AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D C 20523
BIBLIOGRAPHIC INPUT SHEET

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Batch 41

1. SUBJECT CLASSIFICATION

A. PRIMARY
Bibliography — Z-AF00-1587-0000

B. SECONDARY
Food production and nutrition--Plant production--Root vegetables--Yams

2. TITLE AND SUBTITLE
A bibliography of yams and the genus Dioscorea

3. AUTHOR(S)
Lawani,S.M.; Odubanjo,M.O.

4. DOCUMENT DATE	5. NUMBER OF PAGES	6. ARC NUMBER
1976	199p.	ARC

7. REFERENCE ORGANIZATION NAME AND ADDRESS
IITA

8. SUPPLEMENTARY NOTES *(Sponsoring Organization, Publishers, Availability)*
(No annotations)

9. ABSTRACT

This bibliography on yams bring together the scattered literature on the genus Dioscorea from the early nineteenth century through 1975. The 1,562 entries in this bibliography are grouped into 36 subject categories, and arranged within each category alphabetically by author. Some entries, particularly those whose titles are not sufficiently informative, are annotated. The major section titles in the book are as follows: general and reference works; history and geography; social and cultural importance; production and economics; botany (including taxonomy, genetics, and breeding); yam growing (including fertilizers and plant nutrition); pests and diseases; storage; processing; chemical composition, nutritive value, and utilization; toxic and pharmacologically active constituents; author index; and subject index. Most entries are in English, with a few in French, Spanish, or German.

10. CONTROL NUMBER	11. PRICE OF DOCUMENT
PN-AAC-745	
12. DESCRIPTORS	13. PROJECT NUMBER
Sweet potatoes Yams	14. CONTRACT NUMBER AID/ta-G-1251 GTS
	15. TYPE OF DOCUMENT

AID 590-1 (4-74)

A BIBLIOGRAPHY OF YAMS AND THE GENUS *DIOSCOREA*

by

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International Institute of Tropical Agriculture
Ibadan, Nigeria March 1976.

FOREWORD

The International Institute of Tropical Agriculture (IITA) has as its major objective solving the problems associated with the transition from traditional shifting cultivation to more productive land-use systems in the humid tropics. To develop improved and adapted crops for use in various cropping combinations, sequences and rotations, IITA's research activities are organized into programs which provide an integrated team approach to problem solving.

Three of the research programs are commodity oriented: the Cereal, the Grain Legume and the Root and Tuber Improvement Programs. The fourth program, the Farming Systems Program, synthesizes all IITA research and uses plant materials developed by the crop improvement programs to develop land-use systems that will sustain soil productivity as land and economic pressures accelerate the transition from various periods of bush and forest fallow to continuous cultivation.

An important support service to the program of IITA is the Library and Documentation Center in which bibliographies on high priority areas of IITA's research programs are compiled for distribution to scientists and libraries throughout the world. The present bibliography on yams is one in this series. IITA is pleased to present this bibliography to aid research workers and interested students in the advancement of research and information on yams, an important food crop.

William K. Gamble
Director General
International Institute of Tropical Agriculture

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I N T R O D U C T I O N

Yams are a staple food for millions of people in tropical countries. They are cultivated throughout the tropics and even in parts of the subtropics but the main regions of production are West Africa, South-East Asia including adjacent parts of China, Japan and Oceania, and the Caribbean. Annual production for food is between twenty and twenty-five metric tons. Additionally, some of the yams are grown as source materials for the production of certain drugs and pharmaceutically active compounds.

Several crops are known in different parts of the world as 'yams'; thus in the southeastern region of the United States of America, particularly in Louisiana, sweet potatoes (*Ipomoea batatas*) are often called yams. The so-called 'elephant yam' of India (*Amorphous campanulatus* Blume), the African 'yam bean' (*Sphenostylis stenocarpa*), and the Mexican 'yam bean' (*Pachyrhizus erosus*) represent misapplications of the word 'yam'. D. G. Coursey, in his reference book on yams (entry no. 3 in this bibliography), defines yam as "any of the economically useful plants of the botanical genus *Dioscorea*, or the tubers or rhizomes of these plants". This is the definition adopted in this bibliography.

This book brings together the scattered literature on the genus *Dioscorea*. We have attempted comprehensive coverage of the literature from the beginning of the nineteenth century to the year 1975 and there are a few eighteenth century publications (e.g. entries 377 and 378) and some 1976 papers (e.g. entry no. 1064). We intend to publish supplements to include papers published after 1975 as well as

those, if any, published before 1975 that are not included in this volume.

The entries are grouped into 36 subject categories, and within each category, they are arranged alphabetically by author. The entries are numbered serially and the numbering is continued from one category to the next. Each paper appears in only one subject category; every item is thus entered only once in the bibliography. Some entries, particularly those whose titles are not sufficiently informative, are annotated (see for example entries 695 and 1466).

A paper entered in a particular subject category may in fact cover several other subjects; these other subjects are reflected in the Subject Index. It is therefore necessary to use the Subject Index along with the subject categories shown in the Table of Contents.

The major bibliographical sources which we consulted are listed on page iv. We were able to verify most of the entries but for some, we have had to rely on the information obtained from secondary sources.

Mrs. O. O. Olunloyo typed the camera-ready copy of most of the bibliography; Miss B. R. Itive typed sections K.5 and K.6. We thank them both.

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Biological Abstracts. vol.1 - vol.58, 1926-1975.

Bioresearch Index. vol.1 - vol.11, 1965-1975.

Chemical Abstracts. vol.1 - vol.83, 1907-1975.

Dictionary Catalog of the National Agricultural Library 1862-1965. New York, Rowman and Littlefield, 1967. 73 vols.

Dissertation Abstracts. vol.12 - vol.36, 1952-1975.

Experiment Station Record. vol.12 - vol.95, 1900-1946.

Field Crop Abstracts. vol.1 - vol.28, 1948-1975.

Food Science and Technology Abstracts. vol.1 - vol.7, 1969-1975.

Helminthological Abstracts. vol.1 - vol.44, 1932-1975.

Horticultural Abstracts. vol.1 - vol.45, 1931-1975.

Index to Theses Accepted for Higher Degrees by the Universities of Great Britain and Ireland. vol.1 - vol.19, 1950-1969.

Montaldo, Alvaro. Bibliografia de raices y tuberculos tropicales. (Bibliography of tropical root and tuber crops). Maracay, Universidad Central de Venezuela, Facultad Agronomia. Alcanance No.13, and Supplements 2 and 3).

Nutrition Abstracts and Reviews. vol.1 - vol.45, 1931-1975.

Plant Breeding Abstracts. vol.1 - vol.45, 1930-1975.

Review of Applied Entomology. vol.1 - vol.63, 1913-1975.

Review of Applied Mycology/Review of Plant Pathology. vol.1 - vol.54, 1922-1975.

Soils and Fertilizers. vol.1 - vol.38, 1938-1975.

Tropical Abstracts (Continued in 1975 as Abstracts on Tropical Agriculture). vol.1 - vol.29, 1946-1974).

A. GENERAL AND REFERENCE WORKS

1. ABEELE, Van Den M. and R. VANDENPUT. 1956
Les principales cultures de Congo Belge. Bruxelles, Publication de la Direction de l'Agriculture, des forets et de l'elevage. 3e edition. pp. 133-138.

A brief review of yam (D. alata) growing in Zaire.

2. AYENSU, E.S. and D.G. COURSEY. 1972
Guinea yams; botany, ethnobotany, use and possible future of yams in West Africa. Economic Botany, 26(4): 301-318.

3. COURSEY, D.G. 1967.
Yams. An account of the nature, origins, cultivation and utilisation of the useful members of the Dioscoreaceae. London, Longmans. xiv + 230p.

4. DAVIS, E.G. 1956.
Dioscorea; a selected list of references. Washington, D.C. U.S.D.A. Library. 15p. (mimeog.)

5. INTERNATIONAL INSTITUTE OF TROPICAL AGRICULTURE, IBADAN, NIGERIA. 1972.
Yam improvement. In The International Institute of Tropical Agriculture. 1971 Report. pp. 102-108.

The report covers breeding, physiological studies on yam morphology, seed germination and storage.

6. INTERNATIONAL INSTITUTE OF TROPICAL AGRICULTURE, IBADAN, NIGERIA. 1973.
Root, Tuber and Vegetable Improvement Program. 1972 Report. Yams. pp. 24-29; 35-40.

Reports work on selection of yam for yield and storability, shoestring disease, dieback caused by Glomerella cingulata, rots of yam caused by Botryodiplodia sp. Penicillium sp. and Aspergilus niger. Agronomic trials reported include those on sett size and spacing, and a technique for rooting cuttings of D. rotundata was developed. Physiological studies included those on prolonging, and breaking yam dormancy, growth and development, flowering and fruiting, sex expression, and seed germination of D. rotundata.

7. INTERNATIONAL INSTITUTE OF TROPICAL AGRICULTURE, IBADAN, NIGERIA. 1974.
Root and Tuber Improvement Program. 1973 Report. Yams. pp.29-35.

