

FOOD RESEARCH INSTITUTE
(C. S. I. R.)

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Compiled and Produced by:
The Information Division,
Food Research Institute,
P. O. Box M. 20.
A C C R A

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PART I : GENERAL MATTERS

STAFF MATTERS

1. APPOINTMENT

1.1 Senior Staff

<u>Name</u>	<u>Rank</u>
L.D. Abbey	Assistant Research Officer(Processing Division).
Alice Hayford (Miss)	Assistant Research Officer (Analysis Division).

Junior Staff

Esther Ohene-Darko	Clerk Gd II
Jacob Kuwornu	Tradesman Gd II
Issa Kanjarga	Watchman
Ben Ahiabu	Labourer
Fredrick Martey	Labourer

1.2 Staff Promotions

The following members of staff were promoted with effect from October 1, 1984. Mrs. F.B.Y. Dake and Mr. N.A. Asare were promoted from the grade of Senior Technical Officer to Principal Technical Officer.

The following promotions were also announce :-

Mr. C.J.A. Buckman to Principal Assistant Transport Officer, Mrs, Kate Opoku-Acheampong to Senior Technical Officer, and Mr. Benedict Awotwi to Technical Officer.

Other promotions were Mr. M.E.K. Amenu to Senior Accounts Clerk, Mr. J.Y. Agbemava to Accounts Clerk Grade II, C.O. Reynolds to Technical Assistant Gd II and J.R. Addo to Senior Technical Assistant.

1.3 Staff Training

Staff training for increased efficiency has always been one of the main preoccupations of the Institute. During the period under review a number of staff members were sponsored for various training courses locally.

Mr. J.A. Darkwa of the Engineering Division attended a course in Maintenance Management at the Management Development and Productivity Institute (MDPI) April 1983.

Mr. Sam Nyarko and Mr. Ben P. Osae, both of the Economics and Consumer Studies Division attended courses on 'Project Management' and 'Introduction to Marketing' respectively in September and November 1983 at MDPI.

In September 1983, Messrs. Solomon Antonio, Ben Amoako and E.A. Allotey of the Analysis Division also benefited from a three weeks' course in 'Practice of Supervision' at MDPI.

Mr. J.K. Larbi of the Accounts Division participated in a six-week Accounts Training Course for CSIR staff at the Animal Research Institute in November 1983. Miss Patience Tetteh of the Administration Division also took part in the Qualifying English course for Typist and Stenographers at the Civil Service Training Centre in August 1983.

Messrs. C.K. Quartey, B. Awotwi, M. Baidoo, B.P. Osae and F. Dake (Mrs) were nominated to attend a Residential Workshop in Research Project Techniques at GIMPA in July, 1984.

Mr. S.O.T. Oddoye attended the Purchasing and Stores Control Course at the MDPI, Accra in September 1984. Mr. M.E.K. Amenu was nominated for the Joint N.V.T.I./C.S.I.R. Training Course for Accounts Clerks in November 1984.

RESIGNATIONS

- J. Maud Kordylas (Mrs) - Director - resigned 1/9/83
- Cletus Gyeto - Technical Officer - resigned 1/11/83
- Hellen Owusu (Mrs) - " " - resigned 1/10/83
- Vida Afenya (Miss) - Tech. Assist. Gd II- resigned 1/9/83
- J.A. Okang-Boye - Tech. Asst. Gd II - resigned 1/9/83
- James Anagon - Labourer -resigned 26/8/83
- D.A. Gyadu - Driver Gd I - resigned 12/4/84
- J.A. Baah - Sen. Tech. Asst.- resigned 6/6/84
- J. Ayara - Labourer - resigned 15/4/84
- Issifu Akumelime - Labourer-Appointment terminated 18/5/84.

2. TECHNICAL SERVICES

2.1 The FRI continues to provide active technical services to foreign, government and private institutions interested in food science and technology. These services can be categorized as :-

- (i) Services to industries
- (ii) Information services
- (iii) Library services.

2.2 Services to Industries

Facilities exist for assessing the qualities of foods using chemical, microbiological and organoleptic means. In most cases samples were tested as to their suitability for human consumption while some were also examined for their conformity with local standards.

The Allied Foods Limited and Sterling Products Limited continue to use the laboratory for routine analyses of their products.

