to provide efficient and abundant foods necessary for the well-being of the people of all of this planet at a cost which adequately taken into consideration the family income in each country.

It has been with this consideration as an overall goal that, from the first, we have been involved in the process and investigation which culminates today with the introduction of the "Alimento Infantil DURYEA Enriquecido" -

Enriched Infant Food DURYEA - first in the world based on high lysine opaque maize. This grain with its marvelous properties undoubtedly provides great support in the fight against hunger and mal-nutrition.

I do not want to burden you with details, which other speakers following me will develop, but I do want to emphasize the interest shown by Dr Dale Harpstead through the poultry program in Colombia of The Rockefeller Foundation, following the studies made at Purdue University; by the Colombian Agriculture Institute; the National Institute of Nutrition and the University of the Valle, including those specialists and suppliers from Maizena S.A. The latter have collaborated from the beginning not only in the development of the seed and in the production of opaque maize, but also in the preparation of various products up to the point of having developed the important product which today gives us pride in presenting to the Colombian public through all of you who are here.

Maizena S.A., in its role of leader in the consumers' market in Colombia, widely known by its industrial and food products at the time of introducing the enriched infant food DURYEA with high level protein and high level lysine made from opaque maize, certainly has contributed a major nutritional item for the future.

Sirs:

In the beginning was the sea, the air and the earth, then the primitive forms of life. But the force that created nature from nothing and which led to the birth of humanity with its conquering intelligence of man, led also in successive steps to the man's most precious gifts deriving from that sea, that air and that earth. It gave to us from a remote period in the new world recognition of a cereal called maize, which was a staff of life for many people of

that world discovered by the daring of a visionary, Christopher Colombus. It enabled us to arrive at the present time of the conquest of space in which man has realized his greatest dream that was dreamed by our forefathers - the conquest of the moon.

At the approach of the decade of the seventies which, undoubtedly, will bring new successes in many fields; at this day dedicated to the Sultan of the Valle, Cali (Cali is the principal city of the Department of the Valle) which today celebrates its 433rd anniversary from the date of founding - at these we associate the events concerned with the introduction of enriched infant food DURYEA. This infant food is the first in the world made from high lysine, opaque maize. It is of special significance that the introduction be made in this city which represents for us cradle where opaque maize was made a reality - where Maizena S.A. has industrialized its use in its modern facilities.

Thanks for your presence and for your contributions in recognition of the importance of this function.

COLUMBIAN INSTITUTE OF AGRICULTURE & LIFESTOCK.... Informs:

Monthly Information Bulletin No. 31 - Bogota, Columbia, December 1968

Opaque Maize

ICA-H.208 Yellow
ICA-H.255 White

New Hybrids with High Nutritive Value

(Starting on Page 4, information on pages 4 and 5, is the same as that given in Extension Folder No. 29 of January 1969). The other material in this bulletin is not concerned with opaque maize.

Maize Opaco

Opaque Maize

Colombian Institute of Agriculture & Livestock
National Program of Maize & Sorghum
Extension Folder No. 29
January 1969

OPAQUE MAIZE

Two New Hybrids of High Nutritive Value ... ICA - H 255 Opaque White
ICA - H 208 Opaque Yellow

By: Daniel Sarria V.

The Colombian Institute of Agriculture and Livestock has developed two new maize hybrids: one yellow, and the other white. These new hybrids are characgersied in particular by improvement in the quality of the protein.

Experiments carried out in Colombia with these two hybrids in feeding swine have given very satisfactory results with reference to the nutritive value of the hybrids in comparison with the varieties which are currently under cultivation. In human nutrition, children suffering from malnutrition have been restored by adding to their daily diet opaque maize in place of the maize commonly used.

ADAPTATION

These hybrids can be sown in zones between 600 - 1200 meters above sea level.

Under the conditions of the flat part of the Cauca valley, they are ready to harvest in 145 days with 16 percent moisture in the grain.

YIELD

In field experiments yields of 5,900 kg per ha. have been obtained with ICA-H 208 and 5,500 kg per ha. with ICA-H 255. In commercial plantings of either of the hybrids, yields of 4,500 kg/ha at 15% moisture in the grain can be obtained.

CHARACTERISTICS

Vigorous plants with moderate resistance to diseases. A large ear with a flowery type of grain, and good quality protein are special characteristics of these two hybrids. The H-255 Opaque has a cylindrical cob with white grain and the plant is of moderate height.

H-208 Opaque produces tall plants, has a large ear generally located in the top most portion of the stalk, and thick yellow grain.

RECOMMENDATION FOR CULTIVATION

SPACING

With machine planting, 90 cm distances between rows with 20-25 cm spacing between plants within the row are recommended. Under these recommendations about 18 kg/ha of seed are required.

(Subtitle under picture showing three swine)

Swine fed with different rations. The one on the left was fed with ordinary maize. The one in the center with ordinary maize, and soya. The one on the right with Opaque maize.

(Title under picture showing man stooping and looking at grain)

Maizena S. A. is investigating ways of processing Opaque maize for human consumption.

CONTROL OF WEEDS

No particular problems have been found regarding the use of herbicides which are recommended for other kinds of maize. One can use Gesaprim 80 percent at the rate of 1½ - 2 kg/ha. or 2, 4-D Amine at the rate of one half a gallon/ha. If herbicides are not used, the crop must be kept weed free by frequent cultivations.

CONTROL OF PESTS

Avoid damage caused by ear worms and (cutworms). For the control of the ear worms use Telodrex o Aldrex at the rate of half a gallon/ha. Sometimes for the control of ear worm, the use of granulated Cebicid is justified at the rate of 22 kg/ha. This also serves to control cutworms.

STORAGE

One treatment for storage of this maize is with the use of Malathion as a powder containing 1% active ingredient at the rate of 1 gram of the product for each kilogram of the seed. This treatment is not harmful regarding health considerations. For fumigation of closed godowns methyl bromide may be used at the rate of 1 pound for every 30 cubic meters.

SPECIAL RECOMMENDATIONS

(1) Fields of this maize should be at least 300 meters from other varieties of maize to prevent cross-pollination. Crossed Opaque maize may lose some of its nutritive value.

(2) If you are going to seed, in the same lot with the Opaque maize, other non-Opaque varieites, make sure that the flowering time of the two maizes differs by at least 20 days.

(3) Avoid delayed harvest which may result in carrying pests from the field to the godown. When stored without treatment, Opaque maize is more susceptible than non-Opaque varieties to insect damage.

DURYEA

First Product in Colombia and in The World

Made from High Lysine, Opaque Maize

CONTENTS

Introduction

Appendix No. 1	-	Determination of the PER of DURYEA
Appendix No. 2	-	Comparative composition of DURYEA
Appendix No. 3	-	Amino acid Composition of DURYEA
Appendix No. 4	-	How DURYEA provides the requirements of Amino acids
Appendix No.5	-	Comparative table of nutrients in nursing bottles and coladas
Appendix No.6	-	The figure of comparative costs of preparation

One of the most serious problems of public health in our country is protein-calorie malnutrition which, in particular, affects a large percentage of Colombian children less than five years old. This results in high indices of infant mortality by malnutrition, and a physical and mental deterioration in the children which survive who are the future human capital for the progress and development of the nation.

Specialists in nutrition, biology and medicine have demonstrated that malnutrition of the infants leads to mental retardation or regression of the normal processes of growth, and physical and mental development.

They have found further that the mental retardation is partially irreversible, thus when the child is later placed under adequate conditions of nutritional rehabilitation, recuperation is not always complete.

The brain almost reaches its total stage of formation during the first years of life, and as a case with the nervous system needs for its development essential amino acids which are found in milk, eggs, and meat, the foods which are not within reach of the population with scarce economic resources, thus which are victims of malnutrition.

MAIZENA S.A.

Aware of the magnitude of the problem of malnutrition and of the sinister repurcussion which this has for the future of the country, Maizena has desired to contribute to the solution of this problem by putting within reach of the people a food of high protein value comparable with that of cow's milk, of low cost, and of characteristics of acceptability comparable with established tasty foods that will give to the child and to the mother the opportunity of better nutrition without sacrificing nor going against

traditional food preferences.

INFANT FOOD DURYEA

This is a product that we are presenting to the honorable body of doctors, nutritionists, dieticians, and other public health officials, DURYEA will be the best ally in the prevention of malnutrition and in the overcoming of nutritional problems of children and mothers who will be pleased because of its delicious flavour, attractive color, very simple preparation and low cost.

COMPOSITION OF DURYEA

DURYEA is a fortunate mixture of foods of excellent protein value with added vitamins and minerals which results in a product of high nutritive value. The foods and nutrients which make up this mixture include pre-cooked opaque maize, soya flour, powdered milk, maize germ, B Complex Vitamins, minerals, Vitamin A, and Vitamin C.

NUTRITIVE VALUE OF DURYEA

On the basis of recommendations of the National Institute of Nutrition, which are that any product which is recommended as an infant food, or as a substitute for leche, must have a protein content of more than 20% and a PER value of approximately equal to that of caseina, DURYEA has been formulated with 28% of high quality protein whose PER reaches 2.36 according to biological studies carried out by Food & Drug Laboratories at the request of CPC Food Technology Institute (See Appendix No.1).

HOW DURYEA HELPS TO MEET THE DAILY REQUIREMENTS OF INFANT FOODS

Appendix No.2 clearly shows the total nutrient composition of DURYEA and of each of its principal ingredients. Also are shown recommendations of the National Institute of Nutrition of nutrients for children between 0 and 1 year and between 1 and 3 years, and the composition of powdered milk with and without fat as a basis for the comparison of the supply of nutrients from DURYEA.

Appendix No.3. The amino acid content of DURYEA prepared by Dr Alberto Pradilla from the University of Valle shows the quality of the protein in DURYEA with reference to casein.

Appendix No.4 is a figure comparing the amino acids of DURYEA of milk and of the average daily amino acid requirements of infants in which one sees clearly the value of DURYEA by virtue of the quality of its protein.

DURYEA prepared in the form for nursing bottles or coladas is comparable with cow's milk and with common bottle feeding for the supply of nutrients.

PREPARATION

The preparation of DURYEA is very simple. With only an addition of water and sugar and five minutes of boiling you have a nutritive and very rich food.