Resistance to white yam 'shoe-string' and 'dieback' diseases are reported and the protein contents of some yam clones are tabulated. The physiology report includes successful seed germination of D. rotundata, demonstration of residual effect of growth retardant residues on yam, staking and pruning trials and the development of yam tissue culture technique.

8. INTERNATIONAL INSTITUTE OF TROPICAL AGRICULTURE, IBADAN, NIGERIA. 1975.
Annual report 1974. pp. 125; 134-135; 140-141; 142-143; 146-151.

About 2,000 genotypes of D. rotundata were produced from seeds, and more than 150,000 seeds resulting from outcrosses among local cvs and from outcrosses among 2nd generation plants derived from seeds were collected. Several hybrid seeds of D. rotundata were produced by artificial hybridization. Other studies include performance of yams in hydromorphic soils, yam insects, shoestring mosaic disease, "die-back" disease, yam nematodes and detailed studies of the growth characteristics of second-generation plants of D. rotundata derived from seeds. Staking, pruning and spacing effects on yield and tissue culture of D. rotundata are also reported.

9. INTERNATIONAL SYMPOSIUM ON TROPICAL ROOT CROPS 3rd, 1973.
Abstracts of submitted papers for the 3rd International Symposium on tropical root crops, Ibadan, IITA, Dec. 2-9, 1973. (various paginations).

Many of the papers are on yams and are individually indexed in this bibliography.

10. IRVINE, F. R. 1969.
Yams. In West African Crops. London, Oxford University Press. Chapter 33, pp. 160-173. (West African Agriculture, 3rd ed. vol. 2)

Describes varieties, environment, cultivation, staking, mulching, storage, diseases and pests.

11. KAY, D.E. 1973.
Root crops. London, Tropical Products Institute, xiii, 245p. (TPI Crops and Products Digest No.2).

Summarizes information on all aspects of selected root crops including (on pages 190-239) Dioscorea dumetorum; D. opposita; D. trifida; D. alata; D. hispida; D. esculenta; D. bulbifera; D. rotundata; and D. cayenensis.

12. LITZENBERGER, S.C. ed. 1974.
Yams. In Guide for field crops in the tropics and subtropics. Washington, D.C., Office of Agriculture, Tech. Assistance Bureau, AID. Chapter 29, pp. 236-241.

13. MARTIN, F.W. 1972.
Yam production methods (U.S.D.A. Production Research Report No. 147). Washington: U.S. Dept. of Agriculture, Agricultural Research Service. 17p.

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Tropical yams and their potential part.I. Dioscorea esculenta. Washington, United States Dept. of Agric. Agricultural Research Service, iv, 18p. (Agricultural Handbook No. 457).

15. MARTIN, F.W. 1974.
Tropical yams and their potential. Part II. Dioscorea bulbifera. Washington, D.C., Dept. of Agric., Agric. Research Service. 20p. illus. (Agric. Handbook No. 466).

16. MESSIAEN, C.M. 1975.
Le potager tropical. 3 - cultures speciales. Paris, Presses Universitaires de France. pp. 429-454.

An illustrated description of some cultivated Dioscorea species with notes on their botany, agronomy, diseases and pests. Species discussed are D. alata, D. cayenensis, D. trifida, D. esculenta, D. bulbifera, D. dumetorum, D. nummularia, and D. pentaphylla.

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Bibliografia de raices y tuberculos tropicales. (Bibliography of tropical root and tuber crops.) Maracay, Venezuela, Universidad Central de Venezuela Facultad de Agronomia. pp. 95-151. (Revista de la Facultad Agronomia. Alcance No. 13)

The section on yams (pp.95-151) lists 705 references. Other crops covered include cassava, sweet potatoes, Colocasia, Xanthosoma, Arracacia, Maranta and other root and tuber crops of restricted American cultivation.

18. MONTALDO, ALVARO. 1969.
Bibliografia de raices y tuberculos tropicales. Maracay Universidad Central de Venezuela, Facultad de Agronomia. pp. 11-20. (Revista de la Facultad de Agronomia de la Universidad Central de Venezuela No. 13, Suppl. 2).

This supplement lists 75 references on all aspects of Dioscorea.

19. MONTALDO, ALVARO. 1971.
Bibliografia de raices y tuberculos tropicales. Maracay Universidad Central de Venezuela, Facultad de Agronomia 275p. (Revista de la Facultad de Agronomia de la Universidad Central de Venezuela. Alcance No. 13, Suppl. 3).

20. NICHOLS, Sir Henry Alford and J.H. HOLLAND. 1929.
A text-book of tropical agriculture. London, Macmillan and Co. pp. 441-447.

Describes yam varieties and yam growing with brief notes on D. alata, D. rotundata, D. cayenensis, D. bulbifera and D. trifida.

21. PURSEGLOVE, J.W. 1972.
Dioscoreaceae. In Tropical crops; monocotyledons. London, Longman. Vol.1, pp. 97-117.

Brief descriptions of several species with keys and a discussion of the botany, chemical composition, propagation, husbandry, major pests and diseases, production and trade.

22. WAITT, A. W. 1961.
Review of yam research in Nigeria 1920-1961. Memo of Fed. Dept. Agric. Research, Ibadan. No. 31, 18p.

23. WAITT, A. W. 1963.
Yams. Dioscorea spp. Field Crop. Abst., 16(3): 145-157.

A review article.

B. HISTORY AND GEOGRAPHY

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The origins of yam cultivation. In Ucko, P.J. and Dimbleby, G.W. (editors). London, Gerald Duckworth & Co. pp. 405-425.

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The genus Dioscorea in the Cape Province West of East London. J. South Afr. Bot. 33(1): 1-46.

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Introduction of plants and the migrations of Pacific peoples. Honolulu, Bishop Mus. Press, pp. 1-6.

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Miocene plants from Colombia, South America. Bulletin, Torrey Botany Club 63: 53-66

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Maori agriculture. New Zealand, Dominion Mus. Bull. No. 9. viii + 172 p.

An account of the cultivated food crops of the New Zealand natives, including the sweet potato, yam, taro etc. with information on native agricultural methods, rituals, and origin myths.

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Some unfamiliar cultivated yams are briefly described and illustrated.

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Two notes on Dioscorea in the Congo. Linn. Soc. Proc. 151(2): 57-61.

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Taming the wild nami. Farmers Digest (Philippines) 1(2): 24-25.

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Les ignames, Dioscorea sp. In Les produits coloniaux dorigine vegetal. Paris, Lib. Larose. 484p.

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The distribution of crops within the earth's climatic zones. Umschau, 13: 391-397.

Describes the influence of daylength and temperature on plant production, and the distribution of cereals, tuber crops such as potato, yam, and manioc.

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The comparative ethnobotany of African and Asian yam cultures. Paper submitted for the 3rd International Symp. on Trop. Root Crops, IITA, Ibadan, Nigeria, Dec. 2-9, 1973. (Abstracts of Submitted Papers no. ES/9)

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Yams in the West Indies. Washington, U.S.D.A., Bot. Div. Circ. 21.

47. FLORES, M. A. 1950.
The yam and its cultivation. El Salvador, Ministerio de Agricultura y Ganaderia, Centro Nacional de Agronomia Circ. No.21. 3p.

48. FREEMAN, W.G. and R.O. WILLIAMS. 1918.
Our local foods, their production and use. Trinidad, Dept. Agric. Trinidad and Tobago. 24p.

Directions for planting yams, sweet potatoes tannias, cassava and other common vegetables are given. Suggestions for the use and recipes for the preparation of these vegetable are given.

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Les gens de L'igname (D. alata); les Buang de la valee du Suake district de Morobe, Nouvelle - Guinee. (The yam people; The Buang of the Snake valley, Morobe District, New Guinea.) J. Agric. Tropicale Botanique Appliquee 14(8/9): 287-338.

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Quelques plantes alimentaires et rituelles en usage chez les Buang, District de Morobe, Nouvelle Guinee sous tutelle australienne. (Some food and ritual plants used by the Buang, Morobe District, New Guinea under Australian administration). J. Agric. Trop. et Bot. Appl., 4(5/6): 212-227.

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59. MALCOLM, S. and J. BARRAU. 1954.
Pacific subsistence crops: yams. SPC Quart. Bull. 4(3): 28-32.

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Food plants of the South Sea Islands. Tech. Pap. 94 S. Pacific. Commission 51p., bibl, illus.

Information is given on the staple and the supplementary food plants of the South Sea Islands. Among the former are taros and taro-like plants; yams(Dioscorea spp.) cassava and sweet potato.

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Dioscorea hainanensis is one of the plants discussed.

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Yams and the origin of West African agriculture. Odu, 1: 101-111.

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C. SOCIAL AND CULTURAL IMPORTANCE

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The traditional significance of yam in Yorubaland in pre-colonial times. Niger. Agric. J., 5: 59-62.

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The new yam festival among the Ewe. Ghana Notes and Queries, 10: 18-23.

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The civilizations of the yam: Interrelations of man and yams in Africa and the Indo-Pacific Region. Archaeol. Phys. Anthropol. Oceania, 7(3): 215-233.