2.3 Chemical Analyses

74 foods samples were submitted for chemical examination. 66% of the samples came from Government Institutions such as the Ghana State Farms Corporation, the Tema Food Complex Corporation, University of Cape Coast, West African Mills Limited, Grains Warehousing Co. Ltd., Ghana Cargo Handling Company Limited, Ghana National Procurement Agency, GIHOC Vegetable Oil, Ghana Enterprises Development Commission, Ghana Export Promotion Council and the Ghana Tourist Board.

The private enterprises from which samples were received were as follows:

Allied Foods Ltd, General Superintendence Company Ltd, Vegetable Oil Mills Ltd, Irani Brothers, Akwapim Beverages, Crystal Oil Mills Ltd, Lone Bird Company Ltd,.

The Food item analysed were shea butter, poultry feed, legumes, cereals, cocoa butter, copra cake, edible oil, wheat, coffee, salted meat, fruit juice, fish and pepper.

2.4 Microbiological Analyses

244 food samples were microbiological analysed. 40% of the samples came from Government organisations such as the Ghana National Procurement Agency, Cocoa Products Factory, Grain Warehousing Company. The rest was sent in by private establishments such as Allied Foods Limited, Sterling Products, the two of which continue to use the laboratory for routine quality control tests.

The foods analysed were yellow maize, cocoa powder, granulated sugar, drinking chocolate, Bournvita, rice, skimmed milk powder, milk of magnesia, salted meat and palm wine.

3. INFORMATION AND DOCUMENTATION

3.1 Information Services

The information services of the FRI seek to disseminate research findings to the user agencies. Technical documents such as annual reports, technical bulletins and Newsletters were produced to inform the public on the activities of the Institute.

A number of clients received information on particular aspects of food technology. Journals, abstracts, books and mimeograph extracts were either distributed or received by the Institute.

3.2

Library Services

The general running of the library was affected because of lack of funds. This was borne by the fact that only one book was added to the existing book stock of 2882 dealing with articles on Food Science and Technology, Nutrition, agricultural economics and marketing. Only two research reports and two course reports were added to the stock.

The number of books borrowed were fifty-five and that of periodicals was eighty-five. The library was visited by thirty-four readers of which 34% were students and the rest were librarians, agriculturist and engineers.

The library continues to maintain exchange programme with both foreign and local bodies. These are the FAO, CTFRI, IDRC, the University of Science and Technology and others.

4. CONFERENCES, SEMINARS & WORKSHOP

NAME OF OFFICER	CONFERENCE OR WORKSHOP ATTENDED	VENUE	DATE
i. St John Clotey	14th Animal Science Symposium	Accra	23-27th August 1983
ii. Mr. E. Tettey	" "	Accra	" "
iii. Mrs. Abigail Andah	ECA/UNIDO Editorial Meeting		17-31 October 1983
iv. B.L. Lartey	FAO Workshop on Processing of Cassava and other Roots and Tubers.	Abidjan Ivory	28 th Nov-2nd December 1983
	Commonwealth Science Council Conference on African Energy Programme	Harare, Zimbabwe	15-30 October 1984
v. J.K.B.A. Ata (Dr.)	2nd African Palm Oil Processing Workshop	Nifer Benin City Nigeria	5-9 December 1983
vi. A. Andoh	Workshop/Congress of the Ghana Library Association	British Council Hall Accra.	5-13 December 1983
vii. Mrs F. Dovlo	Conference on World Cowpea Research	Internatio- nal Inst. of Tropical Agri- culture, Ibadan Nigeria	5-9 November 1984
	Executive Committee Meeting of International Federation for Home Economics		4-11 January 1984
	Seminar on African Women and Development	Berlin	May 1984
viii. Mrs G. Nerquaye-Tetteh	International Exposition of Rural Development	New Delhi India	2-6 February 1984
ix. Mrs. F. Dovlo	Seminar on African Women and Development	Berlin, West Germany	May 1984.
x. Mrs. A. Andah	11th Congress of the International Association for Cereal Chemistry (ICC) and Symposium on Cereal Products in light of Modern Nutrition Research.	Vienna Austria	6-8 June 1984
xi. Mr. K.K. Eyeson	Conference on International Co-operation for the African Technological Development	Rome, Italy	19-23 November 1984
xii. Mr. L.D. Abbey	Training Session on Solar Crop Drying.	Nairobi	19-30 November 1984.