Nursing Bottles

Put three level spoonsful (soup spoons) of DURYEA and three of sugar in a pot. Add a cup of cold water, and make sure that the solids have dissolved. Heat, stir, and let boil four or five minutes.

Coladas

Add five level spoonsful (soup spoons) of DURYEA and three of sugar in bowl, add a cup of cold water, and stir until solids are dissolved. Heat, stir, and let boil for five minutes.

ECONOMICS OF DURYEA

DURYEA is not only a food of great nutritional value and of agreeable flavour, but also within the reach of everyone's pocket book. It supplies the same quantity and quality of proteins at much less cost than milk in the nursing bottles and coladas commonly used or a greater quantity of protein of high quality for the same cost (see Appendix No.6)

BIOLOGICAL VALUE OF DURYEA

Studies carried out on humans by Dr Alberto Pradilla of the University of the Valle, showed the following comparative biological values:

Milk	51
DURYEA	45
Opaque 2Maize	41

This biological value found in DURYEA is comparable to that of milk and superior to a pure vegetable protein such as that of Opaque 2 maize.

PACKAGING

DURYEA comes in small boxes of 250 grams with an official public price of (Colombian Pesos) 2.80. The content of this box is sufficient to prepare 16 nursing bottles or 10 coladas. This means that nuring bottle of DURYEA costs Colombian Pesos 0.168 and a colada Colombian Pesos 0.25.

Appendix No.1

Determinations of the efficiency rate of protein in two samples of food

Translation of the study carried out by Food & Research Laboratories, Maspeth, New York, for C.P.C. International Food Technology Institute, April 1, 1969.

Samples were received in those laboratories of two pinkish colored foods on January 31, 1969 from Corn Products Food Technology Institute to determine the rate of efficiency of protein. The samples were identified as (a) 0121 and (b) 0121A, respectively. This last was described as the same material as 0121 supplemented with 0.52 percent of methionine.

Procedure

In the sample (a) 0121 analysis was made for nitrogen fat, humidity, crude fibre and ash content. The contents of sample 0121A was calculated using the theoretical proportion of 99.48 parts of 0121 plus 0.52 parts of methonine. For both samples diets were used with the same content of fat, humidity, crude fibre and ash.

The determinations of rate of protein efficiency were made following the procedures of the AOAC (1). Rats selected shortly before for these studies were fed with isocaloric diets with the same nitrogen contents, which provided 10% protein (N x 6.25), 8% fat, 5% ash, 2% fibre, 5% humidity and the required vitamins. Comparisons were made between two groups with the third group provided 10% protein from casein. Groups of 10 matched rats recently selected for the purpose were fed with each of these diets. The rats were separated individually and fed with the experimental diets and water ad libidum for four weeks. The body weight and assimilation of food were noted weekly, and at four weeks the PER was calculated (gram gained for each gram of protein

consumed) from each source of protein.

Results

A rat in the group 0121 developed a pulmonary problem and died. The growth and assimilation of food were excellent in all of the other animals.

The analytical data and the composition of the diet are summarized in Table 1. Table 2 summarizes the biological data the calculated PER values both as observed and adjusted to the standard value of 2.50 using casein as a standard. (1) Official Methods of Analysis of the Association of Official Agricultural Scientists, 10th Edition (1965), Section 39.133, page 785.

The net body weight gained by the group fed with sample 0121A was greater than that of the groups 0121 and casein, with the differences being statistically significant at the 1% level.

The adjusted PER values were in the ascending order 2.36, 2.50 and 2.68 for sources of protein: 0121, casein and 0121A, respectively.

The PER of the group fed with sample 0121A was higher than that of the other groups and is statistically significant at the 1% level indicating that the supplementation of methionine increased the quality of the protein in sample 0121.

Table 1

Composition of the Experimental Diets[1]

Ingredients	Diets 386A	386B	386C
	------percent------		
Sample (a) 0121[2]	36.62		
Sample (b) 0121A[3]		36.36	
Casein ANRC			10.88
Maize flour	48.84	49.06	69.70
Salt mixture USPXV	3.28	3.29	5.00
Vitamin mixture	1.00	1.00	1.00
Cellulose flour	0.45	0.45	1.00
Primex	7.63	7.64	7.99
Water	2.18	2.20	4.43

1. Protein
2 By analysis: protein (N x 6.25) = 27.3, fat = 1.0 ash = 4.7, crude fibre = 1.5, water = 7.7 percent.

3 Theoretical content of protein (calculated) = 27.5%

Table 2

Biological Data & Proportionate Efficiency of Protein

Source of protein	weeks 0	4	Body Weight Net Gain	Protein consumed	PER 1 observed	PER 1 Adjusted
			----------g----------			
Sample (a) 0121	53.4	175.3	121.9	40.86	2.98	2.36
Sample (b)0121A	53.0	200.1	147.1**	43.84	3.38**	2.68
Casein ANRC	53.8	180.0	126.2	40.01	3.15	2.50

1 Grams gained per gram of protein consumed, adjusted to 2.50 per casein

** Significant statistical difference of two values for casein and the sample 0121 at the 1% level.

Composition of DURYEA in relation to Recommended Requirements by the I.N.N. vs. Milk Powder

Nutrients	DURYEA 100 grams Quantity	Listed on the packet	Recommendation of I.N.N. (1)	(2)	Analysis of milk powder by the I.N.N. (100g) (3) NFMS++	Complete
Calories (g)	345	345	880	1270	356	407
Protein (g)	28.28	28.0	27.0	31.0	36.00	25.20
Fat (g)	1.61	2.0	-	-	1.0	25.00
Carbohydrates(g)	57.15	57.00	-	-	51.00	38.20
Fibre (g)	2.17	2.0	-	-	0.00	0.00
Ash (g)	4.45	5.0	-	-	8.00	6.30
Water (g)	4.90	6.0	-	-	4.00	5.30
Vitamin A_1 (I.U.)	2700.00	2000	1500.0	2000.0	30.00	1200. 00 +
Vitamin B_1 (mg)	.56	0.5	0.4	0.5	.30	.26
Vitamin B^2 (mg)	.63	0.6	0.5	0.7	1.96	1.42
Vitamin C (mg)	58.50	40.0	40.0	40.0	5.00+	4.00 +
Niacine (mg)	6.78	6.0	5.8	6.3	1.10	0.60
Calcium (mg)	505.30	450.0	600.0	700.0	1200.00	940. 00
Iron (gm)	7.10	7.0	7.0	8.0	0.60	0.80
Phosphorus (gm)	389.40	350.0	-	-	1030.00	745.00
Pottassium (gm)	996.40	900.0	-	-	-	-

1) I.N.N. Daily requirements recommended (1965) - Children 0 - 1 years
2) I.N.N. Daily requirements recommended (1965) - Children 1 - 3 years
3) I.N.N. Table of composition of Colombian foods 1962

\+ Doubtful values
++ Defatted milk powder

CRANES CREST

Appendix No.3

Amino Acid Content of DURYEA

Dr Alberto Pradilla
University of the Valle

Protein 28%

Aminoacid	Composition of protein mg. of N per 100 mg. of N	Casine
Lysine	6.1	7.62
Alanine	4.2	1.85
Leucine	5.5	9.7
Isoleucine	3.8	7.95
Valine	2.3	7.95
Cystine	2.4	0.07
Metionine	2.9	
Tyrocine	1.4	6.5
Arginine	14.3	3.81
Aspartic Acid	3.8	4.17
Treonine	6.0	
Serine	4.8	.5
Phenolalanine	2.2	3.88
Glycine	2.8	.45
Histidine	3.8	2.8
Tryptophane		2.2

Technicon - Short Column System

Appendix No.4

Average Minimum Amino acid Requirements of Infants and Amino acids in Milk

Amino acids	Mg/Kg	Human Milk 150 Ml/Kg	Cow's Milk Formula 2G. Protein/Kg.	DUREYA
Histidine	32	35	36	92
Isoleucine	90	112	127	92
Leucine	150	186	196	140
Lysine	105	135	155	154
Metionine	65	42	49	73.5
Cystine	50			61.0
Phenolalanine	90	90	97	55
Treonine	60	93	92	94
Tryptophane	22	34	28	*
Valine	93	129	137	58

Committeę of Amino acids: Evaluation of Protein Nutrition. Publication No. 711, Food & Nutrition Board, National Academy of Sciences - National Research Council Washington D.C.1959

As reported in Bowes & Church: Food Values of Portions commonly used. 9th Ed. J. B. Lippincott Company, 1963.

DURYEA was calculated on the base of 150 cc per kilogram per day which supplies 2.5 grams of protein.

* Not yet calculated.

Appendix No.5

Comparison of Nursing Bottles and Coladas of DURYEA with those of cow's milk

	Nursing Bottle	Colada
Duryea (g)	15	25
Sugar (g)	22	25
Water (ml)	250	250

	Nursing Bottle (1)	Colada (1)	Fluid Milk Complete (250 ml) (2)	Typical Formula with the Maximum Content of 50% Milk (3)
Calories	140	186	150	153
Protein (g)	4.2	7.00	8.50	4.27
Fat (g)	0.2	0.40	8.25	4.12
Carbohydrate (g)	30.6	39.30	11.50	27.25
Fibre (g)	0.3	0.50	0	0
Ash (g)	0.7	1.20	1.75	1.05
Vitamin A (T.U.)	405.0	670.00	375.00	187.50
Vitamin B1 (mg)	0.1	0.14	0.10	0.055
Vitamin B2 (mg)	0.9	1.60	0.45	0.23
Vitamin C (mg)	8.8	14.60	5.00	3.9
Niacin (mg)	1.0	1.70	0.25	0.2
Calcium (mg)	76.0	126.00	300.00	170.0
Iron (mg)	1.0	1,80	0.50	0.8
Phosphorus (mg)	59.0	98.00	237.50	133.5
Potassium (mg)	150.0	250.00	-	-

(1) Based on dry DURYEA the quantities noted.
(2) Table of composition of Colombian foods (1962)
(3) Study carried out with 1200 Colombian families Of Medium and Lower class and Low class showed

Nursing Bottle of DE 250 ML. (8 oz.)

