



The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

AVERTISSEMENT

Les membres de la CFCS ont été tenus au courant des difficultés accidentelles qui sont la cause du retard important de la publication de ces compte-rendus. Au cours des XV^e et XVI^e Congrès, au Surinam et à Santo Domingo, ils ont continué à nous faire confiance, et le Bureau de la Société a pu ajouter sa contribution financière à celles des donateurs mentionnés par ailleurs et à celle de l'INRA, qui a été essentielle.

Si je dois ici remercier les responsables de l'INRA, le personnel de notre secrétariat, du Service de Documentation, les correcteurs et autres assistants qui ont permis de surmonter les obstacles, c'est à tous ceux, membres de la CFCS ou non, participants au XIV^e Congrès, qui attendaient cette publication et qui ont fait le succès de ce XIV^e Congrès, que je dois adresser mes excuses en sollicitant une indulgence nécessaire. Ces compte-rendus sont tardifs et ils ne sont pas parfaits, ayant dû sacrifier à l'économie, notamment la présentation des discussions en séance et celle de la réunion du Groupe de Travail sur l'Igname.

Je souhaite que l'intérêt des communications ici réunies, qui, pour la plupart, demeure au delà de l'année de leur présentation, compense ces défauts et ravive, si besoin est, la croyance de tous à l'utilité de la Caribbean Food Crops Society pour les chercheurs, les agriculteurs dynamiques et les responsables de l'évolution agricole du Monde Caraïbe.

L. M. DEGRAS
Président (1976-1977) de la
Caribbean Food Crops Society

FORWARD

The members of the Caribbean Food Crops Society have been informed of the accidental difficulties which account for the important delay in the publication of these Proceedings. At the XVth and XVIth Meetings, in Surinam and in Santo Domingo, they remain confident, and the Board of Officers of the Society could add its financial contribution to those of the donators mentioned elsewhere and to the INRA one which had been essential.

If I have to thank the Director of INRA, the personnel of our secretary's office, the Service de Documentation, the proof readers and every assistant who have permitted to overcome the difficulties, I must offer my excuses and request a necessary indulgence in respect of all those, members of CFCS or not participants to this XIVth Meeting, who was waiting for this publication and who had made of this XIVth Meeting a so successful one. These Proceedings are not perfect being obliged to sacrificed to economy the presentation of the papers discussion and of the Yam Study Group meeting, among other topics.

I wish that the interest of the papers we gathered here, which, for most of them, goes far beyond their year of presentation, balances these defects and invigorates if needed, the belief of all in the benefit of the Caribbean Food Crops Society for the research workers, the dynamic farmers and responsible authorities in the agricultural evolution of the Caribbean World.

L. M. DEGRAS
President CFCS
(1976-1977)

C A R I B B E A N F O O D C R O P S
S O C I E T Y
(C F C S)
XIV th Meeting

Quatorzième Congrès
de la

SOCIETE INTERCARAIBE POUR LES PLANTES ALIMENTAIRES

Guadeloupe

Martinique

27 - 29 Juin

30 Juin - 2 Juillet 1977

Sponsored by

Organise par

L'INSTITUT NATIONAL DE LA RECHERCHE AGRONOMIQUE (I.N.R.A.)

with the aids of

Avec les aides

de la

DELEGATION GENERALE A LA RECHERCHE SCIENTIFIQUE ET TECHNIQUE

(D.G.R.S.T.)

and of the

et des

CONSEILS GENERAUX

CHAMBRES D'AGRICULTURE

DE LA GUADELOUPE ET DE LA MARTINIQUE

with the technical assistance of the following organisms

avec le concours technique des organisations suivantes

ORSTOM - IRFA - IRAT - CTGREF - DDA -

And the participation of Institutions of 15 Caribbean territories

Et la participation des Institutions de 15 pays de la Caraïbe

SOUS le PATRONNAGE de MM. LES PREFETS de la GUADELOUPE
et de la MARTINIQUE

Hôtel Arawak

Gosier - Guadeloupe

Hôtel Méridien

Trois Ilets - Martinique

BUREAU DE LA
OFFICERS C.F.C.S.

Président L.M. DEGRAS (Guadeloupe)
Vice-Président F. GABRIEL (Martinique)
Past-Président S.Q. HAQUE (Trinidad)

Membres

C.C. BARETT (Jamaica)	R.E. PIERRE (Jamaica)
T.U. FERGUSON (Barbados)	F.B. SANDS (United States)
A.G. NAYLOR (Canada)	L.A. WILSON (Trinidad)
	Secrétaire G.C. JACKSON (Puerto-Rico)
	Trésorier G. SAMUELS (Puerto-Rico)

COMITE D'ORGANISATION DU XIVème CONGRES
Organizing Committee of the XIVth Meeting

Animateurs MM. DEGRAS (I.N.R.A.) Président
Leaders GABRIEL (C.T.G.R.E.F.) Vice-Président
OUENSANGA (Chambre d'Agriculture Martinique)