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The new yam festival of West Africa. London, Tropical Product. Institute.

78. COURSEY, D. G. and C.K. COURSEY. 1971.
The new yam festivals of West Africa. Anthropos., 66: 444-454.

79. FORDE, D. 1964.
Yako studies. London, Oxford University Press.

Includes fairly detailed description of the New Yam Festival among the Yakos of Eastern Nigeria.

80. FORGE, J. A. W. 1962.
Paint - a magical substance. Palette, 9(1): 9-16.

Describes the special culture of yams grown for ritual purposes and states that the growth of the yams is encouraged by spells, and by anointing them while growing with magical paints.

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Der Yams - Anbua im But - Bezirk Neugineas. Anthropos., 34: 246-266.

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La culture de l'igname et du taro en Nouvelle-Caledonie: travaux gigantesques des indignes. Etudes Melanesiennes (N.S.), 5(7): 25-34.

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F.1 GENERAL AGRONOMY

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Field crop experiments. In Report Dept. Agric., Barbados for the year 1912/13. pp. 2-27.

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Experiments with field crops in Barbados. In Annual Report of Barbados, Dept. Agric. for the year 1914/15 pp. 2-32.

The results of variety tests with cassava, economic Colocasieae, Caladiums and Xanthosomas, leguminous crops, yams and grasses are presented in tabular form with brief notes.

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Yield of the lesser yam and of some African yams. Gardeners' Bull. 2(5): 159-165.

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A brief review of research work carried out in Ghana on cassava, yams, cocoyams, sweet-potatoes and Solanum potatoes.

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Plant population and crop yield. Nature 204(4961): 856-857.

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635. CARO-COSTAS, R. et al. 1968.
Effect of various cultural practices on yields of yams in Puerto Rico by R. Caro-Costas, E. Boneta and S. Silva. J. Agric. Univ. of Puerto Rico, 52(4): 356-361.

Highest yields exceeding 26 tons of tubers per acre were obtained with 10,890 plants per acre and 2 feet by 2 feet plantings. Combining closer planting, staking, and planting in beds more than tripled yields of yams. Simazine at 8lbs/acre applied after planting gave excellent results as a herbicide.

636. GHANA. DEPT. OF AGRICULTURE. 1957.
Annual Report of the Dept. of Agric. for the year 1954/55. 53p.

It was reported that at Ejura, staking significantly benefited yields of yams. Also, capping with grass increased the yields 60% above that from uncapped mounds. The most economical size of seed yam was 3lb.

637. JAMES, L. J. 1953.
Study of the growth and development of the yam (Dioscorea alata L.) in relation to planting method. Thesis submitted to the University of West Indies for A.I.C.T.A. Degree in 1953.

638. KOLI, S. E. 1973.
Sowing date and yield of yam in Ghana. World Crops, 25(3): 126-127.

639. LAL, R. and S. K. HAHN. 1973.
Effect of method of seed bed preparation, mulching and time of planting of yam (Dioscorea rotundata) in Western Nigeria; Paper presented at the Third International Symposium on Tropical Root Crops held at IITA, Ibadan from 2nd - 9th Dec. 10p.

640. SATO, I. and Y. KAWATO. 1962.
Studies on the culture method of Chinese yam (Dioscorea esculenta) in sand dune field. 1. Effect of the planting depth of the mother tubers upon the form and yield of tubers. Bull. Sand Dune Lab., Tottori Univ., 3: 43-53.

641. SAWADA, E. et al. 1958.
The effect of subsoil condition upon the form and yield of Chinese yam. Hokkaido Univ. Fac. Agric. Memo. 3(1): 53-58.

642. VICENTE-CHANDLER, J.; R. CARO-COSTAS, and E. G. BONETA. 1966.
High crop yields produced with or without tillage on 3 typical soils of the Humid Mountain Region of Puerto Rico. J. Agr. Univ. Puerto Rico, 50(2): 146-150.

Yields of yams, tobacco, sugarcane, plantains, taniers, corn, sweet potatoes, and beans were similar under tillage and no-tillage systems.

643. WATERWORTH, J. V. 1964.
Yam planting date/mulch experiments 1962/63. Nigeria, Midwest Reg. Min. of Agric. & Natural Resources Exp. Report. vol. 52. 3p.

644. WATERWORTH, J. V. 1967.
White and yellow yam planting date/mulch experiment (1964). Nigeria, Midwest Reg. Min. Agric. & Natural Resources Exp. Rep. 69. 4p.

645. ZANZIBAR. DEPT. OF AGRICULTURE. 1955.
Results of field experiments, crop and stock records and other statistics; Supplement to the Annual Report of 1954. Zanzibar, Dept. of Agric., 12p.

Contains a report on variety trials with yams, (p.5). The value of using compost for increasing yields was shown. The varieties Joka, Mondoo and Bottleneck Lisbon yielded slightly more when planted on ridges.

F.4 STAKING

646. ANONYMOUS. 1932.
Correct height of yam sticks. Gold Coast Farm., 1: 6.

647. ANONYMOUS. 1935.
Correct height of yam sticks. Gold Coast Farm., 3: 225.

648. ANONYMOUS. 1936.
Staking trials with yams. Gold Coast Farmer, 5(1): 14.

649. BERWICK, J. et al. 1972.
Yam (Dioscorea alata) planting rate, staking, variety and palatability trials. Fiji Agric. J., 34(2): 44-50.

650. BURKILL, I. H. 1920.
Staking yams. Gardeners' Bull. 2: 301-302.

651. ENYI, B. A. C. 1972.
The effect of staking, nitrogen and potassium on growth and development in lesser yams (Dioscorea esculenta). Ann. Appl. Biol., 72: 221-229.

652. GUERRORO, J. 1929.
Agronomic experiments in Guam. In Guam Station Report for 1929. pp. 6-10.

Further studies reported included variety tests with cowpeas, legume cover crops, lawngrasses, sweet potatoes and trellised and non-trellised yams.

653. MCCLELLAND, T. B. et al 1921.
Field crops work in Puerto Rico in 1921. by T. B. McClelland T. Bregger, W. P. Snyder and J. A. Saldana. In-Annual Report of Puerto Rico Rtation for 1921. pp. 10-11, 14-19.

Compares the yields of staked yams with unstaked ones.

654. OKIGBO, B. N. 1973.
Effects of cultivation and heights and directions of staking on yields and general performance of eight yam cultivars. Paper presented at the 3rd International Symposium on Tropical Root Crops, IITA, Ibadan, Dec. 2-9, 1973.

655. RODRIGUEZ BENITEZ, A. et al. 1941.
Field crops experiments by the Puerto Rico University Station. In Puerto Rico Univ. Station Report for 1940. pp.24-30, 41-45.

Reports a staking test with yams and a planting test with peanuts.

656. SAWADA, E. and T. YAKUWA. 1953.
The effect of the height of support on the growth, aerial - tuber setting and yield of Chinese yam. Hokkaido. Univ. Fac. Agric. Memo. 1: 207-215.

657. WAITT, A. W. 1961.
Yams In Annual Report of Federal Dept. of Agric. Research, Ibadan for the year 1959/60. pp. 16-19.

Reports staking trials with 2 varieties of Dioscorea alata.

658. WHOLEY, D. W. and P. H. A. HAYNES. 1971.
Yam staking system for Trinidad. World Crops, 23(3): 123-126.

F.5 WEED CONTROL

659. DEBELYI, A. S. et al 1971.
Uses of triazines in the growing of medicinal plants, and determination of their residual amounts. Agrokhimiya 8: 110-114.

Discusses the effect of atrazine on Dioscorea japonica; also method of determining the residual amounts of herbicides in plants.

660. FALODE, M. K. 1958.
The response of yams to the application of various herbicides. Trinidad, Imp. Coll. Trop. Agriculture. mimeog.

661. GALKINA, G. A. 1970.
Use of chemicals for weed control when introducing Dioscorea nipponica into cultivation. Rastitel Resursy, 6(2): 267-271.

662. GALKINA, G. A. 1972.
Effect of herbicides on yield of Dioscorea nipponica (Drug plants). Vses Akad. Sel'skokhoz Nauk V.I. Lenina Dokl, 6: 19-20.

663. GALKINA, G. A. and P. T. KNODRATENKO. 1968.
Effectiveness of herbicides for Dioscorea crops. Trudy Vsesoyuznogo Nauchno-Isseledovatel'skogo Instituta Lekarstvennykh i Aromaticheskilah Rastenii, 13: 180-184.

664. GASKINS, M. H. 1973.
Weed control in new plantings of steroid-producing Dioscorea species. Weed Science 21(3): 263-265.

665. GONZALEZ-IBANEZ, J. and H. R. CIBES-VIADE. 1970.
The effect of various herbicides on growth of Dioscorea composita under greenhouse conditions. J. Agric. of the Univ. of Puerto Rico, 54(2): 328-333.

666. KASASIAN, L. 1963.
Tropical weed control notes. St. Augustine, Trinidad, Fac. Agric. Univ. of W. Indies. 44p. illus..