% persons who use this formula	Formula	Cost of milk	Cost of maize germ	Cost of Oats	Cost DURYEA	Total	Grams of Protein	Cost per gram of Protein	Index of cost per gram of Protein
50	50% Fresh milk, 50% water, 3 grams maize germ	$0.28	$0.025			$0.305	4.25	$0.071	100
30	50% fresh milk, 50% water, 5 grams oats	$0.28		$ 0.04		$0.320	5.00	$0.064	90
-	100% DURYEA with water (15 grams)	-			$0.168	$0.168	4.20	$0.040	56

HIGH LYSINE OPAQUE MAIZE IN HUMAN NUTRITION

When the Europeans first arrived in the Western Hemisphere, they found that the natives were consuming a cereal very different from wheat. It was maize, the source of life in the New World. This cereal had been cultivated in the Americas for so many centuries that it is not known exactly what might have been its primitive ancestors. At this time, we are acquainted with hundreds of types differing in form, shape, color, taste and adaptability to different soils and climatic conditions. An examination of a grain of maize reveals why the cereal is considered to be such a good food. It contains the three basic factors of nutrition: protein, fat, and carbohydrate, which are not uniformly distributed in the grain but are concentrated as shown in Diagram No. 1. This diagram shows the principal parts of the seed: seed coat, endosperm and embryo.

The seed coat or cuticle is made up of indigestible fibre. The endosperm contains the greatest part of the carbohydrate of the grain and a great part of the protein. While the germ is made up primarily of protein and fat. The carbohydrate is starch and the fat is maize oil. We will speak later of the proteins themselves. Further, maize grain contains important vitamins and minerals.

In order that a child grows and develops normally or that an adult keeps strong and healthy, he must eat daily adequate quantities of proteins, fats, and carbohydrates. Each one of those nutrients may be used as a source of energy, that is to say, they may supply the calories which are absolutely necessary for the adequate functioning of the human.

Page 2/

Endosperm
Carbohydrate
(Starch)

Cuticle

Carbohydrate
and Protein
(Starch and Gluten)

Germ or Embryo
Fat (maize oil)
Protein

Page 4/

Human Requirements for Calories and Proteins

Age Years	Sex	Calories	Proteins (Grams)	Protein Calories (% of total calories)
Adults				
25	H			
	M			
	M (Pregnant)			
	M (Lactating)			

H . Man
M . Woman

Further, the specific function of the proteins is to supply the aminoacids out of which are produced muscles and other proteins of the body. The human organism, differing from a machine, has the capacity to easily adapt to a wide variety of foods and to utilize them effectively for growth, development and maintenance of good health. Because of this, we do not find it necessary to define a standard daily diet in terms of specific foods, but rather to talk in terms of calories and quantities and types of protein, fat, carbohydrates, vitamins and minerals.

Our discussion will be limited to calories and proteins and the role that maize can play as a means of supplying these.

Nutrition specialists of the Institute of Nutrition of Central America and Panama have made available the information shown in Table No.1, which helps us to calculate the quantity of foods that a moderately active person must eat daily in order to meet the requirements of calories and proteins. These same authorities state that 100 grams of dried whole wheat grain (with 10.6 percent moisture) supplies 360 calories, 9.4 grams of protein, 4.3 grams of fat, 74.4 grams of carbohydrate.

A person accustomed to eating maize as a major food may eat daily 350 grams or more. According to the above information, 350 grams of maize would be approximately equivalent to 1,250 calories and 34 grams of protein (calories from protein equal to 10.5 percent of the total calories). In other words, this quantity of maize would supply at least 45 percent of the calories and about 62 percent of the proteins required daily by a person.

However, it is not sufficient to merely know the quantity of protein. We also need to know something regarding the aminoacid composition of the protein. Twentythree different aminoacids are knows in proteins. Hundreds and even thousands of these aminoacids may link to form a single protein

molecule. Each kind of protein is unique with respect to the proportions of aminoacids that it contains and the sequence in which these are grouped. Some varied are the possibilities for different sequences that a myriad of proteins with different physical, biological and functional properties are formed from this small number of aminoacids. Among these proteins are found proteins of the muscles, of the blood, of the enzymes which assist in the digestion of the food - in synthesis, all of the vital body functions which depend in one way or another on proteins.

Ten of the aminoacids must be present in adequate quantities in the proteins of the food which we eat. The rest may be synthesized in the human body. The ten mentioned are known as: "essential aminoacids" and are isoleucine, leucine, lysine, phenolalanine, tyrocine, cystine, metionine, treonine, tryptophane and valine.

In order for a person to enjoy perfect health, he needs daily a combination of foods that supplies sufficient calories and sufficient protein and a sufficient quantity of the ten essential aminoacids. Although the diet does contain sufficient protein, the value of the latter will be lost if sufficient calories are not consumed. In the same manner although the diet may contain sufficient proteins these are not uitlized effectively unless all of the aminoacids are present in adequate quantity.

A protein deficiency then may be the result of various deficiencies in a person's diet. Its effects are more rapidly evident in babies and young children by their slow development and growth. They become lethargic, and have little resistance to diseases. Later, when they are given an adequate diet they may grow and recuperate physically, more or less, but may have suffered permanent cerebral lesions and may never recover intellectually. One can appreciate these indications of protein deficiency in the lower socio-

economic classes of the developing countries which is called "protein-calorie malnutrition" (or kwashiorkor). When we examine the common foods we find that they differ appreciably with reference to their caloric value and protein content. For example,

	Weight (grams)	Calories	Proteins (grams)
1 egg	48	80	6.2
1/4 liter of milk	250	160	9.0
1 hamburger	85*	225	21.8
2 pieces of roast chicken	80*	160	22.6
1 cup of cooked rice	150*	165	3.0
1 cup of cooked maize	238*	120	2.4
1 piece of white bread	23	60	2.0
1 arepa (type of bread from maize)	30	65	1.5

* Weight of cooked food.

The nutritional values of the protein may be measured conveniently by comparing the relative content of the essential aminoacids with those of the egg. The World Health Organization has suggested this comparison since the relative quantities of essential aminoacids in egg protein are similar to those found in mother's milk, and, the hen egg is a standard reference universally available, of easy digestibility and a highly concentrated source of protein of uniform compositon.

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Relation between limiting Aminoacids
in Common Foods

Egg
100

Mother's milk

Cow's milk

Beef

Maize

High Lysine Maize

Soybean

L - Lysine

T - Tryptophane

M - Metionine

C - Cystine

Page 10 and 11/

Figure 3 -- Henry - when he arrived at the hospital

Figure 4 -- Henry - after four months of having a diet of high lysine maize

Figure 5 -- Ana Ruth - as she entered the hospital

Figure 6 -- Ana Ruth - after four months of a diet of high lysine maize.

As a general rule proteins of animal origin (meat, milk, eggs, fish, poultry) contain all of the essential aminoacids in a better proportion than proteins of vegetable of origin (grains, grain legumes, nuts) which are usually deficient in one or more of the essential aminoacids. Since the common deficiencies found are in quantities of lysine, tryptophane, metionine and cystine, we will limit the following discussions to these four essential aminoacids.

Assuming the egg has the correct distribution of aminoacids for human nutrition, and giving a value of 100 to the level of each aminoacids in the egg, in Figure No. 2 we find that as with the mother's milk, cow's milk, beef, maize, and soybean compare with the egg in relation to each of the four aminoacids mentioned. It is evident that cow's milk and beef are rich in lysine but slightly deficient in metionine and deficient in cystine. Maize is deficient in all of these essential aminoacids. It is worthwhile to note that protein from soybean (a typical legume) is rich in lysine and tryptophane but relatively deficient in metionine. Thus, maize and beans supplement each other and the combination of these products is nutritionally superior to maize alone.

In 1963 an important discovery was announced in the search for practical means to improve the protein values of the diets in many of the developing countries. Varieties of maize were identified in which the protein had a standard of essential aminoacids similar to that of mother's milk, that is to say, the protein in this kind of maize contained much more lysine and tryptophane than the maize commonly used.

Geneticists have found two genes that are responsible for the superior quality of protein of maize, and have found that this maize also has a germ and embryo relatively larger and endosperm that is softer and in which the dry grains of the maize are more translucent than the normal hybrid of dent maize.

For greater convenience, we refer to this class of superior maize as "high lysine maize" realizing that it is also called "opaque 2 maize" or "floury 2 maize".

Nutrition experiments with laboratory rats, swine, and chickens have confirmed predictions based on chemical analysis, i.e., the quality of the protein in the maize with high lysine is truly excellent. Of greater importance to us is the fact that it appears to be well-utilized by humans.

Dr Helen Clark of Purdue University found that the protein and essential aminoacid needs of five young adults were met satisfactorily if they received daily between 250 - 350 grams of high lysine maize. A larger person needed 350 grams. On the other hand, studies have shown that 600 grams of ordinary maize would not have been sufficient under a similar condition.

Dr Ricards Bressani, in studies carried out with children from Guatemala, found that the quality of protein from high lysine maize corresponded a-proximately to 90 percent of that of skimmed milk. He emphasized that in some zones of Guatemala maize contributed up to 72 percent of the daily amounts of protein taken in, and thus whatever favorable or unfavorable change in the nutritive value the local maize would have effect which would reflect significantly in terms of human health and well-being.

A much more detailed study of the value of high lysine maize is being carried out under the direction of Dr Alberto Pradilla at the University of

Page 12/

Approximate Composition of Maize

Composition (%)	Normal Maize	High Lysine Maize
Humidity	10.6	13.8
Protein	9.4	10.3
Fat	4.3	5.3
Carbohydrate	72.8	67.0
Fibre	1.6	2.2
Ash	1.2	1.4
Essential Aminoacids (gm/100 grams of protein)		
Isoleucine	4.2	3.4
Leucine	14.6	9.3
Lysine	2.7	4.9
Phenolalanine	5.8	4.4
Tyrocine	5.2	4.2
Cystine	1.7	2.0
Metionine	1.3	2.2
Treonine	4.1	3.8
Tryptophane	0.7	1.3
Valine	5.7	5.2
Calories/100 grams	360	360

the Valle, Cali, Colombia. Dr Pradilla is supplying high lysine maize as the only protein source to children severely affected by kwashiorkor. For example, Henry, three years old is shown in Figure No. 3 as he entered the Metabolic Unit of the University Hospital. In Figure No. 4 he is shown after four months of treatment during which time high lysine maize was the only source of protein received. Similarly, in Figure No. 5 is shown Ana Ruth, 11 years old, as she appeared when admitted to the hospital; and in figure No. 6 Ana Ruth after four months on a diet of high lysine maize.