Collaborateurs généraux

General collaborators

I.N.R.A. : MM. SALMON-LEGAGNEUR, DUMAS, KERMARREC,
MARCHOUX, NAMORY, VIVIER, ZINSOU

O.R.S.T.O.M. : MM. GAUTHEYROU, TURENNE

I.R.F.A. : MM. DARTENUCQ, BARAER, LEFEBVRE

I.R.A.T. : MM. SOITOUT, DALY

D.D.A. : MM. LECCIA, TETARD, MAYEUX

Chambre d'Agriculture : M. BUFFON

MM. les Représentants des Préfectures

Organisation technique I.N.R.A. : MM. PAVOT, RECEVEUR (Guadeloupe)

Chambre d'Agriculture : M. DELAUNAY (Martinique)

Reprographie I.N.R.A. : Mme C. LENCREROT, M. ARISTIDE

Secrétariat I.N.R.A. : Mlle R. ACCIPE, Mme L. JEAN-PIERRE, Mlle C. MARQUET

Exposition I.N.R.A. - I.R.F.A. : M. SUARD

Comité des Dames : Mmes C. LENCREROT, A.M. PAVOT, L. NOMAL,

Ladies committee GABRIEL (Martinique)

avec le concours de Mmes SALMON-LEGAGNEUR, BARAER, XANDE.

REPERTOIRES DES INSTITUTIONS PRESENTANT DES COMMUNICATIONS

INDEX OF THE INSTITUTIONS PRESENTING COMMUNICATIONS

=:=-:=:=-:=:=-:=

A.E.S.	Agricultural Experiment Station Ministry of Agriculture, Suriname
C.A.R.D.I.	Caribbean Agricultural Research and Development Institute
C.D.B.	Caribbean Development Bank
C.E.M.S.A.	Centro de Mejoramiento de Semillas Agamicas, Cuba
C.I.B.C.	Commonwealth Institute of Biological Control
C.A.R.I.R.I.	Caribbean Industrial Research Institute, Trinidad
C.R.A.A.G.	Centre de Recherches Agronomiques des Antilles et de la Guyane (I.N.R.A.), France
C.T.G.R.E.F.	Centre Technique du Génie Rural des Eaux et des Forêts, France
F.A.O.	Food and Agriculture Organization
I.I.C.A.	Instituto Inter Americano de Ciencias Agricolas - Organisacion de los Estados de las Americas
I.N.R.A.	Institut National de la Recherche Agronomique, France
I.R.A.T.	Institut de Recherches Agronomiques Tropicales et des Cultures Vivrières France
I.R.F.A.	Institut de Recherches sur les Fruits et Agrumes, France
I.S.A.	Instituto Superior de Agricultura - Dominican Republic
M.A.R.D.	Ministry of Agriculture Research Department, Jamaïque
O.R.S.T.O.M.	Office de la Recherche Scientifique et Technique Outre-Mer, France
P.V.	Service de la Protection des Végétaux, Ministère de l'Agriculture, France
S.A.F.E.M.	Société d'Assistance de Formation et d'Etudes de la Martinique
S.D.A.	Service Départemental d'Agronomie - Ministère de l'Agriculture, France
S.U.A.D.	Service d'Utilité Agricole et de Développement, France
U.M.L.	Université de Marseille - Luminy, France
U.P.R.	University of Puerto-Rico
U.W.I.	University of the West-Indies

DONATIONS DE SOUTIEN RECUES DE

Substainers Donations acknowledged from

- Caisse Régionale de Crédit Agricole Mutuel de la Guadeloupe

GUADELOUPE
Hôtel Arawak - Gosier

DIMANCHE 26 JUIN 1977

Sunday

Cocktail d'accueil informel à l'hôtel
Informal welcome cocktail

LUNDI 27

Monday

pages Inscriptions

Sessions d'Ouverture

Opening session

Président de séance

Chairman L. DEGRAS, Président C.F.C.S.

Monsieur le Préfet de la Guadeloupe

Monsieur le Directeur Départemental de l'Agriculture de la Guadeloupe

Monsieur l'Administrateur du Centre INRA des Antilles et de la Guyane

114

Dr G.C. JACKSON UPR, A.E.S.

in memoriam Dr BOND

Session 1

Président de Séance

Chairman A.M. PINCHINAT, I.I.C.A., S.D. Dominican Republic

119

G. ANAIS (INRA) - J.C. BACHOU (SDA) - J.J. BARAER (IRFA) - M. BUFFON

L. DEGRAS (INRA) -

Recherche et Développement en Guadeloupe.

137

J. CROPPER - R.A.I. BRATHWAITE, U.W.I., Trinidad

An evaluation of one approach to the promotion of agricultural development in Trinidad and Tobago : The Texaco Food Crops Farm.