5. VISITORS

C.Y. Wereko-Brobby	- Commonwealth Science Council, London
Dr. Twum Danso	- Ghana Standards Board P. O. Box M. 245 Accra.
D.S. Trim	- T.D.R.I., Culham, Abungdan, Oxon, U.K.
Dr. A.K. Appiah	- Humi Valley, W/R.
Dr. M. Ahmed	- International Atomic Energy Agency, Vienna, Austria.
Dr. E.E.K. Takyi	- Ag. Director, G.A.E.C. Box. 80. Legon.
Mrs. Vic. Appiah	- Biology Department, GAEC, Legon
Josephine Nketsia Tabiri	- Biology Department, GAEC, Legon
Ray Robbins	- , Accra.
Mrs. B.A. Mensah	- P.O. Box 5183, Accra.
E.B. Gand	- P.O. Box 7243, Accra.
Gerard J.D. Mahy	- Canadian International Development Agency (CIDA) Ottawa, Canada.
E. Ossin Ga	- FAO Regional Fisheries Office, Africa.
Prof. Mawusi Dake	- c/o P.O. Box 9227, Accra.
Mathew Dage	- ISNAR, The Hague, Netherlands.
Lammert Siphens	- Nyankpala, Agricultural Experimen- tal Services.
Y.C. Fiagan	- A.R.C.T. BP 2435 Davor , Senegal
Balke Manfred	- Accra, Embassy of Germany, G.D.R.
J. Franke	- GDR Embassy , Accra.
M. Gaszah	- 1020, Berlin
R. Thompson	- Interassociates (Gh) Ltd.,
Emmanuel Atieku	- USAID, P. O. Box 1630, Accra.

PART II: SUMMARY OF RESEARCH

6. RESEARCH PROGRAMMES

Research programmes are tackled under a multi-disciplinary approach by about 24 researchers assisted by 40 technicians and 25 administrative personnel.

The current research programmes are :-

- i) Processing and Preservation Programme
- ii) Labour Saving and Rural Technology Programme
- iii) Economics & Consumer Studies Programme
- iv) Storage Programme
- v) Nutrition Programme

6.1 RESEARCH PROJECTS

The following are some of the on-going projects under the programmes.

of

- i) Maize Dough Project
- ii) Composite Flour Project
- iii) Palm Pulp Powder Project
- iv) Oil Seeds/Oils and Fats Processing Project
- v) Waste Utilization Project
- vi) Solar Dryers Project
- viii) Maize Storage Project
- ix) Cassava Storage Project
- x) Meat Salting, Smoking and Drying Project
- xi) Vegetable Curing Project
- xii) Packaging, Storage and Transportation of Smoked Fish Project
- xiii) Fish Smoking Ovens Project
- xiv) Cassava Processing Machinery Project
- xv) Cowpea Project
- xvi) Data Bank Project
- xvii) Winged Bean Project
- xviii) Dapit Project

In the 1984 year the Institute did not receive any Government subvention for research. As a result the Institute was starved of research funds and in this way research output was adversely affected. Some of the on-going projects were suspended. However, those that kept going are discussed as follows:-

7. PROCESSING AND PRESERVATION PROGRAMME

7.1 Animal Feeds Formulation Trials

Work was carried out on the use of factory and farm wastes in the formulation and processing of animal feeds. These included poultry feed for both ducks and chicken. Different types of poultry feed using waste materials were prepared for starters, growers, layers. Pig feeds prepared included those for weaners, pregnant and lactating sows. Feed for the ruminants mainly sheep, goats, cattle and horses were also prepared from factory and agricultural waste products. Most of these feeds included imported components which were mainly vitamins and minerals.

Since most animal feed producers in the country depend on the importation of a substantial proportion of their raw material requirement, the importance of this project is very obvious as it could eventually lead to a substantial reduction in the foreign exchange requirement of the Animal Feed Processing Industry. The Project will also reduce the competition between man and livestock for some of our staple food items like maize by its substitution with farm wastes in animal feeds. The work has been suspended because the project leader is now on study leave.

7.2 Fermented Maize Meal Project

A report on the Fermented Maize Meal Project was prepared. It provides background information for a feasibility study of the project which would be necessary before its commercialization.