At the present time CPC International is supporting a series of experiments with young adults in the Massachusetts Institute of Technology in Cambridge, Massachusetts, in order to establish in a precise manner the nutritive value of the protein of high lysine maize.

The importance of high lysine maize is due to the fact that it makes available to people who eat maize in Latin America and other parts of the world and improved variety of their basic foodgrains helping them to avoid mental and physical stagnation and poor health resulting from a deficiency of protein. This would not require a change in food habits. Those eating it would not have to learn to use products with which they are not familiar. They would not have to increase their purchases of milk or other costly sources of animal protein.

BIBLIOGRAPHY

CIAT

Telegram : KRISHIPUSA

No. F. 17/12188

DIVISION OF GENETICS,
INDIAN AGRICULTURAL RESEARCH INSTITUTE,
NEW DELHI-12

Dated the 18th November, 19 69

Dr. H.K.Jain,
Head, Division of
Genetics.

Dear Dr. Baird,

Thank you very much for your letter of November 10,1969 enclosing printed material on Opaque-2 maize developed in Colombia.

With kind regards,

Yours sincerely,

H.K.Jain

(H.K.Jain)

Dr. Guy B. Baird,
Field Director,
Indian Agricultural Programme,
The Rockefeller Foundation,
17, Kautilya Marg,
Chankaya Puri, New Delhi-11

19 NOV 1969

GBB

CIAT

APARTADO AEREO 67-13
APARTADO NAL. 737
CALI - COLOMBIA
CABLE: CINATROP

CENTRO INTERNACIONAL DE AGRICULTURA TROPICAL

13 OCT 1969

BCW		BCW
GBB		JMS

October 7, 1969

Dr. Bill C. Wright
Associate Field Director
Indian Agricultural Program
The Rockefeller Foundation
17, Kautilya Marg, Chanakyapuri
New Delhi, INDIA

S00-226

Dear Bill:

Thank you for your letter of September 24 and the gift of publications sent earlier this year. They will make a valuable addition to our CIAT library.

I am sorry to learn that you will not be in Detroit this year. I may possibly pass through India early next year in connection with a proposed trip to the Philippines and Australia. It is too early to say with certainty that I will have time to visit in India, but certainly would like to if it is at all possible. This would probably be in March.

Best personal regards.

Sincerely yours,

James M. Spain
Soil Scientist

JMS:gip

Comunicaciones Científicas Agrícolas

INSTITUTO INTERAMERICANO DE CIENCIAS AGRICOLAS

SERVICIO DE INTERCAMBIO CIENTIFICO — Turrialba, COSTA RICA

Hoja Nº 8
(Est. Exper.)

Tibaitatá, COLOMBIA
Agosto 1959

CENTRO NACIONAL DE INVESTIGACIONES AGRICOLAS - "TIBAITATA"*

SUPERFICIE TOTAL: 568 hectáreas.

SITUACION GEOGRAFICA: 4º42' latitud N., 74º12' Long. W. de Greenwich, altitud 2640 metros sobre el nivel del mar.

Está situado en la Sabana de Bogotá, a 18 kilómetros de la capital de la República, sobre la carretera Central de Occidente. Pertenece a la jurisdicción del Municipio de Mosquera, Departamento de Cundinamarca.

DIRECCION POSTAL: Apartado Aéreo 58-13, Apartado Nacional 32-79 Bogotá, Colombia.

CLIMA: Frío, temperatura media 14,3ºC.

PRECIPITACION: 952 milímetros (promedio anual)

VEGETACION NATURAL: Falsa poa, pasto oloroso, trébol blanco, carretón cadillo.

CULTIVOS TIPICOS DE LA REGION: Trigo, cebada, papa, maíz, alverja, haba, hortalizas; pastos Kikuyo (Pennisetum clandestinum), Rye-grass inglés (Lolium perenne), Orchoro (Dactylis glomerata), Rye-grass anual (Lolium multiflorum) y Carretón rojo (Trifolium pratense).

PROGRAMAS PERMANENTES DE INVESTIGACION Y SU PERSONAL TECNICO: A continuación se ofrece la lista de los programas de investigación que se realizan en el Centro Nacional de Investigaciones Agrícolas de Tibaitatá; se

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* Dependencia del Ministerio de Agricultura, Departamento de Investigación Agropecuaria (D.I.A.)

Esta información no debe tomarse como definitiva; representa el estado actual de un trabajo de investigación. Está destinada a servir a los investigadores agrícolas del Continente.

suministra la información relativa a esos programas en relación con los cultivos con que se trabaja. No se incluye una lista general del personal técnico que labora en el Centro; los especialistas que tienen a su cargo los diferentes programas de investigación se detallan después de la descripción del respectivo programa.

Programa: Trigo

1. Mejoramiento de variedades de trigo para Cundinamarca y Boyacá.
2. Mejoramiento de variedades de trigo para Nariño.
3. Mejoramiento de variedades de trigo para tierra caliente.
4. Estudios sobre calidad.
5. Estudios de variedades multilíneas o compuestas.
6. Estudios especiales (Variedades enanas).
7. Pruebas regionales en Cundinamarca, Boyacá y Nariño.
8. Estudios culturales.

Programa: Cebada

1. Mejoramiento de variedades de cebada para Cundinamarca y Boyacá.
2. Mejoramiento de variedades de cebada para Nariño.
3. Estudios sobre calidad.
4. Estudios genéticos sobre herencia de la resistencia al enanismo.
5. Estudios sobre enfermedades prevalentes.
6. Estudios culturales.

Programa: Avena

1. Mejoramiento de variedades para grano en Cundinamarca, Boyacá y Nariño.
2. Mejoramiento de variedades para forraje en Cundinamarca, Boyacá y Nariño.

Cont. Hoja Nº 8 (Est. Exper.). Centro Nacional de Investigaciones Agrícolas - Tibaitatá.

---

3. Producción y manejo de forraje.

4. Estudios culturales.

Técnicos

Dr. John W. Gibles,	Ph.D.,	Director del Programa*
Ing. Agr. Mario Zapata,	M.S.,	Sub-Director del Programa
Ing. Agr. Reinaldo Reyes,		Jefe de la Sección
Ing. Agr. Carlos de la Fuente,		Genetista
Ing. Agr. Luis A. Rojas,		Genetista
Ing. Agr. Leonidas Angarita,		Genetista
Ing. Agr. Antonio Miranda,		Genetista
Ing. Agr. Hernando Reaga,		Jefe Lab. de Farinología
Ing. Agr. Rafael López,		Auxiliar Lab. de Farinología

Programa: Papa

1. Mejoramiento de variedades.
2. Mejoramiento de las técnicas de cultivo.
3. Producción de semilla Fundamental.
4. Estudios especiales (almacenamiento, tipo de maquinaria).

Técnicos

Dr. Lee E. Heidrick,	Ph.D.,	Director del Programa*
Ing. Agr. Nelson Estrada,	M. S.,	Jefe de la Sección
Ing. Agr. Lauro Luján,		Genetista
Ing. Agr. Edmundo Pérez,		Genetista

Programa: Maíz

1. Mejoramiento de variedades seleccionadas, variedades sintéticas e híbridos dobles.
2. Estudios especiales.

---

* Los técnicos que aparecen con asterisco pertenecen al personal de la Fundación Rockefeller.

Técnicos

Dr. David H. Timothy, Ph.D., Director del Programa*
Ing.Agr. Manuel Torregrosa, M. S. Jefe de la Sección
Ing. Agr. Daniel Varela, Genetista

Programa: Frijol y Alverja

1. Mejoramiento de variedades.
2. Mejoramiento de métodos.
3. Estudios especiales.
4. Pruebas regionales con material mejorado.

Técnicos

Ing.Agr. Canuto Cardona A., Ph.D., Director del Programa
Ing. Agr. Marco A. Castillo, Jefe de la Sección

Programa: Hortalizas

1. Mejoramiento de variedades.
2. Métodos culturales.
3. Estudios especiales (tamaño parcelas - efectos hormonales en semilla - conservación hortalizas, etc.).
4. Pruebas regionales de adaptación.
5. Producción de semillas.

Técnicos

Ing. Agr. Enrique Rodríguez Z., Director del Programa
Ing. Agr. Guillermo García A., Jefe de la Sección

Programa: Pastos y Forrajes

1. Introducción y colecciones.
2. Manejo de pasturas.
3. Mejoramiento de pastos.
4. Alfalfa.
5. Trabajos cooperativos con la sección de Ganadería.

---

6. Praderas naturales.
7. Producción de semillas.

Técnicos

Dr. Loy V. Crowder, Ph.D., Director del Programa*
Ing. Agr. Silvio Echeverri, Jefe de la Sección
Ing. Agr. Hernán Chaverra, Genetista.

Programa: Suelos

1. Necesidad del uso eficiente de fertilizantes en los suelos de Colombia.
2. Efecto a largo plazo de varias prácticas agronómicas en la productividad del suelo.
3. Estudios de laboratorio e invernadero para la caracterización de las propiedades químicas y físicas del suelo, en relación con su productividad.
4. Necesidad del uso eficiente del agua de irrigación en varias regiones agrícolas de Colombia.

Técnicos

Dr. Guy B. Baird, Ph.D., Director del Programa*
Ing. Agr. Victor M. Vega, M. S., Jefe de la Sección
Ing. Agr. Gildardo Marín, Edafólogo Auxiliar
Ing. Agr. Jaime Daza B., Edafólogo Auxiliar
Dr. Miguel A. Castellanos T., Químico, Jefe Laboratorio
Dra. Alix Luengas V., Química, Auxiliar Laboratorio

Programa: Fitopatología

1. Identificación de las razas fisiológicas de royas del trigo, cebada y avena.
2. Tratamientos de semillas con fungicidas.
3. Estudio de la resistencia parcial o tolerancia de ciertas variedades de trigo a las royas.
4. Epidemiología de las royas del trigo.

5. Estudios del efecto de la migración (origen de la semilla de trigo y cebada en relación con la reacción a las enfermedades, la precocidad y a la producción).
6. Enanismo de cebada, trigo y avena.
7. Identificación de razas fisiológicas de la "gota" en la papa.
8. Estudio de la resistencia parcial o tolerancia a la "gota" de la papa.
9. Estudio sobre la dormidera bacterial de la papa.
10. Control químico de la "gota" de la papa.
11. Virus de la papa.
12. Reconocimiento de las enfermedades de plantas de forraje.
13. Estudio de la pudrición de la raíz del trébol blanco.
14. Estudio de la deterioración de granos almacenados.