T.U. FERGUSON C.D.B., BARBADOS

The small farmer and the future of Caribbean agriculture. (Oral présentation -

... paper)

Discussion

Session 2

Président de séance

Chairman G. SAMUELS U.P.R., Puerto-Rico

165

J.A. SPENCE U.W.I., Trinidad

A plan for regional testing pigeon pea varieties.

169

J. CROPPER U.W.I., Trinidad

An approach to the determination of research priorities in crop production : a case study of vegetables in Trinidad and Tobago.

177 R. ARISTIDE, I.N.R.A., Guadeloupe
AGRINTER : Système d'information Agricole pour L'Amérique Latine et la Caraïbe.

Discussion

Session 3

Président de séance
Chairman L.A. WILSON, U.W.I., Trinidad

188 R. PEREZ-ESCOLAR, M.A. LUGO-LOPEZ, U.P.R. Puerto-Rico, H. TALLEYRAND,
T.W. SCOTT, Cornell University, U.S.A.
Utilization of nitrogen from crop residues in Oxisols and Ultisols.

192 J.F. TURENNE, O.R.S.T.O.M., Martinique
Matières organiques et stabilité structurale en vertisols irrigués. Organisation du système humique.

204 G. SAMUELS, U.P.R., Puerto-Rico
The response patterns of Bananas and plantains to common fertilizer levels.

209 M. CLAIRON, I.N.R.A., Guadeloupe
Réactions du Vigna au chaulage.

216 P. DALY, I.R.A.T., Martinique
Premières observations concernant certaines anomalies de développement de quelques espèces légumières sur ferrisols du Centre et sur vertisols du Sud de la Martinique.

228 P. DALY, I.R.A.T., Martinique
Informations concernant l'alimentation minérale de l'Aubergine aux Antilles.

Discussion

Cocktail offert par le Comité d'Organisation du XIV^e Congrès
Cocktail on behalf of the Organizing committee of the XIV th Meeting
Arawak Hotel

MARDI 28

Tuesday

Session 4

Président de Séance
Chairman

239 M. VIVIER, I.N.R.A., Guadeloupe
Gestion technique d'un troupeau laitier en zone tropicale humide.

256 J.M. KEOGAM, C.S.I.R.O., Australia, C.L. DEVERS, U.W.I., Antigua
Pastures grasses and legumes for drier parts of the Caribbean.

- 273 A. XANDE, M. VIVIER, I.N.R.A., Guadeloupe
Valeur alimentaire et intérêt de trois graminées : *Brachiaria decumbens*, *Brachiaria tanner* et *Digitaria swazilandensis*, pour les zones tropicales humides.
- 283 Y. DUMAS, M. VIVIER, I.N.R.A., Guadeloupe
Les Sorghos fourragers de type hybride (Sorgho x Sudan-grass) un moyen d'intensification des productions bovines.
- 291 F. GEOFFROY, I.N.R.A., Guadeloupe
Les déchets de banane dans l'alimentation des capins laitiers en zone tropicale humide.
- 303 M. CHENOST, F.A.O., Roma
Nouvelles ressources fourragères et problèmes de développement.

Discussion

Session 5

Président de séance

Chairman M. CHENOST, F.A.O., Roma

- 310 I. CANOPE, J. LEDIVIDICH, F. HEDREVILLE, I.N.R.A., Guadeloupe
Influence d'un traitement technologique sur la valeur alimentaire de la banane.
- 323 M. JEAMBOU, C.T.G.R.E.F., Martinique
Distribution mécanique de la banane en élevage porcin.
- 331 I. CANOPE, J. LEDIVIDICH, F. HEDREVILLE, I.N.R.A., Guadeloupe
Le son dans l'alimentation du porc.
- 338 J.C1. HONORE et M. JAMBOU, C.T.G.R.E.F.
Utilisation des eaux grasses dans l'alimentation porcine.

Discussion

- 344 P. LENCREROT, I.N.R.A., Guadeloupe
Effets de l'époque et de la densité du semis chez deux variétés de *Soja Glycine max.* placées dans des conditions pédoclimatiques différentes.

Discussion

Session 6

Président de séance

Chairman T.U. FERGUSON
C.D.B. Barbados

- 360 E.B. HOLMES, L.A. WILSON, U.W.I.
Trinidad
The relationship between quantitative shoot morphology and the development of individual leaves in six trinidadian *Cassava manihot esculenta* c. cultivars.