The notes are in 3 parts: general notes on application and factors influencing herbicides; uses of herbicides; properties of herbicides. The part on uses of herbicides is in the form of suggestions based on preliminary results obtained in Trinidad or on recommendations from U.S.A., for trial of herbicides in the following crops: maize, rice, bodi beans, groundnuts, pigeon peas, yams, cassava, tannia, cotton etc.

667. KASASIAN, L. 1967.
Chemical weed control in tropical root crops. Trop. Agric. (Trinidad) 44(2):143-150.

Describes the effect of certain herbicides on weeds as well as on crops like yams (Dioscorea alata), tania, cassava etc.

668. KASASIAN, L. 1971.
Root crops: Dioscorea alata. In Weed control in the tropics. London, Leonard Hill, pp. 157-158.

669. KASASIAN, L. and J. SEEYAVE. 1967.
Weed control in root crops grown in the West Indies. In Proceedings.of the International Symposium on Tropical Root Crops, St. Augustine, Trinidad, vol.2 (Sect. IV): 20-25.

670. KASASIAN, L. and J. SEEYAVE. 1969.
Critical periods for weed competition. PANS., 15(2): 208-212.

Crops discussed include Dioscorea alata.

671. MOODY, K. and H. C. EZUMAH. 1974.
Weed control in major root and tuber crops - A review. PANS, 20(3): 292-299.

A review of weed control (cultural and chemical) of yams (pp. 292-294), cassava, sweet potatoes and aroids.

672. RENAUT, G. and H. MERLIER. 1974.
Lutte contre les mauvaises herbes en culture mecanisee de L'igname; Paper presented at the Third International Symposium on Tropical Root Crops at IITA, Ibadan, from 2nd to 9th Dec., 1973. 14p.

673. ROSHER, P. H. 1959.
Weed control in groundnuts and yams. Pest. Abs. New Sum. Sect. C., 5(1): 4 - 6.

674. SEEYAVE, J. 1969.
Effect of weed competition on yams. In Half yearly report of Trinidad, Univ. West Indies, Fac. Agric. for the year 1968/69.

675. SIERRA LEONE. DEPT. OF AGRICULTURE. 1956.
Report on the work of the Dept. of Agric., 1954. London. 33p.

At Njala, yams capped with organic manure gave higher yields than those receiving fertilizer alone; highest yields were obtained from a combination of these treatments. Also, April planted Chinese yams (Dioscorea esculenta) greatly outyielded May-planted yams when 20 tons FYM were applied and the plants were capped with organic manure.

676. SINGH, K. D. 1973.
Influence of nitrogen and potash fertilization on tuber yield and quality of Dioscorea esculenta. Indian J. Agron, 18(1): 17-21.

677. SINGH, K. D. 1973.
A note on effect of nitrogen levels on tuber yield and quality of Dioscorea alata. Indian J. Agron., 18(1): 100-101.

678. ZANZIBAR, DEPT OF AGRICULTURE. 1954.
Annual report for Zanzibar for the year 1953. 29p.

It is reported (p. 13) that a yam variety, Bottleneck Lisbon, when manured, yielded seven times as heavily as when unmanured.

F.6 FERTILIZERS AND PLANT NUTRITION

679. ANONYMOUS. 1958.
If fertilizer is used, there is more money in yams; yams for profit. J. Jamaica Agric. Soc., 52: 398-399, 461.

680. BOUYER, S. and P. SILVESTRE. 1969.
Report on a mission in Dahomey (10 February - 1 March 1968). L'Agron. Trop. (Paris), 24(9): 816-826.

A review is given of the main results obtained from trials at many sites in Dahomey in 1962-1967 mostly with NPK applied to yams, maize, sorghum, millet.

681. BROMFIELD, A. R. 1967.
End of tour report - yam responses to fertilizers. Ibadan. Western State Ministry of Agric. and Natural Resources. 24p.

682. CAMARGO, A. P. de et al 1962.
Effect of lime and fertilizer treatments on sweet potatoes and yams in the soils of low fertility derived from Botucatu sandstone. by A. P. de Camargo, E. S. Freire and W. R. Venturini. Bragantia, 21: 143-161.

683. FERGUSON, T. U. and P. H. HAYNES. 1970.
The response of yams (Dioscorea spp.) to nitrogen, phosphorus, potassium, and organic fertilizers. In Proceedings of the second International Symposium on tropical root and tuber crops, vol.1 (Section 3) pp. 93-96.

684. GIRADOT, L. V. 1956.
Planting and fertilization experiments with yams. Suakoko, Liberia, Central Agric. Exp. Station Note 9. 21p.

685. GOODING, E. G. B. 1971.
Effects of fertilizing and other factors on yams in Barbados. Experimental Agric., 7(4): 315-319.

686. GOODING, E. G. B. and R. M. HOAD. 1969.
Fertilizer experiments on yams 1968/69. Barbados, Sugar Producers Assoc.

687. GOSSELINK, J. G. and M. H. GASKINS. 1961.
Mineral-deficiency symptoms in Dioscorea composita. Amer. Soc. Hort. Sci., Caribbean Region Proc., 9: 59-63.

688. IRVING, H. 1952.
Fertilizer studies in Eastern Nigeria for the year 1947 - 51; Eastern Region of Nigeria, Tech. Bull. 1. 34p.

The investigation was concerned mainly with yams... It was also shown that fertilizer placement when 66% germination of the yams had occurred resulted in the highest yields. Maize and cassava interplanted to yams benefited from the K and N. applied to the main crop.

689. IRVING, H. 1956.
Fertilizer experiments with yams in Eastern Nigeria 1947-51. Trop. Agric. (Trin.), 33(1): 67-78.

690. JAMAICA. DEPT. OF AGRICULTURE 1951.
Investigation 1949-50, Bull. No. 47 (N.S.) Kingston. 127p.

Investigations reported include: Yam fertilizer trials - there was no significant response to any fertilizer considered by itself, but there was a significant interaction between N and K resulting in increased yields when these were applied together.

691. JAMAICA. DEPT. OF AGRICULTURE. 1955.
Investigations 1953. Bull. 53 of Jamaica, Dept. of Agric., 163p.

It was reported that there were fertilizer demonstration plots on which yams were planted. Response to all nutrients was positive. The average plot yield with compost and fertilizer was 72lb. and exceeded by 7lb. the average of plots receiving fertilizer only.

692. KOLI, S. E. 1973.
The response of yam (Dioscorea rotundata) to fertilizer application in northern Ghana. J. Agric. Sci., 80(2):245-249.

693. MAURITIUS. DEPT. OF AGRICULTURE. 1951.
Annual Report of the Dept. of Agric. Port Louis for the year 1950. 92p.

Investigations reported include: Fertilizer and time of planting trials with yams (Dioscorea). Very early and very late planting results in lower yield than those obtained from the usual planting dates.

694. MATUO, K. and S. MIZUNO. 1954.
Some observations on fertilization in the yam plant of Tamba District. Crop Sci. Soc. Japan Proc., 22(3/4): 26-27.

695. NIGERIA, DEPT. OF AGRICULTURE 1954.
Second Annual Report of the Northern Research Station, Samaru 1953/54, Zaria. 108p. illus.

Yams grown in Ilorin Province responded significantly to sulphate of ammonia but not to superphosphate, and in two localities there was a significant Nitrogen and phosphate inter-action. 60lb. suphate of ammonia per acre increased yam yields by approximately 100lb. per acre on farmers' own lands.

696. NYE, P. H. 1951.
Studies on the fertility of Gold Coast soils. Pt. II. The nitrogen status of the soils. Emp. J. of Exp. Agric., 19: 273-282.

The responses of various food crops including yams, cassava and some cereals to suphate of ammonia, and yields at different levels and times of application of nitrogen are reported. On land frequently cropped, yams give moderate responses. The best time of application is about planting time.

697. NYE, P. H. 1952.
Studies on the fertility of Gold Coast soils. Pt. III. The phosphate status of the soils. Emp. Journ. of Exper. Agric., 20(77): 47-55.

Phosphate responses, nitrogen and phosphate interactions and responses to rates of superphosphate are tabulated and discussed for maize, guinea corn, millet, yams, sunflower, rice and groundnuts.

698. NYE, P. H. 1954.
A survey of the value of fertilizers to the food-farming areas of the Gold Coast. III. The Voltaian sand stone region and the southern maize areas. Emp. J. Exp. Agric., 22: 42-54.

Report of a large number of small trials with sulphate of ammonia and superphosphate on farmers' fields in Ghana. In the Voltaian sandstone region, 120lb/acre of sulphate of ammonia would increase yields of yams by 10 per cent and of cereals by 28 per cent. In the southern maize areas, the corresponding increases are 3 per cent for yams and 18 for cereals.

699. NYE, P. H. 1954.
Fertilizer responses in the Gold Coast in relation to time and method of application. Emp. J. Exp. Agric., 22(84): 101-111.