Técnicos

Dr. H. David Thurston, Ph.D., Director del Programa*
Ing. Agr. Juan Orjuela N., Ph.D., Sub-Director Programa
Dra. Julia Guzmán, M. S. Fitopatóloga
Ing. Agr. Rodolfo Barriga, Fitopatólogo

Programa: Entomología

1. Control químico de insectos
2. Resistencia de los cultivos al ataque de los insectos.
3. Estudio de insectos de granos almacenados.
4. Colección e identificación de insectos.
5. Ciclo biológico de insectos de importancia económica.
6. Estudios de control biológico de insectos.
7. Control de plagas en animales (vacunos).

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Técnicos

Dr. Robert F. Ruppel,	Ph. D.,	Director del Programa*
Ing.Agr. Miguel Revelo,	M. S.,	Jefe de la Sección
Ing.Agr. Gilberto Bravo,		Entomólogo
Dra. Isabel Sanabria,	M. S.,	Taxónoma

Programa: Avicultura

1. Mejoramiento de sistemas de manejo.
2. Estudios nutricionales.
3. Estudios Fisiológicos.
4. Estudios de patología.
5. Estudios de selección y genética.
6. Estudios especiales (calidad de huevos, preparación de carnes).

Programa: Porcinos

1. Mejoramiento de sistemas de manejo.
2. Estudios nutricionales.
3. Estudios fisiológicos.
4. Estudios de selección y genética.
5. Estudios de patología.

Programa: Ovinos

1. Mejoramiento de sistemas de manejo del rebaño.
2. Estudios nutricionales.
3. Estudios fisiológicos.
4. Estudios de selección genética.
5. Estudios de patología.

Programa: Inseminación Artificial

1. Estudio fisiológico y pruebas de laboratorio para determinar la calidad del semen.

Programa: Lechería

1. Mejoramiento de sistemas de manejo de hatos lecheros.
2. Estudios nutricionales de ganado de leche.
3. Estudios fisiológicos de ganado lechero.
4. Estudios de selección y genética de ganado lechero.
5. Estudios de patología de ganado lechero.

Programa: Ganado de Carne

1. Mejoramiento de sistemas de manejo de ganado de carne.
2. Estudios nutricionales de ganado de carne.
3. Estudios fisiológicos de ganado de carne.
4. Estudios de selección genética de ganado de carne.
5. Estudios de patología de ganado de carne.

Técnicos

Dr. James M. Fransen,	Ph.D.,	Director del Programa*
Dr. Robert K. Waugh,	Ph.D.,	Jefe Sección Lechería*
Dr. D. Roy Casorso,	Ph.D.,	Jefe Sección Patología*
Vet. Gustavo Riveros,	Jefe	Sec.Inseminación Artif.
Vet.Bernardino Rodríguez,		Sección Lechería
Vet. Samuel Ramírez V.,		Sección Lechería
Vet. Plinio Sierra,		Sección Patología
Vet. Manuel Alvarez,		Bioquímico
Dr. Carlos Van Cotthem,	B. S.,	Adm. Sec. Ganadería
Sr. Fernando Gil,	Jr.,	Sección avicultura

PERSONAL ANEXO:

Biometría

Dr. William H. Hatheway,	Ph. D.,	Director*
Ing.Agr. Pedro R. Oñoro C.,		Biometrista

Cont. Hoja Nº 8 (Est. Exper.). Centro Nacional de Investigaciones Agrícolas - Tibaitatá.

Sr. Luis Mahecha T.,	Auxiliar

Ingeniería

Ing. Jorge Quintero,	Jefe de la Sección
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Ing. Agr. Alirio Belalcázar,	Extensión y Enseñanza

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Dr. Roland E. Harwood,	Dir. Operaciones de Campo
Ing. Agr. Jorge Fonseca,	Administrador

Dirección

Ing. Agr. Ramón Murgueitio P.,	Director
Ing. Agr. Jorge E. Ramón J.,	Sub-Director
Srta. Rocio Peláez V.,	Secretaria
Srta. Elvira Escobar Z.,	Secretaria

From: FERTILITÉ
15, Rue Du Louvre, Paris
Sept, 1958 (5)



Fig. 1. — Localización de Colombia en Sud América.

EL CULTIVO DEL CAFETO EN COLOMBIA

por

Fernando SUÁREZ DE CASTRO

Sub-director Tecnico de la
" Federacion Nacional de Cafeteros "
Colombie

HISTORIA

El café se comenzó a sembrar en Colombia a mediados del siglo XVIII, en el Departamento del Norte de Santander, región nor-oriental del país, limítrofe con Venezuela. Las semillas vinieron de Venezuela a donde, a su turno, llegaron de la Guyana Francesa (6) (*).

El cultivo se extendió rapidamente por las vertientes de los 3 ramales de la Cordillera de los Andes, que atraviesan a Colombia de Sur a Norte, hasta llegar a ser la principal industria agrícola de toda la región comprendida entre los mil y los dos mil metros de altura sobre el nivel del mar. Actualmente se producen unos 7 millones de sacos anuales, de los cuales se exportan cerca de 5 1/2 millones que valen 400 millones de dólares y representan el 75 % de las exportaciones totales del país (3).

Existen en Colombia cerca de 220 mil fincas cafeteras, el 95 por ciento de las cuales tienen menos de 10 hectáreas sembradas de café (5).

CONDICIONES DE CLIMA Y SUELO

La zona cafetera de Colombia se halla comprendida entre los 0°5, y 11° de latitud norte y entre los 72° y 78° de longitud occidental. Es la región cafetera más ecuatorial de América. Su posición hace que la franja ecuatorial de baja presión atmosférica, dominen e impriman características climatológicas propias y definidas, que son desde luego reguladas o modificadas por condiciones orográficas y por los sistemas de circulación atmosférica locales (13).

(*) Los números entre paréntesis se refieren a la bibliografía que se cita al final.

Las temperaturas medias anuales varían entre 18 y 21 grados centígrados, con máximas hasta de 30 grados centígrados y mínimas de 11 ; la humedad relativa media anual entre el 75 y el 87 por ciento con mínimas hasta de 39 por ciento ; la lluvia anual entre 1.200 y 2.700 milímetros.

Los suelos son de variadas condiciones físicas y químicas. La porción más productiva de la región cafetera es aquella con suelos derivados de cenizas volcánicas. En general, los suelos son ácidos (pH de 4,5 a 5,5), con materia orgánica entre 3 y 10 por ciento, bases totales de 9 a 15 me/100 grados y fósforo soluble no mayor de 15 p.p.m. Pueden considerarse los suelos como de fertilidad mediana a baja (7).

SISTEMAS DE CULTIVO

La variedad de café que prevalece es la *Typica*, aunque en los últimos años se ha extendido la siembra de la variedad *Borbón*, que ha probado ser más productiva y resistente a algunas enfermedades fungosas.

Todo el café en Colombia se cultiva bajo la sombra de árboles corpulentos, generalmente de la familia leguminosa. Prevalecen como sombrío los « guamos » (género *Inga*) de los cuales se utilizan no menos de 10 especies ; también se usan con este objeto el « pisquin » o « carbonero » (*Albizzia malacocarpa Benth*), el « Dorancé » (*Cassia strobilacea*) y el « *cámbulo* » (*Erythrina umbrosa H.*).

El sistema generalmente empleado para establecer un nuevo cafetal es el siguiente :

Se limpia el terreno escogido, cortando la vegetación con machete y quemando. Luego se siembra plátano a 6 metros de distancia y maíz entre las calles. Entre tanto, se hace el almácigo con penumbra artificial, en donde se mantienen los cafetos pequeños por cerca de 8 meses.

Cuando se hace el trasplante de los cafetos al campo ya el plátano proyecta alguna sombra que protegerá los arbustos del sol. Al mismo tiempo se siembra el sombrío permanente.

Cuando los cafetos alcanzan una altura de 1,50 metros, se les corta la yema terminal de manera que se suprime todo crecimiento vertical ulterior.

Los arbustos comienzan a producir a los tres años de sembrados en el campo. El café se beneficia por el método húmedo es decir se despulpan las cerezas, se fermenta el grano, se lava y se seca al sol.

SERVICIOS TÉCNICOS

La Federación Nacional de Cafeteros, entidad sostenida con el aporte monetario de todos los cultivadores, es la encargada de todos los servicios técnicos. Actua, además, como reguladora del mercado : fija precios de compra para todo el país y compra café en las zonas productoras. Sus almacenes de depósito tienen una capacidad de almacenamiento cercana a los cuatro millones de sacos.

La Federación sostiene una estación experimental central (Centro Nacional de Investigaciones de Café de Chinchiná) y varias subestaciones en diversas regiones. Los avances técnicos logrados mediante la investigación se transmiten luego a los agricultores a través de un servicio de extensión en el cual trabajan cerca de cuarenta ingenieros agrónomos y 200 prácticos agrícolas.

La Federación de Cafeteros le ha dado especial importancia a los trabajos sobre la conservación de los suelos. Como los terrenos de toda la región cafetera son quebrados y con pendientes pronunciadas, ha sido necesario investigar sistemas económicos de defensa de los suelos y desarrollar entre el gremio campesino, una gran campaña de educación sobre el uso de esos métodos.

En las estaciones experimentales se han determinado las pérdidas de suelo y agua que ocurre en diferentes condiciones de suelo, topografía y cultivo. Luego, se han establecido las reducciones en suelo y agua perdidos que pueden lograrse a través del uso de diversas prácticas, hasta llegar a diseñar procedimientos económicos y fáciles de realizar y de sostener que aseguran el mantenimiento de la fertilidad de los suelos (10, 11).