Visite du
Visit of the
Domaine de Gardel
pour les spécialistes
de l'élevage
for the animal
husbandry specialists

- 377 A.H. WAHAB, P.F. ROBINSON,
I. HASSAN, I.I.C.A., Jamaica
Mechanized planting of cassava stem
cuttings on peats and peaty clays in
Guyana.
- Discussion
- 387 L. DEGRAS, R. POITOUT, C. SUARD,
I.N.R.A., Guadeloupe
Croissance et Développement de l'I-
gnane *Dioscorea alata*.
- 396 L. DEGRAS, A. VAUTOR, R. POITOUT,
R. ARNOLIN, C. SUARD, IN.R.A.
Guadeloupe
Croissance et développement de l'I-
gnane *Dioscorea trifida*.
- 404 G. DUCET, U.M.L., France
Respiration de l'Ignane
- 413 S.H. MANTELL, C.A.R.D.I., Barbados
Three rapid propagation methods for
multiplication of *Dioscorea glata*
L. clones.
- Discussion
- Session 7
- Président de séance
Chairman F.A. DEL PRADO
A.E.S., Surinam
- 428 A. MIGLIORI, I.N.R.A., Guadeloupe
Maladies à virus de l'Ignane
Dioscorea sp.
- 436 G. MARCHOUX, I.N.R.A., Guadeloupe
Virus des plantes alimentaires en
zone caraïbe.
- Discussion
- 455 A. KERMARREC, C. SCOTTO LA MASSESE
A. ANAIS, I.N.R.A., Guadeloupe et
France (Antibes)
Nématodes phytophages liés aux
principales cultures vivrières des
Antilles Françaises
- 473 G. MALATO, A. KERMARREC, J.M. TROUP
P.V. et I.N.R.A., Guadeloupe
Données biogéographiques nouvelles
sur l'invasion de la Guadeloupe par
Acromyrmex octospinosus et perspec-
tives de contrôle.
- Visite du
Visit of the
- Domaine
de
Gardel
- pour les
for the
spécialistes
- animal
- de
- husbandry
- l'élevage
- specialists

493	M. YASEEN, C.I.B.C., Trinidad Preleminary studies in the development of a pest	Visite du Visit of the
502	P. DELATRE, J.P. TORREGROSSA, I.N.R.A. Guadeloupe Bases écologiques d'un programme de lutte contre le trips de la rouille du babanier : <i>Chaetanaphothrips signipennis</i> .	Domaine de Gardel pour les spécialistes de l'élevage
509	M. YASEEN, C.I.B.C., Trinidad Establishment of two introduced parasites of <i>Plutella xylostella</i> in Trinidad, W.I.	for the animal husbandry specialists

MERCREDI 29

Wednesday

Visite en GUADELOUPE

- I.N.R.A., Centre de Recherches Agronomiques des Antilles et de la Guyane
- Exploitations maraîchères - Vegetable farming
- Déjeuner (Basse-Terre ou Saint-Claude)
Lunch
- I.R.F.A., Domaine de Neuf Château.

=====

Communications supplémentaires
Supplementary communications

- 513 A.C. BREWER , C.A.R.D.I., Barbados
Beyond the randomized complete block : new statistical concepts for the design and analysis of field experiments.
- 523 Ronald M. BARROW, Ministry of Agriculture, Trinidad.
Insect fauna of sorrel (*Hibiscus sabdariffa*)
- 525 L. AGENOR, Faculté d'Agronomie et de Médecine Vétérinaire, Haïti.
Notes de recherches sur le Maïs en Haïti.

M A R T I N I Q U E
H ô t e l M é r i d i e n - T r o i s I l e t s

JEUDI 30 JUIN 1977

Thursday

Session 8

Président de séance
Chairman G. GABRIEL, Vice-Président C.F.C.S.

Allocution d'accueil
Welcome message

M. le Président de la Chambre d'Agriculture de la Martinique

- 535 AUDINAY, SUAD, DES ETAGES, SAFEM, Martinique
Problèmes de commercialisation des productions maraîchères et fruitières à la Martinique.
- 545 R.H. WALTER, Cornell University U.S.A.
Yam processing technology.
- 549 A. RODRIGUEZ NODALS, C.E.M.S.A., Cuba
Comparative studies of Sweet Potatoe *Ipomea batatas* dunes of Cuba and Guadeloupe.
- 553 G. MANGUAL-CRESPO, U.P.R., Puerto-Rico
Effect of plant spacing and fertilizer levels on yield and dry weight of onions *Allium cepa* L. cv. Texas Grano 502.

Discussion.

Session 9

Président de séance
Chairman J.A. SPENCE, U.W.I., Trinidad

- 558 M. LUGO-LOPEZ U.P.R., Puerto-Rico
Effects of planting distance on yields and agronomic characteristics of Red Kidney and native White Beans on an oxisol.
- 564 A. AZAEL, I.I.C.A., Haïti
Quelques recherches sur les Haricots en Haïti.
- 569 H. TOUVIN, P. LENCREROT, I.N.R.A., Guadeloupe
Aspects génétiques et agronomiques de l'amélioration du rendement du *Vigna unguiculata*.

589 S.F. THOMAS, C.A.R.D.I., Trinidad
A model for programming the harvest of wet-season, yellow mature black-eye peas.

608 R.P. ARIYANAYAGAM, U.W.I., Trinidad
Breeding for year round production of Pigeon Peas.

Discussion.

Session 10

Président de séance
Chairman M. LUGO-LOPEZ, U.P.R., Puerto-Rico

615 P. DALY, M. SOITOUT, I.R.A.T., Martinique, F. KAAN, I.N.R.A., Guadeloupe
Développement de l'Aubergine aux Antilles Françaises : application des résultats de la recherche.