The paper reports that the residual effects of sulphate of ammonia on cereals and yams was 7 per cent in the 1st year and small in the 2nd compared with a direct effect of 22 per cent. The residual effect of super on cereals and yams was as high as the direct effect in the first year, but fell off in the second.

700. OKAMOTO, SABURO and GORO, IZAWA. 1964.
Effects of urea form on yields and amino nitrogen contents in Chinese yam plants and taro plants. Hyogo Noka Daigaku Kenkyu Hokokum Nogei-Kagaku Hen 6(2): 68-72.

701. PHILIPS, D. 1941
Manuring the yam hill. Jamaica Agric. Soc. J., 45: 187.

702. SAWADA, E. and T. YAKUWA. 1959.
Studies on the cultivation of chinese yam. 3. On the malformation of tuberous root resultant from fertilizer placement. Hokkaido Univ. Fac. Agric. Memo. 3(2): 27-34.

703. SEYCHELLES. DEPT. OF AGRICULTURE 1971.
Annual report for the year 1969. Victoria, Mahe, Dept. of Agric., 55p.

Compares the yield of yams when planted with 10 tons farmyard manure/ac. with the yield of yams when planted with grass + 2cwt. superphosphate/ac; both treatments were given a top dressing of 3cwt. NPK/ac.

704. SOBULO, R. A. 1972.
Studies on white yam (Dioscorea rotundata). II. Changes in nutrient content with age. Experimental Agriculture, 8(2): 107-115.

705. SOBULO, R. A. 1972.
Studies on white yam (Dioscorea rotundata) III. Foliar analysis for nitrogen nutrition. Experimental Agric., 8(3): 271-279.

706. STEPHENS, D. 1960.
Fertilizer trials on peasant farms in Ghana. Emp. J. Exp. Agric. 28: 1-15.

Results of treatments with $(NH_4)_2SO_4$ and other fertilizers on groundnut, millet and guineacorn in the northern savanna, on yams and rice in the Voltaian savanna, on maize in the savanna woodland and fringing forest, and on cassava in the Accra plains are summarized.

707. TRINIDAD. UNIV. OF THE WEST INDIES. 1970.
Report of the Faculty of Agriculture for the year 1969/70. St. Augustine, University of West Indies, Faculty of Agric.

Describes the effect of P. and K on the yields of Dioscorea alata and Dioscorea esculenta.

708. UMANAH, E. E. 1973.
Effects of different rates of N.P.K. fertilizers on yield and storage properties of white yam (Dioscorea rotundata L.): Paper presented at the Third International Symposium on Tropical Root Crops held at IITA, Ibadan from 2nd - 9th Dec., 1973. 8p.

709. WATERWORTH, J. V. 1964.
NPK. 3^3 - fertilizer trial on yams. Nigeria, Midwest Region Min. Agric. and Natural Resources Exp. Report vol.51. 4p.

711. WATERWORTH, J. V. 1967.
NPK.3^3 fertiliser trial on yams (1964). Nigeria Midwest Reg. Min. Agric. and Natural Resources Exp. Rep. 67. 4p.

712. WATERWORTH, J. V. 1967.
NPK.2^3 fertiliser trial on yams (1964). Nigeria, Midwest Min. Agric. & Natural Resources Exp. Rep..68. 3p.

713. WATERWORTH, J. V. 1967.
NPK.3^3 fertiliser trial on yams (1965). Nigeria, Midwest Reg. Min. Agric. & Natural Resources Exp. Rep. 84. 3p.

714. WATERWORTH, J. V. and C. O. OPUTA. 1967.
NPK.2^3 fertiliser trial on yams. (1965). Nigeria, Midwest Reg. Min. Agric. and Natural Resources Exp. Rep. 85. 4p.

F.7 YAMS IN FARMING SYSTEMS.

715. BOAG, A. D. and R.E. CURTIS. 1959.
Agriculture and population in the Mortlock Islands (Territory of Papua and New Guinea). Papua Agric. J. 12(1): 20-27.

Information is given on the agriculture and population of the Mortlock Islands where the principal crops are Cyrtosperma chamissonis, Colocasia esculenta and Dioscorea esculenta.

716. CHANDRA, S. 1974.
Root crop production in a Fijian village by S. Chandra, J. P. Evenson, and A. J. de Boer; Paper presented at the Third Internaitonal Symposium on Tropical Root and Tuber Crops at IITA, Ibadan, Nigeria from 2nd to 9th Dec., 1973. 10p. (Mimeograph)

Paper presents data on land use, productivity, labour utilization and energy relations in root crop production in village agriculture in Fiji. The main root crops grown, in order of importance, are cassava, sweet potatoes and yams.

717. DUMONT, ROLAND 1973.
Integration of yams in permanent farming systems in Dahomey, Paper submitted for the 3rd Int. Symp. on Tropical Root Crops, IITA, Ibadan, Dec. 2-9. (Abstracts of Submitted Papers No. AMPS/38).

718. FRIEDBERG, C. 1971.
The agriculture of the Bunaq people of Timor and the conditions of equilibrium with the environment. J. d'Agric. Trop. Botanique Appl., 18(12): 481-532.

Yam features in the farming systems of the people of Timor.

719. HANDY, E. S. and ELIZABETH GREEN HANDY. 1972.
Native planters in Old Hawaii; their life, lore and environment. Bulletin of the Bernice P. Bishop Museum, No. 233 Honolulu (Hawaii), Bishop Museum Press.

A section on plants and animals in the Hawaiian economy, discusses subsistence plantings including taro, sweet potato, breadfruit, banana, coconut, yams, arrowroot, sugarcane and pineapple.

720. HARWOOD, L. W. 1950.
Observations on indigenous systems of agriculture in Fiji. Fiji Agric. J., 21: 3 - 9.

Root crops including yams are important in the farming systems of Fiji.

721. HRISHI, N. 1974.
Tuber crops can fit in Rabi cultivation. Indian Farming 24(7): 33-37.

Among the tuber crops, mentioned as forming an important group that produce abundant food materials at low cost, is Dioscorea.

722. KHAN, F.K. and A.L. KHISHA. 1970.
Shifting cultivation in East Pakistan. Oriental Geographer, 14(2): 22-43.

Crops grown under shifting cultivation in the Chittagong Hill Tracts included rice, *Gossypium arboreum*, sesame, maize, *Colocasia antiquorum* and yams.

723. MAUDE, A. 1970.
Shifting cultivation and population growth in Tonga. J. Tropical Geogr., 31: 57-64.

Dioscorea alata, Alocasia macrorrhiza, plantains, bananas, Colocasia esculenta, sweet potatoes and cassava, in that sequence, are the main crops grown.

724. McALPINE, J. R. 1967.
Population and land use of Bougainville and Buka Islands. In Lands of Bougainville and Buka Islands, Papua New Guinea. Australia, Commonwealth Sci. and Indus. Res. Orgn. Ld. Res. Ser 20. pp. 157-167.

Subsistence cultivation in the area depends on bush fallowing or long-fallow cultivation and is based mainly on sweet potatoes, yams and taro.

725. MONTALDO, ALVARO. 1971.
Importance de los cultivos de raices y tuberculos en la Agricultura Tropical. Maracay, Fac. Agron., Inst. Agron. 6p.

726. NAIR, P.K.R. et al. 1974.
Intercropping for enhanced profits from coconut plantation by P.K.R. Nair, R. Vanda and E.V. Nelliat. Indian Farming, 24(4): 11-13.

Intercropping coconuts with annual crops such as yams, cassava, sweet potatoes was profitable in the Kasragode area of India.

727. NIGERIA. NORTHERN REGION. DEPT. OF AGRICULTURE. 1955.
Annual Report for the year 1954/55. Part 2. Research and Specialist Services. Northern Nigeria, Dept. of Agric, Kaduna. 100p. illus.

Two varieties of cowpeas, New Era and Mauritius, grown alone, out yielded the local variety but did not maintain their superriority when interplanted with yams. Optimum spacing rates were: 1 stand between yams 3ft. apart on 6ft. ridges for Mauritius; New Era was indifferent to spacing.

728. PORTERES, R. 1950.
Vielles agricultures de L'Afrique inter-tropicale. L'Agron. Trop. (Pans) 5: 489-507.

Mentions Dioscorea as an important crop of the region.

729. RUBIO, J. F. 1967.
Dioscorea floribunda, a source of additional income from the plantation. Rev. Cafetalera, 75: 27-28.

Recommends planting of yams in coffee plantations.

730. SMITH, E.H.G. and A.V. GIBBERD. 1930.
The Ishan cotton plant under mixed cultivation. II. Nigeria Agric. Dept. Bull. 9: 35-48.

Further investigations on the effects of intercropping with yams on the cotton plant are reported.

731. TAYLOR, C. B. et al. 1929.
The Ishan cotton plant under mixed cultivation, I. by C. B. Taylor, E.H.G. Smith, and C. J. Lewin. Nigeria Agric. Dept. Annual Bull., 8: 142-158.

Reports the decrease in boll and flower production when cotton is intercropped with yam.