Information provided included, major maize growing areas in Ghana, marketing of maize in Ghana, varieties of maize suitable for the product, consumption and utilization of maize in Ghana, process description of fermented maize meal production and a comprehensive list of equipment with specification in the processing of 150-200kg maize/hour.

7.3 Preservation of bottled orange juice

Work was also carried out on the preservation of bottled orange juice by both physical and chemical means. Preservation by physical means involved the use of heat treatment in preventing microbial spoilage of both sweetened and non-sweetened orange juice. The chemical means of preservation involved the use of sodium metabisulphite and benzoic acid.

7.4 Refining of palm kernel oil

Work on the improvement of palm kernel oil was continued. The investigations included both the deodorization and decolourization of the oil. This involved the use of 4%, 6% and 8% fuller's earth in the refining of the oil. The refined palm kernel oil was found to be much superior to the crude palm kernel oil.

7.5 Meat salting, smoking and drying Project

A project to study the preservation of meat without the use of refrigeration was drawn up. The methods of preservation to be investigated were salting, smoking and drying. Trials were carried out on the salting of pork and the results obtained were favourable. This involved the chopping up of a whole pork carcass into smaller units before salting.

7.6 Palm Pulp Project

Since it was difficult to obtain foreign exchange for the purchase of double-drum dryer, fabrication work on a single-drum dryer at the Pilot Plant was started. The modified dryer would be tested for its suitability for dehydrating palm pulp powder.

7.7 Other Projects

Work on composite flour/storage tests of cured okro and garden eggs was continued.

8. LABOUR SAVING AND RURAL TECHNOLOGY PROGRAMME

Solar Energy Project

Funded by the Commonwealth Science Council, the Solar Energy Project received some equipment items from the Council.

In the reporting period two solar dryers were designed and constructed by the Institute. The performance of these dryers was evaluated. These dryers were displayed at the World Food Day Exhibition.

9. STORAGE PROGRAMME

9.1 Maize Storage

A progress report was presented on "Socio-economic aspects of the maize storage project at Gomoa Mprumem.

It was observed that the long run storage need of farmers is a maize variety that combines the good qualities of the local variety with that of the existing improved varieties. The local varieties (Mprumem local) have sheath extending well beyond the tip while the varieties C4, CW posta are high yielding but 'show teeth' and store poorly.

The study also found that farmers gave little importance to appropriate storage structures and storage hygiene.

An officer of the maize storage team was nominated to serve on a working committee for the "Prevention of Post Harvest Losses in maize and Cowpeas". The committee members comprise of officials from the FAO and the Ghana Government.

APPENDIX I

10. MEMBERSHIP OF FRI MANAGEMENT BOARD

1. Dr. L. Twum-Danso - Chairman
2. Mr. J.K. Asare, GIHOC
3. Prof. E.V. Doku, University of Ghana, Legon.
4. Mr. Felix J. Aidoo, Association of Ghana Industries.
5. Prof. E.N. Amonoo - Neizer, Department of Chemistry, University of Science and Technology.
6. Mr. David Hammond, Mankoadze Fisheries Limited.
7. Dr. P.A. Kuranchie, Managing Director, Ghana Food Distribution Corporation.
8. Mr. F.W. Tuyee, P. O. Box 581, Tema.
9. Mr. Debra-Sarpong, Acting Director, Animal Research Institute.
10. Mrs. A. Amoako-Mensah, Industrial Research Institute
11. Dr. J. Wonkyi-Appiah, Oil Palm Research Centre, Kumasi.
12. Mr. K.K. Eyeson, Director, Food Research Institute.
13. Mr. B.L. Lartey, Principal Research Officer, Food Research Institute.
14. Dr. J.K.B.A. Ata, Principal Research Officer, Food Research Institute.
15. Mrs. F.E. Dovlo, Principal Scientific Officer, Food Research Institute.
16. Mr. St John Clottey, Principal Research Officer, Food Research Institute
17. Dr. J. Dei-Tutu, Rep. Research Staff Association, Food Research Institute
18. Dr. W.A. Plahar, Rep. Research Staff Assoc., Food Research Institute.
19. Mr. D.K. Asiedu, FRI/CDR Representative
20. Mr. S. Nyarko, Representative FRI/TUC.