622 F. KAAN, I.N.R.A., Guadeloupe
Etat actuel et perspectives de l'utilisation de la résistance variétale pour lutter contre le flétrissement du à *Pseudomonas solancearum* chez la Tomate.

626 G. ANAIS, I.N.R.A., Guadeloupe
Pollinisation des Solanées maraîchères.

629 J.P. TORREGROSSA, I.N.R.A., Guadeloupe
Différenciation morphologique des soies scopales des pattes postérieures d'*Exomalopsis sp.* (*Apoidea, Anthophoridae*) Etude au microscope électronique à balayage.

Discussion.

Session 11

Président de séance
Chairman J.F. TURENNE, O.R.S.T.O.M., Martinique

636 Dr G.C. Jackson, U.P.R., Puerto-Rico
Photography as a weed research aid.

639 P. DALY, I.R.A.T., Martinique
Problèmes posés par la lutte contre les adventices des cultures légumières en Martinique.

647 Dr G.C. JACKSON, U.P.R., Puerto-Rico
Secondary evaluation of new preemergence herbicides on Cabbage.

652 P. DALY, I.R.A.T., Martinique
Etude de quelques variétés de Choux Cabus.

Discussion.

- 659 F.E. CUEVAS-PEREZ, I.S.A., Santo-Domingo
Agronomic evaluation of Wheat production in the Dominican Republic.
- 668 Y. BERTIN, J.P. BLONDEAU, M. DORMOY, I.R.F.A., Martinique
Premiers résultats d'une étude d'analyse foliaire sur l'Avocatier "Lula"
à la Martinique.
- 670 J.P. BLONDEAU, Y. BERTIN, I.R.F.A., Martinique
Carences provoquées en éléments majeurs chez la Grenadille *Passiflora edulis Sims*, "Flavicarpa".

Discussion.

Banquet de clôture, sous la Présidence de M. le Préfet de la Martinique.

VENDREDI 1er JUILLET 1977

Friday

Réunion du groupe de travail Igname
Yam study group Meeting C.F.C.S. - I.S.T.R.C.

Visite en MARTINIQUE :

- I.R.A.T., Lamentin
- Exploitation maraîchère
Vegetable farming DE REYNAL (Vauclin)
- Station d'Irrigation (Sainte-Anne)
- Banane
- Elevage

SAMEDI 2 JUILLET 1977

Saturday

Session 12

Allocution du Président
Presidential Adress L. DEGRAS

Session Administrative

Président de séance :
Chairman L. DEGRAS

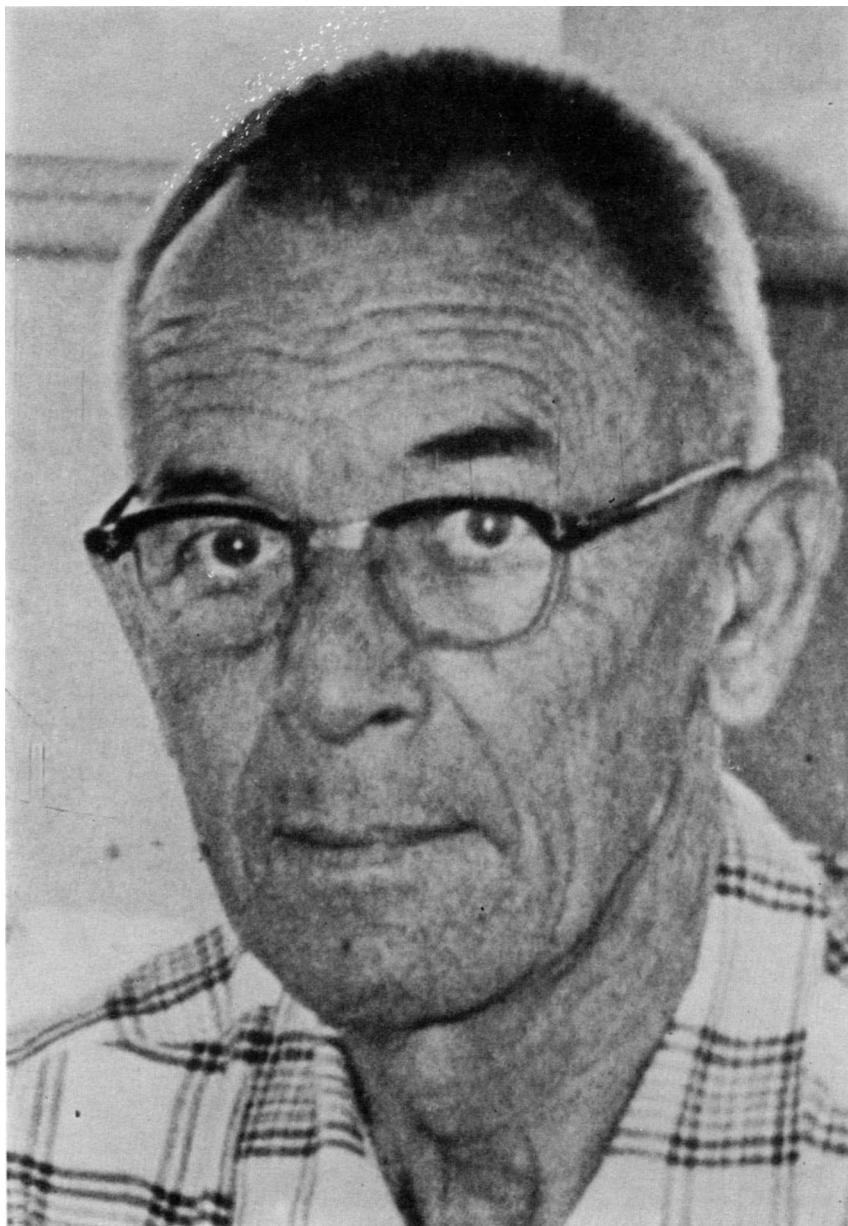
Ordre du Jour :