732. THARIN, M. 1916.
Note sur la culture indegene de L'igname. Bull. Agric. Congo Belge, 7(1/2): 192-198.

733. UZOZIE, L. C. 1971.
Patterns of crop combination in the three Eastern States of Nigeria. Journal of Tropical Georgraphy, 33: 62-72.

Maps are given showing the distribution of intercropping in the Eastern States. 9 categories recognised are:
(a) imperfectly-developed monoculture based on yams (b) imperfectly-developed monoculture based on cassava (c) yam/maize, (d) yam/cassava, (e) cassava/yam, (f) plantain/cocoyam, cassava, (g) cocoyam/plantain, cassava, yam, (h) cassava/yam, cocoyam, maize, (i) yam/cassava, cocoyam, maize, pigeon pea.

734. VICARY, J. R. 1960.
Agricultural year at Yabob village (New Guinea). Papua Agric. J., 12(4): 180-191.

Information is given on shifting agriculture practised near Madang, where the crops grown include taro, maize, yam, groundnuts and sweet-potatoes.

735. YEN, D. E. 1961.
The improvement of some subsistence crops in the Pacific. In. Symposium on Trop. Crops Improvement, of the 10th Pacific Sci. Congr. pp. 14-21.

Brief reference is made to yams, sweet potatoes, cassava and taro.

F.8 MECHANIZATION

736. BATES, W. N. 1957.
Mechanization of tropical crops. London, Temple Press Ltd. xiii + 410p.

The book is divided into sections. The final section gives detailed accounts of the cultivation and mechanization of the main crops cultivated in the tropics. The crops include: rice, maize and other cereals, cassava, sweet potatoes, yams, cocoyam, groundnuts etc.

737. BARRETT, F. M. 1958.
Further work on the development of a simple tractor-mounted yam harvester. Thesis submitted to the university of West Indies for a D.T.A. Degree in 1958. 106p.

738. CAMPBELL, L. G. 1974.
Mechanizing tropical root crop production. Span, 17(3): 118-120.

Discusses the need to mechanise harvesting and to introduce established processing methods which would make Dioscorea, Ipomea, colocasia, Xanthosoma and Manihot, more convenient to use and make long-term storage possible.

739. COTE D'IVOIRE. MINISTERE DE L'AGRICULTURE. 1971.
Compte rendu des essais du Comite Consultatif du Machinisme Agricole de Cote d'Ivoire (Minagri-Comaci) en 1971. Mecanisation de la culture de l'igname, culture mecanisee du riz. 85p.

740. GRAY, R. W. 1962.
Mechanization studies on sweet potatoes and yams. Trinidad, Univ. West Indies, Faculty of Agriculture. Diploma in Tropical Agriculture Report.

741. NYSTROM, L. W. et al. 1974.
A mechanical harvester for Dioscorea composita by L.W. Nystrom, J. E. Shrum (Jr), and R. F. Dawson; Paper presented at the Third International Symposium on Tropical Root and Tuber Crops at IITA, Ibadan, Nigeria on 2nd to 9th Dec. 1973. 13p.

742. VANDEVENNE, R. 1973.
Mechanized yam growing in the Ivory Coast. Paper submitted for the 3rd Int. Symp. on Tropical Root Crops, IITA, Ibadan, Dec. 2-9. (Abstracts of Submitted Papers No. AMPS/14).

743. WARREN, J. B. 1957.
The design of a tractor-mounted yam lifter; D.T.A. thesis submitted at the University of West Indies, Imperial Coll. of Tropical Agric. (Mimeograph).

G.1 YAM BEETLES

744. ANONYMOUS.
Insect enemies of the yam in Nigeria. Nigeria Agric. Dept. Ann. Bull. 7: 38-56

745. BURKILL, I. H. 1918.
A beetle which attacks yams. Gardens' Bull. Straits Settlements, Singapore 2(1): 6.

746. BURKILL, I. H. 1918.
Economic insects in the Straits Settlements. Gardens' Bul. Strait Settlements 2(1): 1-6

Reference is made to a beetle of the genus Lema or Criocera which attacks yams in the vicinity of Singapore.

747. FULLAWAY, D. T. 1919.
Division of Plant Inspection. Hawaiian Forester & Agriculturist, Honolulu. 16(6): 157-159.

In Manila, Anthribid beetles were found in yam.

748. GOLDING, F. D. 1928.
Notes on the yam pest, Heteroligus claudius, Klug. in the Benin and Warri Provinces of Nigeria. 7th Ann. Bull. Agric. Dept. Nigeria. pp. 38-43.

749. GREGORY, J. L. 1963.
Observations on yams attacked by the yam beetle, Heteroligus meles. Bull. Entomol. Research, 54(3): 433-459.

750. GREGORY, J. L. 1963.
Observations on the yam beetle, Heteroligus meles (Coleoptera dynastidae) Memo of Fed. Dept. of Agric. Research, Moor Plantation, Ibadan, Nigeria. No. 44. 20p.

751. JEMMETT, C. W. 1911.
Notes on injurious insects observed: beetles attacking yams. Report of the Agric. Department of Nigeria, Southern Provinces 1910. p. 30.

752. JERATH, M. L. 1965.
Yam pests and their known parasites and predators in Nigeria. Memo of Fed. Dept. of Agric. Research, Moor Plantation, Ibadan, Nigeria. No. 83.

Those of major importance are the yam beetles.

753. JERATH, M. L. 1967.
A review of 50 years applied entomology in Nigeria: root crops. Proceedings of the Entomological Society of Nigeria (1967): 5-12.

Most of the paper is devoted to yam beetles: Heteroligus meles, H. appius, Prionoryctes canaliculus, and P. rufopiceus. The life histories are described and parasites and predators listed. Other yam pests include Heteronychus licas, Amitermes evuncifer, Aspidiotus destructor, Pseudococcus brevipes, Crioceris livida and Lema armata.

754. JERATH, M.L. and K.L. UNNY. 1963.
Description of the larva of Heteroligus meles (Billb) (Coleoptera: Scarabaeidae). Res. Bull. Punjab Univ. (N.S.), 14: 263-271.

755. LEAN, O. B. 1928.
A dynastid beetle as a serious pest of yams in the Benue Province of Nigeria. Seventh Ann. Bull. Agric. Dept. Nigeria. pp. 44-56.

A report on the attack of Heteroligus claudius, Klug, on yams in 1927 in the Benue Province of Nigeria, where the almost total destruction of the crop in certain areas caused famine among the native population.

756. LEAN, O. B. 1929.
Experiments on the life history and control of the yam beetle in the Benue Province of Nigeria. 8th Ann. Bull.Agric. Dept. Nigeria 1929, pp. 43-59.

757. NIGERIA. FEDERAL DEPARTMENT OF AGRICULTURAL RESEARCH. 1958.
Annual report of the Department of Agricultural Research for the year 1956/57. 48p.

Report of chemical control trials of the yam beetle Heteroligus meles are presented on pages 35-36. Insecticides tested were gamma BHC, Chlordane wettable powder and lindane. All were effective and did not affect the flavour of the yams.

758. NIGERIA. FEDERAL DEPT. OF AGRIC. RESEARCH. 1960.
Biology and control of yam beetles In Annual Report for the year 1958/59. pp. 27-33.

759. NIGERIA. FEDERAL DEPT. OF AGRIC. RESEARCH. 1961.
Yam beetles. In Annual Report for the year 1959/60. pp. 39-43.

760. NIGERIA. FEDERAL DEPT. OF AGRICULTURAL RESEARCH. 1964.
Yam-beetles. In Annual Report for the year 1961/62. pp. 60-61.

761. NIGERIA. FEDERAL DEPT. OF AGRICULTURAL RESEARCH. 1964.
Yam beetles In Annual Report for the year 1963/63. pp. 54-56.

762. NIGERIA. FEDERAL DEPT. OF AGRIC. RESEARCH. 1968.
Yam pests. In Annual Report for the year 1964/65. pp. 29-30.

763. NIGERIA. FEDERAL DEPT. OF AGRIC. RESEARCH. 1971.
Yam pests In Annual report for the year 1965/66. pp. 18-21.

In a trial of insecticides to control yam beetle (Heteroligus appuis) at Ogoni, the highest yield of clean tubers was given by 2.5% aldrin dust applied in early March.

764. NIGERIA, FEDERAL DEPT. OF AGRIC. RESEARCH. 1971.
Pests of yams. In Annual Report for the year 1966/67, p. 22

765. PEACOCK, A. D. 1913.
Entomological pests and problems of Southern Nigeria. Bull. Entomol. Research. 4(pt.3): 191-220, Nov.

The insects recorded as damaging yams (pp.215-216) are the beetles, Prionoryctes caniculus, Arrow, Crioceris livida, Dalm., Apromecyna parumpunctata, Lagria villosa, L. viridipennis, and Zonocerus variegatus.

766. RAMAKRISHNA AYYAR, T.V. 1940.
The bionomics of the yam beetle (Galerucida bicolor) a pest of cultivated yam in S. India. J. Bombay Nat. Hist. Soc., 41(4): 874-876.