APPENDIX II

11. SENIOR STAFF LIST UP TO JUNE 1984

Eyeson K.K. - B.Sc (Lond), Dip. Nut., Dip. Fd. Quality Control,
MRS.H., A.I.F.S.T.: Acting Director.

Analysis Division

Halm M. (Miss) - B.Sc. M.Sc.: Senior Research Officer
Prahar W.A. - B.Sc. M.Sc. PhD: Research Officer
Erskine-Ampah (Mrs) - M.Sc. : Research Officer
Asibey-Berko E. - B.Sc. M.Sc, PhD.: Research Officer
Lokko P. (Mrs) - B.Sc, M.Sc.: Research Officer
Johnson P.N.T. - B.Sc. : Asst. Research Officer
Hayford A. (Miss) - B.Sc.: Asst. Research Officer
Tete-Marmon J. - A.I.M,I.T.: Chief Technical Officer
Kpodo K. (Mrs) - B.Sc.: Assistant Research Officer

Processing Division

Clottey St J.A. - B.Sc. M.Sc. Dip. Fd. Hyg.: Principal Res. Officer
Ata J.K.B.A. - B.Sc. M.Sc Ph.D: Principal Research Officer
Andah A. (Mrs) - B.Sc. M.Phil: Senior Research Officer
Dei-Tutu J. -B.Sc Dip. Fd. Sc. M.Sc. Ph.D: Senior Res. Officer
Nerquaye-Tetteh G. (Mrs)-B.Sc.: Senior Research Officer
Amoa-Awua W.K.A. - B.Sc. M.Appl. Sci. : Research Officer
Tettey E.- B.Sc.: Assistant Research Officer
Dziedzoave N. -B.Sc.: Assistant Research Officer
Abbey L.D. -B.Sc.: Assistant Research Officer

Engineering Division

Lartey B.L. - B.Sc. (Agric Eng) Dip. Fd. Tech. M.R.S.H., A.I.F.S.T.,
M. Gh. I.E.: Principal Research Officer
Affram R.D. - B.Sc.: Asst. Research Officer

Economics and Consumption Division

Dovlo F.E. (Mrs) - B.Sc. (Home Econ) Ph.D. (Hon.) Principal
Scientific Officer
Osei-Yaw A. (Mrs) - B.Sc., M.Sc.: Research Officer
Quartey C.K. - B.Sc. : Assistant Research Officer

Information Division

Ankrah E.K. - B.Sc. M.Sc. : Senior Research Officer

Streeter M. (Miss) - A.L.A. : Chief Library Assistant

Kafui Ameh - Dip. Journalism: Public Relations Officer

Administration

Musey J.E. B.Sc. : Principal Administrative Officer

Armah S.A. - Dip. in Accounting : Principal Accounting Assistant.

P U B L I C A T I O N S

- Andah A. et al (1984) - Final Report on Tema Food Complex Corporation and Takoradi Flour Mills. A report by the committee on Production, Distribution and sale of wheat flour by the Three Flour Mills (a confidential report submitted to the Government of Ghana)
- Andah A. (1984) - Investigation into Alleged Poor Quality Flour Produced by Irani Brothers Limited, Flour Mills. A report submitted to the Min. of Industries Science & Technology)
- Andah A. (1984) - Interim report on Irani Brothers & Others Limited. A Report by the Committee on Production, Distribution and sale of Wheat Flour by the Three Flour Mills.
- Ankrah E.K. (1984) - The Reduction of Post Harvest Food Losses through Research efforts. Paper prepared for Ministry of Industries, Science and Technology
- Ayibotele N.B. Eyeson K.K., Amoako-Mensah A. (Mrs.) 1984
Priority Areas of Research and Development in Industry and Technology. CSIR seminar on 'Finding of Research and Dev, in Ghana.'
- Eyeson K.K. (1984) - Food and Agriculture with emphasis on Reduction of Post Harvest Losses in Ghana.
- Eyeson K.K. (1984) - The impact of Research on Food & Allied Industries in Ghana. CSIR 25th Anniversary Celebrations.
- Dei-Tutu (1984) - Cloud stability in Bottled Mango Beverage.
- Dei-Tutu J. (1984) Colour Stability in Bottled Mango Beverage.
- Dziedzoave N. and Allotey E. (1984). - Report on Quality Analysis of Alcohol.