- Procès verbal du précédent Congrès
- Rapport du Secrétaire
- Rapport du Trésorier
- Rapport des Commissions
- Election des membres du Bureau
- Tenue du prochain Congrès
- Questions diverses

Business session

Agenda :

- Minutes of last
- Secretary's Report meeting
- Treasurer's Report
- Report of Subcommittees
- Election of Officers
- Venue of Next Meeting
- Any other business.



*Richard M. Bond, Ph. D.
From a photograph taken in Barbados, Oct., 1964*

Richard M. Bond 1903-1976

George C. Jackson *

BOND, Dr Richard Marshall, P.O. Box 166, Kingshill, St Croix, U.S. Virgin Islands 00850. Specialty : ZOOLOGY, Born, New York, N.Y. on November 5, 1903. Married, 1931 & 1956. Children, 4. Ph. B. (English Literature), Yale, 1926. Ph.D. (Zoology, botany anatomy), Yale, 1932. Assistant biologist, Yale, 1928-1930. Bishop Museum Fellow, 1930-1931. Instructor, Biology, 1932-1933. National Research Fellow, 1933-1934. Teacher Santa Barbara School, 1934-1935. Associate Wildlife Technician, National Parks Service, 1935-1938. Regional biologist, Soil Conservation Service, U.S. Dept. Agriculture, 1938-1951. Director, Land & Water Development Program, Virgin Islands Corporation, 1952. Agriculturist-in-Charge, Virgin Islands Agricultural Program, Agricultural Research Service, 1953-1967, (retired). INDEPENDENT CONSULTANT, in biology, soils & tropical agriculture, 1967-. He was leader of the Memorial Expedition, Hispaniola, 1933-1934. A Fellow of the American Association for the Advancement of Science. Member of : American Society of Mammalogists, American Ornithological Union, Cooper Ornithological Society, Wilson Ornithological Society, Caribbean Food Crops Society President, 1963). Areas of professional interest : geographic distribution of animals, taxonomy of Falco, and ecology of crops.

The above item, taken from American Men of Science (1951, 1969, 1970), regrettably, needs only one more entry to be complete ; died September 25, 1976. It should also be noted that he was an American School of Prehistoric Research Scholar, and a Woods Hole Oceanographic Institute Fellow. Member of : The Society of Sigma Xi, The New York Academy of Sciences, The American Institute of Biological Sciences, The Soil Conservation Society and The Range Management Society.

We who live in the Caribbean remember Dr. Richard M. Bond for much more than can ever be included in such a brief but complete *curriculum vitae*. He was an ecologist, long before it became a household word, constantly aware of, and oriented to the environment about us. He was a man who resisted the change of the land. Richard was responsible, directly or indirectly in stimulating the interest that has saved or restored many of the Historical landmarks in the Virgin Islands.

During his tenure with the Virgin Islands Corporation, he was instrumental in the initiation of the present activities of the U.S. Forestry Service, which has resulted in many of acres of mahogany and other tree species that grace the landscape of the Virgin Islands today.

(*) Associate Horticulturist, Agricultural Experiment Station, Univ. of Puerto Rico, Mayaguez Campus, Rio Piedras, P.R.

Dr. Bond's interest in botany was varied. His adeptness at orchid growing commanded the respect of fellow orchidists, and he was considered a foremost authority both at home and abroad. He was a staunch supporter for the establishment of the Botanical Gardens in the Virgin Islands.

As Officer-in-Charge of the V.I. Agricultural Program, he and his staff were responsible for the introduction of many excellent tropical fruit varieties, new & improved vegetables, forage & pasture grasses, sugar cane, and the establishment of one of the most comprehensive root crop collections in the Caribbean at that time.