767. REMILLET, M. 1969.
Les Coleopteres Dynastidae parasites des Dioscorea. Adiopodoume, ORSTOM. 36p. multigr.

768. TAYLOR, T. A. 1963.
The yam beetle problem in Nigeria - bionomics and control. Memo of the Federal Dept. of Agric. Research No. 50. 20p.

769. TAYLOR, T. A. 1964.
Laboratory tests on the effectiveness and action of two insecticides in controlling yam beetles. Memo of the Federal Dept. of Agric. Research. No. 58, 6p.

770. TAYLOR, T. A. 1964.
Studies on the Nsgerian yam beetles. I. Systematic notes on the common Nigerian yam beetle species (Coleoptera: Dynastidae). W. Af. Sci. Assoc. J., 8(2): 180-187.

771. TAYLOR, T. A. 1964.
Studies on the Nigerian Yam beetles. II. Bionomics and control. W. Af. Sci. Assoc. J. 9(1): 13-31.

772. TAYLOR, T. A. 1968.
Insecticide residues in yams treated against yam beetle (Heteroligus sp.) infestation in Nigeria. W. African Sci. Assoc. J., 13(2): 139-145.

773. WATERWORTH, J. V. 1961.
Yam beetle trials; Shell Agricultural Chemical Bulletin. No. ADB: 852-GK. 17.

774. WATERWORTH, J. V. 1964
Yam beetle control trial 1962/63. Nigeria, Midwest Reg. Min. of Agric. & Natural Resources Exp. Report No. 53. 4p.

775. WATSON, K. A. 1959.
Agronomy section. Experiments report. Yam beetle trials. In N. Nigeria Dept. of Agric. Report, Part 2, for the year 1956/57. pp. 57-58.

Various insecticides were compared for their effect on yam beetle (Heteroligus sp.).

776. ZACHER, F. 1921.
Schadlinge der Nutzpflanzen im West-Sudan. (The pests of economic plants in the Western Sudan). Der Tropenpflanzer, Berlin 24(7-8): 97-108; and 24(9-10): 132-142.

A beetle, Lagria viridipennis is said to have fed on the foliage of yams, cowpeas and cotton.

G.2 SCALE INSECTS AND MEALY BUGS

777. ANONYMOUS. 1921.
Pests and diseases; Report. Grenada Agric. Dept., 1920, Barbados. pp. 9-10.

Several pests and diseases were reported for 1920 among which was Aspidiotus hartii, Ckll which attacked yams. The foliage wilted and there was a heavy infestation of the insects on the tubers.

778. ANONYMOUS. 1922
Work connected with insect and fungus pests and their control. Report of Agric. Dept. St. Vincent, 1921. pp. 15-25, Trinidad.

Aspidiotus hartii was said to be common on yams while Fundella (Ballovia) cistipennis attacked the pods of pigeon and cowpeas causing some damage.

779. ANONYMOUS. 1924.
Work connected with insect and fungus pests and their control. Report. Agric., Dept. St. Vincent 1923. pp. 23-29, Trinidad.

Among the minor pests recorded were Eriophyes gossypii found on cotton, Diatraea saccharalis and Metamasius (Sphenophorus) sericeus on sugar cane; Cosmopolites sordidus found occasionally on bananas and Aspidiotus hartii found on yams.

780. ANONYMOUS. 1964.
Control of scale insects on yams. Caribbean Agric. 2(4): 759-762.

781. BALLOU, H. A. 1913.
Report on the prevalence of some pests and diseases in the West Indies during 1912. West Ind. Bull, Barbados 13(4): 333-357.

Among the pests mentioned is Aspidiotus hartii, a yam pest. The scales occured on the stored tubers in St. Kitts.

782. BALLOU, H. A. 1915.
Report on the prevalence of some pests and diseases in the West Indies during 1914. Part I. Insect pests. West Indian Bull. 15(2): 121-147.

The insect pests of several plants were recorded for the year 1914; For yam, Aspidiotus hartii, for maize, Laphygma frugiperda.

783. BALLOU, H. A. 1916.
Report on the prevalence of some pests and diseases in the West Indies during 1915. Part I. Insect pests West Indian Bull. 16(1): 1-30.

Aspidiotus hartii was found on yam.

784. BEDFORD, E.C.G. 1950.
Report of the Plant Pathologist; Rept. Dept. Agric. 1949. Bermuda. pp. 11-19.

Pests intercepted in 1949 included Aspidiella hartii and Pseudococcus citri, Risso on yams (Dioscorea).

785. CATONI, L. A. 1919.
Plant Inspection and Quarantine Report (1918-1919). Bull. Puerto Rico Insular Expt. Station, Rio Piedras. 23: 5-56, 20 tables, Sept.

Aspidiotus hartii was reportedly found on yams, tannias and grass in Virgin Islands.

786. COCKERELL, T. D. A. and
E. ROBINSON. 1915.
Descriptions and records of Coccidae. Bulletin American Museum of Natural History 34: 105-111.

Aspidiotus translucens was found on carica papaya, Dioscorea alata, Aleurites moluccana, Mangifera indica and Codiaeum from the Philippines.

787. EDWARDS, W. H. 1937.
Report on an agricultural survey in the Cayman Islands with note on the control of the more important pests and diseases which were found attacking economic plants in that dependency of Jamaica. Bull. Dept. of Sci. Agric. Jamaica (N.S.) No. 13, 41p.

It is reported that roots and vines of yams were frequently infested by Aspidiotus hartii, Ckll. As the underground parts are the more heavily infested, control by spraying would be only partly successful. When the crop is being harvested, tubers from infested plants should be scaped clean in the pot holes in which they grew, and all debris and vines from the infested plants should be burnt in the pot holes. After heavy infestations, yams should not be replanted for at least one season.

788. EHRHORN, E. M. 1925.
Reports of the Chief Plant Inspector, February-July 1925. Hawaiian Forester & Agric. 22(3): 96-101.

The pests intercepted during the period under review included from Cook Islands, a mealybug on yam and Lepidopterous larvae on Jerusalem artichokes.

789. FISHER, H. C. 1920.
Report of the Health Dept. of the Panama Canal for the Calendar Year 1919. Mount Hope, C.Z. 134pp. 20 plates.

Gives a record of the insect pests for 1919; among them are the pests of field, forage, vegetable and truck crops. These pests are Laphygma frugiperda, S.&A., cutworms, Blissus leucopterus, flea-beetles, termites and Aspidiotus (Targionia) hartii, Ckll. The latter scale was abundant on yams.

790. GOWDEY, C.C. 1921.
Annual Report of the Government Entomologist: Ann. Rept. Jamaica Dept. Agric., 1920, Kingston. pp. 25-27.

Among the pest recorded for the year were Aspidiotus hartii and Palaeopus dioscoreae on yam.

791. GOWDEY, C. C. 1922.
Annual Report of the Government Entomologist; Annual Rept. Jamaica Dept. Agric. 1921, pp. 40-41, Kingston.

Among the pests recorded for the year were weevil, Palaeopus costicollis, Mshl. and Coccid, Aspidiotus hartii, Ckll. which attacked yams.

792. GOWDEY, C. C. 1924.
Report of the Government Entomologist; Ann. Report Dept. Agric., Jamaica, 1923. pp. 20-22.

Pests recorded included Euscepes batatae, Waterh., Spartocera fusca, Thb. and a cassid, Chirida signifera on sweet potatoes; Aspidiotus hartii, Ckll. and Pseudococcus sp. and the weevil, Palaeopus costicollis, Mshl. on yams etc.

793. GOWDAY, C.C. 1925.
Report of Government Entomologist. Jamaica: Ann Report Dept. Science & Agric. 1924. pp. 17-20.

Aspidiotus hartii, Ckll., and Pseudococcus citri, Risso (citrus mealy-bug) are recorded on yam.

794. GREEN, E. E. 1915.
Notes on Coccidae collected by F.P. Jepson, Government Entomologist, Fiji. Bull. Entomol. Research, 4: 44.

The bulk of collection consisted of a form intermediate between Aspidiotus destructor and Aspidiotus transparens: The collection also included A. cyanophylli on Musa; A. palmae on Musa and an undetermined forest tree; A. Lataniae on Citrus; A. hartii on Dioscorea etc.

795. JEPSON, F. P. 1915,
Report of the Entomologist: Dept. Agric., Fiji, Annual Report for the year 1914. pp. 17-27.

Several insect pests were reported on several plants, one of such is Aspidiotus hartii found on yam.

796. JOHNSON, W. H. 1916.
Entomology. Annual Report of Agric. Dept., Southern Provinces of Nigeria, for the year 1915.

Coconuts, yams and bananas were attacked by Aspidiotus destructor, while the flowers of groundnuts were injured by Decatonia affinis.

797. JOHNSON, W. H. 1918.
Annual Report of Agric. Dept. Southern Provinces of Nigeria for the year 1917, Ibadan. p. 14.

The most important damage by insects reported during the year was that caused by the scale, Aspidiotus destructor. The plants attacked included coconut, oil palm, yams and bananas. Owners of infested plants were advised to remove and burn all affected foliage, and this procedure, aided by the natural parasites of the scale, appeared to check its spread. Unfortunately the apathy of farmers rendered the universal application of this measure impossible.