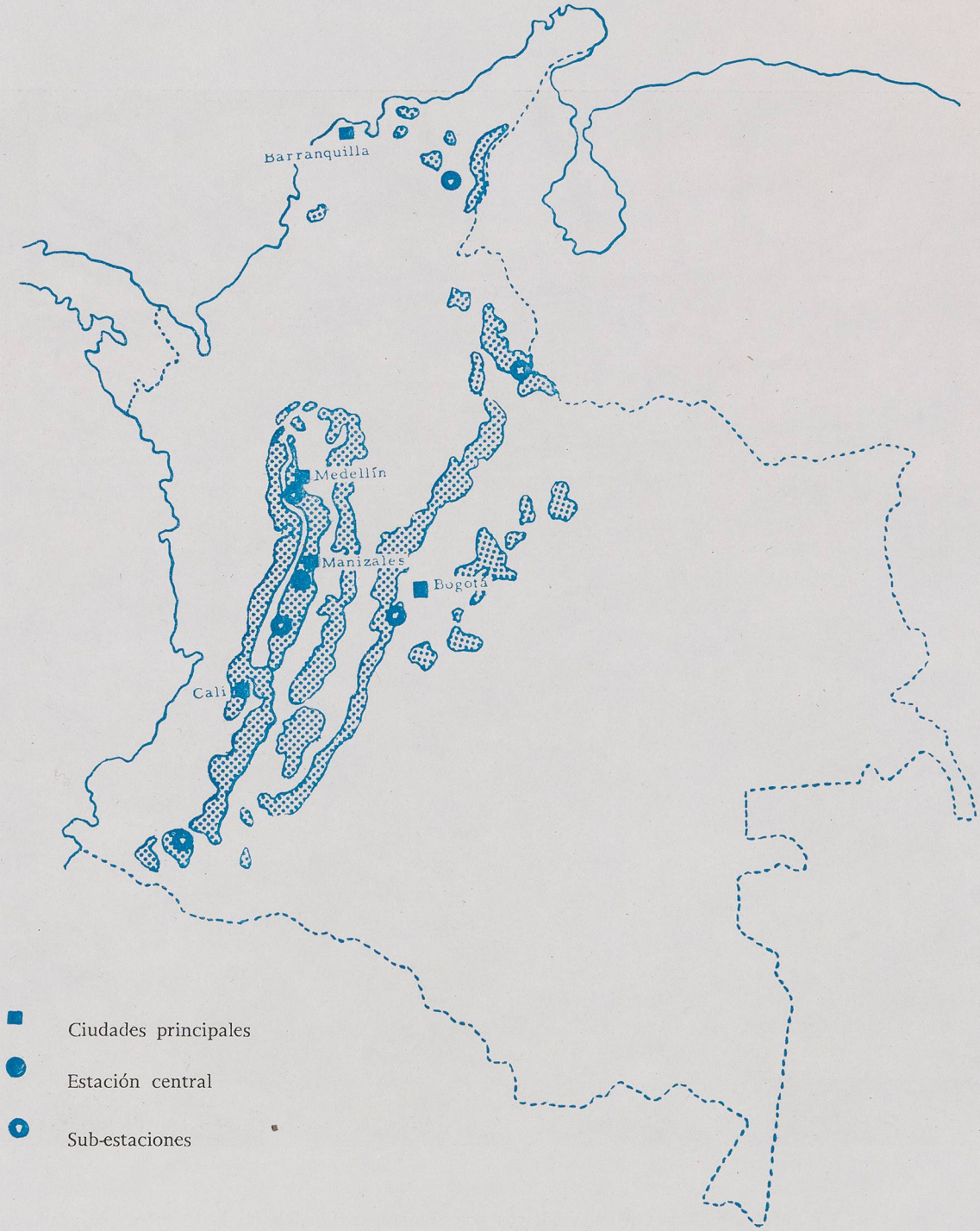

Fig. 2. — Localización de la zona cafetera de Colombia y de las estaciones experimentales de la Federación Nacional de Cafeteros.



Fig. 3. — Los cafetos se levantan en almácigos con sombra artificial hasta los 8 meses de edad.
(Foto F. S. de C.)



Fig. 4. — Cafetal típico colombiano. Nótese el sombrío y la altura de los cafetos. (Foto F. S. de C.).

Las 21 oficinas seccionales de la llamada Campaña de Suelos, servida cada una por un ingeniero agrónomo y cinco prácticos agrícolas, se encargan de enseñar a los agricultores la utilización de los sistemas de conservación y defensa de los terrenos.

PLAGAS Y ENFERMEDADES

Pocas son las dolencias que afectan al cafeto en Colombia. Como plagas de importancia no pueden mencionarse sino algunos coccidos radiculares (*Geococcus, Neorhizoecus, Eumyrmococcus*), los cuales viven asociados con hormigas de varios géneros, y en ocasiones causan daños graves al café. Varios insecticidas clorinados han probado ser muy efectivos en el control de la plaga (4). Las únicas enfermedades de importancia económica son la « llaga macana » o « cáncer del tronco », causada por un hongo del género « *Ceratostomella* », y la « gotera » u « ojo de gallo » causada por el *Stilbum flavidum Cooke*.

Para el control de ambas enfermedades los investigadores del Centro Nacional de Investigaciones de Café de Chinchiná han desarrollado métodos de combate muy efectivos que hoy se usan ampliamente (1, 2).

AVANCES EN EL CULTIVO

Actualmente hay dos líneas de acción que han probado ser muy eficaces en el aumento de la producción por unidad de superficie. Ellas son : el cultivo sin sombra y el uso dosificado de fertilizantes.

Sobre el cultivo del cafeto a pleno sol se llevan a cabo experimentos y ensayos desde hace diez años. Con un sistema de fajas en contorno se han logrado producciones cinco veces superiores a las obtenidas en plantaciones cultivadas por el sistema tradicional (9, 14).

En relación con el uso de fertilizantes, los ensayos y experimentos que se efectuan desde hace dos lustros, junto con el análisis foliar que se empezó a usar en 1953, han permitido aclarer las necesidades de los cafetos en diferentes regiones del país.

En términos generales se ha comprobado que el cafeto necesita nitrógeno y fósforo, de manera principal, durante los primeros años y potasio desde que comienza a producir (8).

En los varios ensayos y experimentos sobre fertilizantes ejecutados en diversas regiones de Colombia con cafetos adultos, se han obtenido las más altas producciones con aplicaciones de potasio.

Actualmente se recomienda la fórmula 10-5-20 para aplicarla a arbustos en producción combinada con abonamiento orgánico.

Bogotá, Julio 1958.

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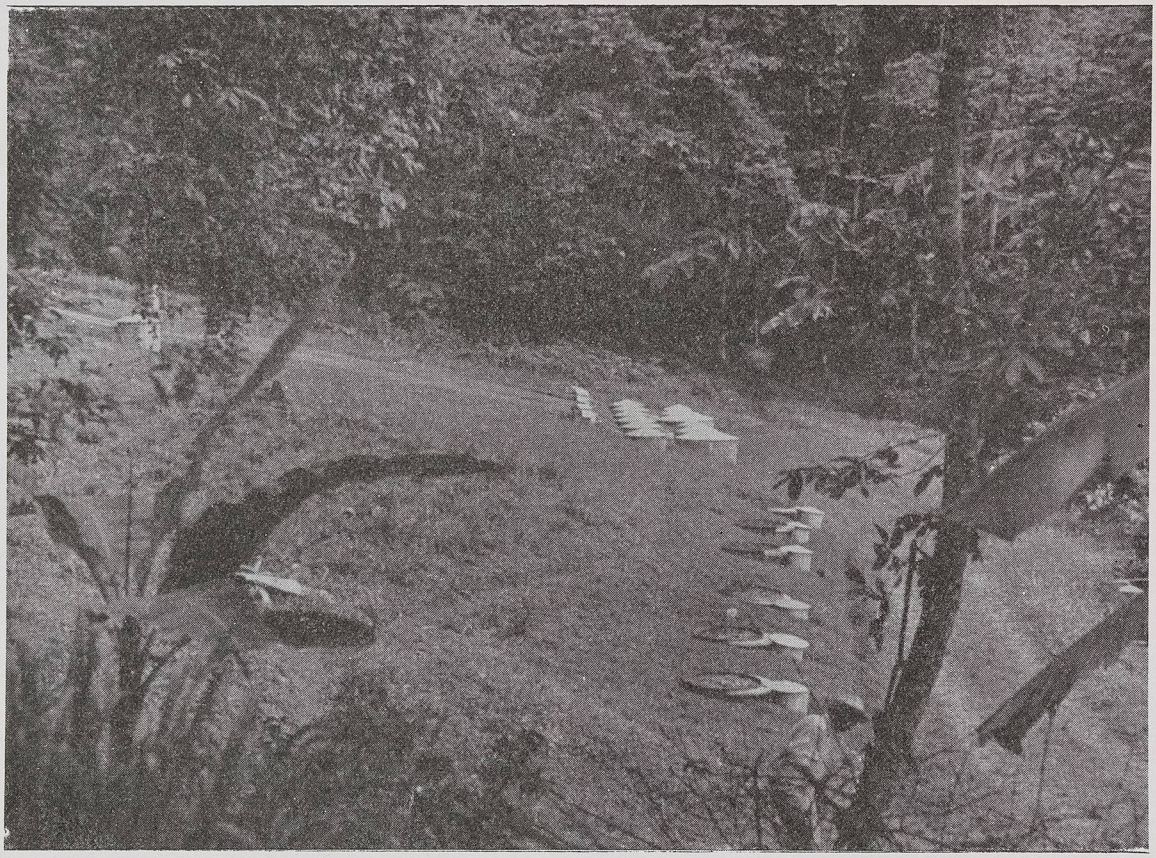

Fig. 5. — Aspectos de algunas instalaciones experimentales del Centro Nacional de Investigaciones de Café de Chinchiná. (Foto F. S. de C.).



Fig. 6. — El cultivo al sol se comienza a utilizar en Colombia con base en los buenos resultados obtenidos en experimentos. (Foto F. S. de C.).