Richard Bond was a founding member, and Chairman of the committee that established the Caribbean Food Crops Society. At this same meeting he was elected its first President. He was active in the Society affairs for many years, always avoiding the limelight, offering sound counsel, and making numerous contributions towards its present development. (°°)

Dr Bond was ordained to the Ministry of Priest in the Anglican Church.

After his retirement as a public servant, he remained active as an independent consultant, and continued to render invaluable service to the Industrial and Scientific communities.

He was a Research Associate at the Caribbean Research Institute, The College of the Virgin Islands, where he had also taught courses on the History of the Virgin Islands, History of the Caribbean ; lectured and held seminars on Human Genetics, West Indian Geology and Horticulture.

His work had taken him to many places, to name a few : Barbados, Curacao, Puerto Rico, Jamaica, Brazil, Martinique, Guadeloupe, Venezuela, St. Vincent, Saba and Montserrat. His last job took him to the South Pacific, where he was a land management consultant on a five man team. There he became so ill, that he had to retire from the expedition and return to San Francisco, Calif. When well enough to travel again, he returned to St. Croix. His health continued to fail him for some time, and finally he had to be hospitalized. A week later Dick passed away on a Saturday morning at the Charles Harwood Hospital in Christiansted, and he lies buried in the Family Cemetery at his beloved Estate Bellvue.

(°°) The establishment of the Caribbean Food Crops Society took place during the morning of May 3, 1963, at the Central Secretariat of the Caribbean Organization, Hato Rey, P.R. Listed alphabetically the twelve founding members are : Francisco Aponte Aponte, Carlos Aponte Moran, Hassan Azzam, Richard M. Bond, Carlos D. Acosta Colorado, C.P. Erskine-Lindrop, A. Dek. Frampton, Miguel A. Gonzalez Flores, G.C. L. Gordon, Arnold Krochmal, Jorge Mejia Mattei, and Hugh C. Miller. Others present were : The Secretary-General, Mr. C.F. Beauregard, and Mr. A.J. Seymour.

BIBLIOGRAPHY OF RICHARD M. BOND

1. A note on the blood of the Hag-Fish, *Polistotrema stouti* (Lockingham) 1932. (with M.K. Cary and G.E. Hutchinson).
2. A contribution to the study of the natural food cycle in aquatic environment with particular consideration of micro-organisms and dissolved organic matter. *Bull. Bingham Oceanogr. Coll.* 4(4) : 1-86, 12 fig. 1933.
3. Report on phyllopod Crustacea, (*Anostraca*, *Notostraca* and *Conchostraca*) including a revision of the *Anostraca* of the Indian Empire. (Yale North India Expedition). *Mem. Connecticut Acad. Arts Sci.* 10 : 29062. 19 fig.
4. Digestive enzymes of the pelagicopepod, *Calanus finmarchicus*. *Biol. Bull.* 67(3): 461-65. 1934.
5. Investigations of some Hispaniolan Lakes, (Dr. R.M. Bond's Expedition) II. Hydrology and Hydrography. *Arch. Hydrobiol.* 28 (1) : 137-61. 1 pl. 7 fig. 1935.
6. Eating habits of falcons with special reference to pellet analysis. *Condor* 38(2): 72-6. 1936.
7. From field an study. *Condor* 38 (3) : 118-26. (With J.V. Sefton Jr., *et al*).
8. Food organisms for marine and halobiont animals ; a method for rearing *Artemia salina* ; Notes on the cultivation of *Tigriopus fulvus* and *Calanus finmarchicus* Culture methods for invertebrate Animals. 134-135 ; 205-206 ; 224-226. Comstock Publ. Co., Ithaca, N.Y. 1937.
9. Raptorial birds in the cliff areas of Lava Beds National Monument California. *Condor* 39 (3) : 97-102. 1937. (with J.S. Dixon).
10. Rodents and soil conservation. *Soil Conserv.* 4 : 220-223. 1939. (with A.E.Borell).
11. Observations on raptorial birds in the lava beds - Tule lake region of Northern California. *Condor* 41 (2) : 54-61. 1 fig. 1939.
12. Coyote food habits on the Lava Beds National Monument. *J. Wildlife Manage.* 3(3) : 180-98. map. 1939.
13. Notes on *Sorex merriami* Dobson. *Jour. Mamml.* 20 (3) : 348-51. 1939. with S. B. Benson).
14. A Goshawk nest in the upper Sonoran Life-zone. *Condor* 42(2):100-3. 3 fig. 1940.
15. Birds of Anaho Island, Pyramid Lake, Nevada. *Condor* 42 (5) : 246-50. (with 4 fig) 1940.
16. Second-year plumage of the Goshawk. *Auk* 58 (3) : 346-9. 4 fig. 1941. (with R.M. Stabler).
17. Invasion of a protected area by exotic plants. *Sci. Month.* 53 (5) : 470-72. 1 fig. 1941. (with A.M. Wallace).
18. From field and study. *Condor* 43 (5) : 246-51. map. 1 fig. 1941. (with L.W.Walker *et al*).
19. Prairie falcon (*Falco mexicanus*) food habits. *Condor* 44 (2) : 79-80. 1942.
20. Banding records of California broun pelecan. *Condor* 44 (3) : 116-21. map. 1 fig. 1942.