Imprimerie spéciale de la SEDA, 15, rue du Louvre - PARIS (1er)

CARTA AGRARIA #23 Aug 1959

ESTIMATIVOS DE PRODUCCION, EXTENSION Y VALOR POR CULTIVOS, A PRECIOS CONSTANTES DE 1.958

Cultivos	Hectáreas cultivadas (Miles)	Producción Toneladas (Miles)	Valor Producción Miles Pesos
Algodón (1)	77.3	73.2	116.900
Arroz Paddy	264.0	390.1	574.200
Ajonjolí	60.5	49.2	30.600
Cacao	32.0 *	15.1	62.600
Banano	36.2	518.6	228.200
Café Pilado (2)	812.6	468.0	1.198.000
PRODUCTOS DERIVADOS DE LA CAÑA			
Miel	9.7	56.3	45.000
Panela	269.6	1.498.2	1.168.100
Azúcar	30.8	241.0	144.600
Cebada	95.4	117.0	87.900
Fríjol	96.0	60.0	98.700
Maíz	704.2	852.4	390.100
Papa	174.6	1.197.4	566.700
Plátano	247.0	1.670.0	441.000
Tabaco (3)	22.9	37.9	75.800
Trigo	110.0	155.6	144.700
Yuca	162.3	1.217.6	292.100
Arveja	35.0	21.8	38.400
Arracacha	16.0	100.5	34.600
Fique	30.0 *	22.5	24.500
Haba	30.2	37.8	34,700
Ñame	17.7	110.5	38.900
Soya	10.2	10.2	11.900
Ajos y Cebolla	18.0	112.5	103.500
TOTALES	3.362.2		5.951.700

Fuente: Caja Agraria Dpto. de Investigaciones Económicas

(1) Fuente: IFA (2) Fuente: FEDECAFE (3) Fuente: I.F.T.

* Datos ajustados por la CEPAL

CARTA AGRARIA
25
Sept-1959

ESTIMATIVOS DE PRODUCCION, CONSUMO Y NECESIDADES DE ARTICULOS AGRICOLAS

ARTICULO	Proucción Toneladas	Desechos	Consumo para semilla	Industrias y forrajes	Exportación	Consumo alimentos	Necesidades para alimento	Sub-prod.	Super-prod.	Importación
Ajonjolí	20.764	-	1.210	19.554	-	-	-	-	-	-
Algodón	73.165	-	-	83.434	-	-	-	-	7.000	10.864
Arroz	390.149	50.000	13.864	40.000	-	286.285	370.367	105.102	-	-
Arveja	21.831	-	1.997	-	-	19.834	14.806	-	-	511
Avena	-	-	-	-	-	3.604	20.000	40.000	-	3.604
Cacao	18.700	-	-	-	-	18.700	24.677	5.977	-	5.991
Café	468.000	-	-	-	366.000	42.000	42.000	-	60.000	-
Caña Azúcar	240.980	5.000	-	169.109	-	63.771	98.710	34.939	-	34.939
'' Panela	1.498.208	150.000	-	953.366	-	394.842	394.842	-	-	-
'' Miel	56.283	5.000	-	51.283	-	-	-	-	-	-
Cebada	117.043	-	7.153	100.018	-	9.872	9.872	4.773	-	4.773
Fique	22.500	-	-	22.500	-	-	-	12.500	-	-
Fríjol	60.006	1.800	4.800	-	-	53.406	85.000	31.594	-	-
Maíz	852.407	40.000	8.802	310.052	-	493.553	493.553	-	-	68
Papa	1.197.480	95.000	87.323	100.157	-	915.000	800.000	-	-	-
Plátano	1.674.994	304.994	-	408.504	-	961.500	740.329	-	-	-
Banano	518.625	70.000	-	75.382	174.108	197.826	197.826	-	1.309	-
Tabaco	37.800	-	-	32.238	4.531	-	-	-	1.111	311
Trigo	155.583	6.000	-	30.000	-	119.583	296.131	148.086	-	103.438
Yuca	1.217.556	120.000	-	371.905	-	715.651	715.651	-	-	-
Carne	364.000	-	-	-	-	364.000	395.000	31.000	-	-
Leche fluída	1.430.800	57.200	-	-	-	1.373.000	2.393.000	1.020.000	-	-
Huevos	36.500	5.475	-	-	-	31.025	74.000	42.975	-	-

Sobre cálculos de producción del Departamento de Investigaciones de la Caja de Crédito Agrario. Los cálculos de producción de café son los de la Federación Nacional de Cafeteros. Para el algodón se tomaron las cifras del IFA.

NOTA.- En los estimativos de consumo para alimentos que aparecen en este cuadro, se han puesto unicamente las *metas mínimas* de consumo fijadas por el Instituto Nacional de Nutrición, para poner de relieve las deficiencias de abastecimiento de productos alimenticios, teniendo en cuenta el nivel mínimo de consumo. Aparecen en el cuadro algunas cifras de *superproducción,* calculadas sobre tal base, en cultivos como algodón, tabaco, bamano; sin embargo, sus condiciones de mercado son lo bastante amplias para permitir un consumo de esos productos mucho mayor que el registrado actualmente como límite, pues en cuanto a los dos primeros (algodón y tabaco) hay que tener en cuenta la próxima expansión de las respectivas industrias manufactureras (textil y tabacalera) y en consecuencia una mayor demanda de las materias primas nacionales, aparte de las posibilidades de exportar los sobrantes de esas mismas materias y los productos elaborados -telas, cigarrillos, etc.- La superproducción de banano es también relativa o aparente, pues los cómputos de consumo se hicieron con relación a la *meta mínima,* aunque su consumo interno sobrepasa hoy ese límite; y por otra parte el mercado internacional para el banano ofrece amplio margen.

TERCERA REUNION LATINOAMERICANA DE GENETISTAS,
FITOPATOLOGOS, ENTOMOLOGOS Y EDAFOLOGOS

Colombia - 1955

"FERTILIZANTES COMERCIALES"

Gonzalo Isaza Angel

En este escrito hago un breve análisis sobre el desarrollo del consumo nacional de fertilizantes y enmiendas de suelos y los problemas económicos que presentan.

NECESIDADES COLOMBIANAS.- Toda persona familiarizada con el estudio de suelos en Colombia conoce la marcada deficiencia de fósforo que registran y el resultado desalentador de las investigaciones para localizar yacimientos de fosfatos, pues no se ha encontrado en el país - una fuente comercial de fósforo y potasa, lo que determina que los fertilizantes que se vienen consumiendo hayan sido importados del exterior.

Las perspectivas mejoran porque se adelanta el montaje de la Planta de Amoníaco y Nitrato de Amonio que producirá en dos años unas 10.000 toneladas de Nitrógeno (N) aproximadamente, amén de las 4.000 toneladas de Sulfato - de Amonio y las 30.000 de Escorias Fosfóricas Thomas, que como subproductos se comienzan a derivar de la Siderúrgica de Paz de Río. No obstante, el país, seguirá abocado a seguir importando fósforo y potasa, porque los productos antes mencionados sólo representan mediana fracción de las necesidades totales.

COSTOS.- Los costos de fertilizantes se afectan fuertemente por los altos precios del transporte. Así, una tonelada de fertilizantes que en puerto Europeo o Norteamericano cuesta $138.oo, se aumenta por razón de transportes hasta en $120.oo, con tendencias a ser elevados. Consecuencialmente, se incrementa la importación de fertilizantes de alta concentración, que permiten diluir el costo de transporte por unidad de nutriente. El problema se agudiza con la cal agrícola, cuya aplicación en nuestros suelos es decisiva para el aumento de la producción.

CONSUMOS.- A pesar de las enormes dificultades que el país presenta para el correcto empleo de fertilizantes, su consumo muestra cifras verdaderamente halagueñas, según cuadro adjunto sobre ventas en la Caja Agraria.

Sinembargo, el mercado potencial es superior al actual consumo ya que de las ventas totales mencionadas en el cuadro, el 82% corresponde a Cundinamarca y Boyacá, casi exclusivamente con destino a cultivos de papa y trigo, quedando por satisfacer las necesidades del país en todos los demás cultivos como café, algodón, etc.

VENTAS DE FERTILIZANTES EN LA CAJA DE CREDITO AGRARIO INDUSTRIAL Y MINERO

Consumo en 1.947	-	10.605	toneladas métricas	
" " 1.948	-	11.164	" "	
" " 1.949	-	12.768	" "	
" " 1.950	-	17.439	" "	
" " 1.951	-	28.449	" "	
" " 1.952	-	32.125	" "	
" " 1.953	-	38.240	" "	
" " 1.954	-	61.656	" "	
" " 1.955	-	95.000	" "	(calculado)
" " 1.956	-	130.000	" "	(calculado)

ere

THE ROCKEFELLER FOUNDATION

AGRICULTURAL SCIENCES

COLOMBIA OFFICE
APARTADO AEREO 58-13
APARTADO NACIONAL 32
BOGOTA, COLOMBIA
CABLE ADDRESS: ROCKFEL

December 10,1959

Dr. Guy B. Baird
The Rockefeller Foundation
20/39 Diplomatic Enclave
New Delhi 1, India

Dear Guy and Betty :

There's an old Crowder proverb that says "when the time comes that you just have to do it, do it !" I'm sure that is the thinking of the Bairds. We have such good intentions but it seems that we just do not get around to everything.

We are in the midst of "My Fair Lady". A children's preview was given on Saturday and this week we have four presentations. On Monday night there must have been over 500 in attendance. Looks as if it will be a huge success financially and already has been community-wise. No less that 100 people have worked on it - even Lady Joint lent her advice and suggestions and attended most of the rehersals toward the end. I understand that they plan to take in all of the performances. As you probably remember B.J. helped direct, BT and I are in the chorus, MT has a minor lead, HDT has a helpers part and I also play a drunken member of a trio. Van says I play that part well.

E. Sprague and someone from the Indian Corn Program are here. We haven't seen them since they have been traveling a lot. B.G. is having a party on the Sat. night before they leave but a number of us already had commitments. Don't know why she didn't have it soon after they came.

The Ruppels have gone on sabbatical. The last report was that they would spend a few days in Panama, boat to N.Y., Christmas in a hotel in Mich., and Thunderbird to California. One of the group decided that we should gift them so a spaghetti fork was bought.

The Bazaar was large and brought in a lot of pesos. E. told me that the Circle alone sold over 6.000 ps. I dropped by for a few minutes and , honestly, it reminded me of the open market on 64th. They had practically everything - even apple strudel which I bought. Van and Judie did their Christmas shopping. Van had to borrow his al-

Dr. Guy B. Baird December 10,1959

lowance until January to have enough.

We have had a siege of accidents. Roy C. was scooting down 13th one morning with Harriet and Bob W. when someone stepped out in front of him. He swerved to miss him but hit him anyway, the car jumped the curb and sideswiped an electric post. Damaged the car considerably, cut Harriet's lip, didn't hurt Bob nor Roy, but they almost threw Roy in the jug. Also Barbara J. was going down 9th and was smashed by a dump truck loaded with sand. Didn't hurt her either.

Measles and Mumps here. The Thurston's have mumps and Dave thinks he hasn't had it. Oh, happy day ! I recall that stuff when I was 35 and not with much enthusiasm.

Joel, the kids all enjoyed your card and they miss you. Mrs. C. took Van's train to school one day and they also visited the big train station.

We attended the II Congreso Nacional de Ings. Agrs. in Palmira and it was a huge success. The men did very well with their presentations. We are about to get going on the annual meetings of the two programs to be held in Feb. As yet we haven't heard from N.C. in reference to Gildardo.

Guy, I hope this is what you are asking for. You said outline of one of the Cooperative Projects and I assumed you meant the project as written up.

I'll take you up on that drink sometime - but don't make it too long in the future.

Eloise and I plan to attend the Grassland Congress in England next summer but will postpone a study leave until later.

Sincerely,

Loy

Loy V. Crowder

LVC/ccs.
Incl.

P.S. Also, am including copies of the Projects & sub-projects that the Fcna. of Plan. will require -

LC

File

ASOCIACION DE INGENIEROS AGRONOMOS

OFICINAS:
CARRERA 13 No. 13-17 OFICINA 311
TELEFONO 416-643
TELEGRAFO: "ACODEGROS"
APARTADOS: { AEREO 5528 / NAL. 1391

Nº 451

Bogotá, diciembre 28 de 1959

Señor Doctor
GUY B. BAIRD
The Rockefeller Foundation
Diplomatic Enclave
Dautilya Marg
New Delhi - India

8 JAN 1960
GBB

Estimado Doctor:

En contestación a su atenta carta del 16 de octubre del presente año me permito informarle que se ha cancelado su matrícula como miembro de la ACIA, a partir de la fecha solicitada y que está a paz y salvo con la Tesorería. La revista se le seguirá enviando periódicamente a la dirección que Ud. tan gentilmente nos ha enviado.

La Asociación Colombiana de Ingenieros Agrónomos lamenta su retiro y le agradece sinceramente sus esfuerzos y desvelos en pro del desarrollo agrícola del país.

Hacemos votos para que el éxito lo acompañe en su nueva e importante posición. Que tenga Ud. un año nuevo lleno de ventura.

ASOCIACION COLOMBIANA DE INGENIEROS AGRONOMOS

ASOCIACION COLOMBIANA DE INGENIEROS AGRONOMOS ACIA

HERNAN CHAVERRA GIL
Secretario Ejecutivo

HCHG/osp.

Matão
Oct. 19, 1959

Dear Guy,

I presume this will be forwarded to you in India. Hope everything is going smoothly for you all.

The attached was prepared for Dr. Grant as a sort of summary of our discussions.

Best wishes to Betty and again my thanks for your hospitality in Bogota.

Sincerely

Colin No.

1. Ack. letter + copy of report
Yr have ca. most of the
imp. points that came up
during the visit
2. Not. of V.V. of my doc.

October 16, 1959

MEMORANDUM

To: Dr. U.J. Grant

From: A. Colin McClung

Subject: Field trips and discussions of the Soils and Forage Crops projects with Drs. Baird and Crowder.

In accordance with your request, I would like to summarize my activities on my recent trip to Colombia. As you know, most of the month of September was spent visiting the various experiment stations at which work of the Soils and Forage projects is in progress or is planned.

The first days, September 8 - 14, were spent at Tibaitatá going over experiments with the soils group there and in a field trip to Espinal with Baird, Crowder and the Agronomo who will be responsible for projects at the new station.

The period from September 15 - 19 was spent in the Cauca Valley, mostly at the Palmira station, but with one trip to visit experiments on the red soils which occur on the fringes of this valley.

The week of September 21 was devoted to the higher altitude region starting with the Obonuco station at Pasto, traveling to Ipiales and then going by air to Popoyan.

The final week, September 28 to October 2, included visits to the Medellin station, the La Selba sub-station and the old and new farms at Monteria. Thus we were able to visit all of the major stations at which work on soils is in progress and also saw all of the zones in which work is planned except the Llanos.

Since the principal purpose of my visit was to become familiar with the program with the view of making the transfer of project leadership as smooth as possible, particular attention was paid to personnel questions. I met and talked with all the soils personnel except Jairo Gomez and Genaro Diaz who are studying in the United States at the present time. I was also able to

establish contact with several students at Palmira and Medellin who are working on thesis problems with the respective soils projects, with Experiment Station directors and with several agronomists not directly working on D.I.A. projects.

Dr. Baird and I discussed a number of organizational changes, of which the most important was the proposed appointment of Carlostadio Sanchez as sub-director of the Soils program. It was recommended that he continue to familiarize himself with the soils work on a country-wide basis during the coming months with the view of moving to Bogotá shortly after I move to Colombia. I was impressed with the ability and enthusiasm shown by Sanchez, and with the confidence which the other agronomos seemed to place in him. I will look forward to working with him.

The scholarship program for other agronomos was discussed in some detail. Where possible, it seems desirable to broaden the base of the program by encouraging these students to specialize in various aspects of soils. The possibility that Gildardo Marin might study Soil Chemistry under Dr. N.T. Coleman at North Carolina seemed particularly interesting. That Ramiro Guerrero consider specializing in Soil Morphology and Classification at Cornell also seems desirable. It is anticipated that I will work closely with these men when I first go to Colombia in order that I may be better able to advise with them during their study period which might start in September 1960.

Plans were discussed for Jairo Gomez, now studying at Iowa State College, to become Chief of the Soils section at Palmira when he returns.

Projected work on irrigation and soil moisture relationships was discussed, and plans for the establishment of laboratory facilities at Tibaitatá were gone over. It is anticipated that Genaro Diaz, now studying at the University of Georgia, will be in charge of this work, and that Dr. G.G. Williams of that institution will come to Colombia to advise on the program during its initial phases. If possible, it seems desirable that I visit Diaz and Dr. Williams during the period when I am in the United States preparing to move to Colombia to discuss the program with them in more detail.

Dr. Baird and I discussed in some detail the question of increasing the efficiency and usefulness of the laboratories at Tibaitatá and Palmira. There appeared to be a need for more work

of the type now being done and at the same time development of other services. More minor element analyses, for example, are needed to possibly explain observed field responses and to extend results to larger areas. Re-examination and improvement of methodology seems desirable with closer coordination of techniques used in the two laboratories. As a step toward improving the quality of laboratory work and to bring the chemists more directly into the Soils program, Dr. Baird has been considering sending one or both of the lab chiefs to Mexico for advanced training. I suggested to him that it might be possible to obtain the help of Dr. W.L. Lott, now Chemist for the IBEC Research Institute in Brazil, on this matter. If he were to come to Colombia and work in these laboratories for three to six months, I believe his advice and instruction could be invaluable to the local chemists. Dr. Baird, who had known Dr. Lott as Professor of Chemistry, N.C. State College, specializing in instrumental analysis, was very enthusiastic over this possibility and planned looking into it further. I have mentioned it to Dr. Lott since returning to Brazil, and from his comments see no reason why it cannot materialize if it appears desirable.

During these visits, no attempt was made to outline new work but rather the emphasis was on becoming familiar with the existing program. Nevertheless, a number of problems were discussed which might form the basis for new projects. The need for improving soil test correlations with crop response is well recognized in the Colombian program, and at least two existing projects involve comparison of methods. A country-wide integrated field program might well become a major part of these studies. It might be desirable, for example, to select experimental fields throughout the agricultural regions of Colombia on the basis of soil test levels of plant nutrients. Comprehensive fertilizer experiments, probably using one of the new statistical designs for studying response surfaces, established at these locations would serve as a means of correlating the soil test data with crop response. Corn at the lower altitudes and potatoes at the higher would appear to be the best test crops for a study of this type. Installation of experiments of this type at Monteria and Villavicencio might represent the first step in work of the Soils section at these new stations.

I was shown some exploratory tests on pasture renovation on the steep mountainsides near Pasto. Some of the results here appeared quite promising, and it seems likely that interesting cooperative work could be established on this question.

Further studies on the nutritional problems of maintaining legume-grass mixtures, particularly at the lower altitudes, seem well worthwhile. Establishment and maintenance of such mixtures appear to be an almost universal problem in the tropics, and any successes in this direction could have implications far beyond the borders of Colombia. The problem is clearly more complex than nutrition alone, but this is certainly an aspect worthy of exhaustive study. It seems quite possible that the large returns of plant residues which are often obtained under tropical conditions may result in an accelerated immobilization of certain plant nutrients in soil organic matter, thus creating acute nutritional stresses. Under such stress conditions, the legume, which is usually a less effective competitor than the grass, may gradually disappear. Such effects are, of course, recognized in the temperate zone as well, but the extent to which they are intensified in the tropics may not be fully appreciated.

Poor growth of many crops in the Popoyan area presents an intriguing problem in soil fertility and one apparently of considerable economic importance in that area. Further study of the acute magnesium reported in this area should be most interesting. An evaluation of the possible role of fresh volcanic ash in crop production also seems well worthwhile. Apparently, ash falls are noted several times each year. The possibility that this material has a toxic effect on some plants should be looked into. A mineralogical characterization of soils in this area might also be quite useful in the eventual solution of this problem.

The very striking responses of alfalfa in many parts of Colombia to boron applications were pointed out to me, and plans were discussed for laboratory study of soil conditions in relation to these responses. Mineralogical examination of responsive and nonresponsive soils might also be useful in mapping areas of probable deficiency.

Deleterious effects of nitrogen fertilizer on stand and yield of Imperial grass on a red soil at Medellin were pointed out. The possibility was discussed that high soil acidity brought about by heavy applications of ammonium sulfate might be involved in this decline. There appears to be evidence that the minor element status of these soils is sometimes inadequate. Further study might provide a basis for improving pasture productivity on the steep red hills of this region.

Although the above paragraphs by no means include all the points that were gone over in these discussions, I believe they outline the areas that were covered. In mentioning several possible new projects, there is no intention of listing problems of most importance, for no attempt was made to reach conclusions on this. The more important point seemed to be to gain an insight into the project, its personnel and method of operation. Progress in doing this cannot be easily outlined, but I am sure that the time spent with Dr. Baird on those questions will make the transfer of project leadership much more efficient.

ACM:emr

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