21. Food of the burrowing Owl (*Speotyto conicularia*) in western Nevada. Condor 44(4) : 183. 1942.
22. White-tailed kites feeding on house mice. Condor 44 (5) : 231-2. 1942.
23. Development of young Goshawks. Wilson Bull. 52 (2) : 81-8. 1 fig. 1942.
24. A convenient method of photographing small mammals. Journ. Mamnl. 23 (2) : 183-6. 4 fig. 1942.
25. Deenweed. Soil Conserv. 7 (10) : 264. 1942.
26. Variation of western sparrow hawks. Condor 45 (5) : 168-85. 1943.
27. Ramps for escape of wildlife from stocktrough. Jour. Wildlife Manage. 7(1) : 123. 1 pl. 1943.
28. What happens to trained hawks ? Amer. Falconer. 2 (3) : 7-11. 1943.
29. Notes on hawk diseases. Amer. Falconer. 2 (3) : 14-6. 1943.
30. Sneaking up on weeds. Soil Conserv. 9 (9) : 209-11. 1944.
31. A record of the snowy Owl in southern California. Condor 47 (5) : 217. 1945.
32. Range rodents and plant succession. Trans. North Amer. Wildlife Conf. 10:229-34. 1945.
33. The Peregrine population of western North America. Condor 48 (3) : 101-16 maps. 3 fig. 1946.
34. The breeding habits of *Thomomys bottae* in Orange County, California. Jour. Mammal. 27 (2) : 172-4. 1946.
35. A problem of "Antler room". Soil Conserv. 11 (7) : 161-6. 1946. (With P.M. Scheffer).
36. Method of correlating soils with Douglas fir site quality. Jour Forest. 46 (11): 835-41. 1948. (with W.W. Hill and A. Arnst).
37. Characteristics of the Gyrfalcons of the Bering Sea area. Condor 51 (5) : 228-29. 1949.
38. Soil conservation and the pollination problem. Ann. Rpt. of the State Apiarist (Iowa) for 1949. 122-24. Des Moines, Iowa. 1950.
39. Pigeon hawk catching dragon flies. Condor. 53 (5) : 256. 1951.
40. The cattle egret in Jamaica, British West Indies. Condor 59 (1) : 269. 1957.
41. Noted on a colony of *Brachyphylla cavernarum*. Jour. Mammal. 39 (1) 150. 1958. (with G.A. Seaman).
42. Pangola grass (*Digitaria decumbens* Stent) in the American Virgin Islands. Trop. Agric. 36 (2) : 130-47. 1959. (with A.J. Oakes & O. Skov).
43. Home vegetable gardens for the Virgin Islands. Caribbean Agric. 1 (1) : 19-26. 1962. (with A. Krochmal and A.L. Frederiksen).
44. Papaya production in the Virgin Islands. Caribbean Agric. 1 (2) : 67-72. 1963. (with A. Krochmal and A.L. Frederiksen).
45. Pickling cucumber production studies in the U.S. Virgin Islands. Caribbean Agric. 1 (4) : 303-16. illus. 1963. (with A. Krochman & A.L. Frederiksen).

46. Pineapple studies in the Virgin Islands. Ceiba 11 (2) : 82-89. 1965. (with A. Krochmal and A.L. Frederiksen).
47. Deer and cattle fever ticks. Jour. Wildlife Manage. 30 (1) : 202-3. illus. 1966. (with R.L. Park, et al).
48. Avocados in St Croix, U.S. Virgin Islands. Calif. Avocado Soc. Yrbk. 52 : 139-144. 1968. (with A.L. Frederiksen.)
49. The insect fauna of St Croix, U.S. Virgin Islands. Sci Surv. of Puerto Rico and the U.S. Virgin Islands. N.Y. Acad. Sci. 15 (1) : 1-114. 1970. (with G.W. Miskimen).

ACKNOWLEDGMENTS

The autor wishes to express his gratitude to Mrs. Edith Gereau Bond, Kingshill, St Croix, for the many helpful suggestions, and for reading the manuscript. Special thanks are also due to Mr George A. Seaman, Windward Side, Saba N.A. and to Dr. Frank H. Wadsworth, Rio Piedras, P.R.

LITTERATURE CITED

1. (1955). American Men of Science, a biographical directory, Edited by the Jaques Cattell Press. eleventh edition. Vol. A-C. p . 489. R.R. Bowker Co. New York, N.Y.
2. (1969). American Men of Science, a biographical directory, Edited by the Jaques Cattell Press. supplement 5. p. 72. R.R. Bowker Co. New York, N.Y.
3. (1970). American Men of Science, a biographical directory, Edited by the Jaques Cattell Press. supplement 6. p. 67. R.R. Bowker Co. New York, N.Y.