798. MASKEW, F. 1915.
Quarantine Division: Report for the months of April and May 1915. Monthly Bull. State Comm. Hortic. (Sacramento) 4(7): 346-350.

Among the pests intercepted in May were - Cryptorrhynchus mangiferae in mango seed, Aspidiotus hartii in yams, Eriosoma lanigerum on apple trees.

799. MELVILLE, A. R. 1938.
Kenya coffee mealy bug research. E. Afr. Agric. J. 3(6): 411-422.

Pseudococcus Kenyae, Le Pelley, continued to spread on coffee in the Central Province of Kenya. It seriously damages cotton a new crop in the area, yams,pigeon peas, sweet potatoes and beans.

800. PANIS, A. et al 1974.
The scale-insects of food and fodder crops in the Antilles and in French Guiana (Homoptera, Coccoidea). Revue de Zoologie et de Pathologie Vegetale, 73(1): 22-27.

Host plants include yams.

801. RITCHIE, A. H. 1916.
Report of Entomologist for year 1915-1916: Annual Report of jamaica Dept. of Agric. for the year ended 31st March 1916, pp. 31-34.

St. Vincent yam tubers from the Stony districts were said to have been heavily infested with the scale, Targionia hartii.

802. RITCHIE, A. H. 1917.
Scale on yams. J. Jamaica Agric. Soc., Kingston. 21(9): 358-359.

803. RITCHIE, A. H. 1918.
Annual Report of Entomologist. Jamaica Dept. Agric. Annual Report for the year ended March 31st, Kingston. pp. 34-40.

The yam crop was injured by Aspidiotus hartii which sometimes kills out plants entirely. Control consists in dipping the yam heads before planting in strong lime-sulphur+water.

804. UICHANCO, L. B. 1935.
Tolerance of mealy bugs to drying up of host tissue. Philipp. Agric., 23(10): 886-890.

A root of yam that had been almost completely covered with Pseudococcus lilacinus, Ckll., was observed after a year in the laboratory to be still infested with numerous young nymphs and living adults, although it was wrinkled and nearly dried up.

805. WHITNEY, L. A. 1925.
Reports of the Acting Chief Plant Inspector, August-September 1925. Hawaiian Forester and Agric., 22(4): 136-138.

The pests intercepted during the period under review included: From Japan, Pseudaonidia trilobitiformis, Coccus (Lecanium) hesperidum, and Aulacaspis pentagona among various plants; from China, P. trilobitiformis on Citrus fruit; from Samoa, a mealybug on yams; and from the Philippines, the ant, Monomorium pharaonis, amongst clothing.

806. WILLIAMS, D. J. 1960.
A new species of Planococcus ferris (Coccoidea-Homoptera) on yams in New Guinea. Papua New Guinea Agric. J. 13(1): 39-40.

807. WILSON, C. E. 1921.
Report of the Entomologist; Report of Virgin Islands. Agric. Expt. Station, 1920, Washington D.C. pp. 20-35.

The names and food-plants of scale insects collected in the American Virgin Islands are given in a table. One part of kerosine-fuel oil emulsion to 10 parts water was successful in killing scales of the subfamily Diaspinae; Euscepes batatae (West Indian sweet-potato weevil); Heliothrips rubrocinctus (red-banded thrips) attacking Mangifera indica; and Targionia hartii (yam scale) infesting yam tubers, which were immersed in the solution before planting.

G.3 OTHER ARTHROPOD PESTS

808. ANONYMOUS. 1913.
Root borers and other grubs in West Indian Soils. Agric. News, Barbados. 12(288): 154-155.

Ligyrus ebenus (Tomarus bituberculatus) has, on several occasions been found to cause serious injury to newly planted banana suckers, plantains, tannias, yams and roots of young cocoa plants.

809. ANONYMOUS. 1920.
The yam weevil. Quarterly Bull. of State Plant Bd. Florida, Gainesville 5(1): 27.

The interception of Palaeopus costicollis, Mshl. (yam weevil) in the luggage of a passenger from Jamaica to South Carolina if recorded. The one yam contained 14 adults, 23 pupae and 12 larvae of this insect, which is not yet known to occur in the United States.

810. ANONYMOUS. 1925.
Horticultural Inspection Notes. J. Econ. Entomol. 18(4): 653-654.

A weevil, Palaeopus costicollis, Mshl., was taken in yams from Haiti.

811. ASHBY, S. F. 1915.
Report of the microbiologist. In Annual Report of Jamaica, Dept. Agric. for the year, 1915. pp. 29-31.

Mention is made of a few insects injurious to coconut, cacao, citrus, mango, coffee, yams, sugar cane and cotton.

812. BERNARD, C. 1921.
Over een nieuwe Plaag van de Thee, veroor-zaaht door Phytorus dilatatus (On a new injury to tea due to P. dilatatus). De Thee, Buitenzorg 2(4): 116-119, Dec.

In Sumatra, Phytorus dilatatus did sufficient damage to tea in 1921 and in one instance the infestation began on cabbage and spread to yams and then to tea, when the yam leaves had reached full growth.

813. BOX, H. E. 1941.
Citrus moth investigations. Report on investigations carried out from December, 1939 to August, 1941 (Gold Coast). Asuansi, Colonial Development Fund. iii + 64pp. 1 graph, typescript.

The second part of the report (pp. 18-35) deals with the bionomics of fruit-piercing moths, and includes a detailed account of the ecology of various regions in which breeding occurs in the Gold Coast. Yam (Dioscorea) is said to have been attacked by larvae of Heliophisma, including in the laboratory, H. catocalina.

814. BURKILL, I. H. 1915.
Three lepidoptera which attack Dioscoreas in Singapore. Gardener's Bulletin, Singapore 1(9): 308-310.

815. CHAMBERLIN, R. V. 1930.
On some chilopods immigrant at Hawaii. Pan-Pacific Entom. 7: 65-69.

Otostigmus mians on Dioscorea species is an immigrant from China.

816. EDWARDS, W. H. 1948.
The yam weevil and its control. Farmer (Jamaica), 52: 91.

817. EDWARDS, W. H. 1948.
The yam weevil (Palaeopus dioscoreae) and its control. J. Jamaica Agric. Soc., 37(416): 91.

818. EHRHORN, E. M. 1918.
Division of Plant Inspection. Hawaiian Forester and Agriculturist, Honolulu 15(9-10): 409-411.

Cases of banana sprouts and of yams from Manila were found infested with termites.

819. EHRHORN, E. M. 1920.
Division of Plant Inspection. Hawaiian Forester and Agriculturist, Honolulu. 17(12): 359-361.

The pests intercepted in Nov. 1920 included ants, Prenolepis sp. found in yams from Japan, and Lepidopterous larvae in beans from Fiji.

820. EHRHORN, E. M. 1923.
Reports of Chief Plant Inspector, April-June 1923. Hawaiian Forester & Agriculturist 29(3): 116-122.

The pests intercepted in April, May & June 1923 included: From Japan, Parlatoria pergandei on pomelos, from China, Cremastogaster sp. and Pheidole sp. in yams.

821. EHRHORN, E. M. 1926.
Reports of the Chief Plant Inspector, November, December 1925, January and February 1926. Hawaiian Forester & Agric. 23(1): 17-20.

The pests intercepted during the period under review included: From Japan, Lepidopterous larvae in dry chestnuts and yams.

822. FLETCHER, T. B. 1916.
One hundred notes on Indian insects. Agric. Research Institute, Pusa, Calcutta, Bull. 59: 39.

This bulletin contains a summary of the life histories and habits of a small number of Indian insects and gives records of their distribution in new localities or on new food plants. Acrolepia manganeutis was said to have been found in stored yam.

823. GOWDEY, C. C. 1923.
The principal agricultural pests of Jamaica. Dept. Agric. Jamaica, Entomol. Bull. no.2, 86p. 7 plates.

Insect pests of yams are included.

824. HOOKER, C. W. 1913.
Report of the Entomologist: Annual Report of Puerto Rico Agric. Exp. Station for 1912, Washington. pp. 34-38.

Explains the distribution of Metarrhizium anisopliae on yams and sweet potatoes.

825. HOUILLIER, M. 1962.
Les insectes nuisibles a l'igname. Adiopodoume, Cote d' Ivoire, Note d'Information No.1. pp. 1-2

826. JOHNSTON, A. 1963.
Host list of insects recorded in the South East Asia and Pacific Region, Colocasia antiquorum-taro, Dioscorea spp. - yam, Manihot utilissima-cassava. Food & Agric. Organisation. U. N. Plant Protection Comm. South East Asia and Pacific Region Tech. Doc. 38, 8p.

827. KUWAYAMA, S. 1932.
Studies on the morphology and ecology of the rice Leaf-beetle, Lema oryzae Kuwayama, with special reference to the taxonomic aspects. J. Fac. Agric. Hokkaido Imp. Univ. 33(pt.1) 1-32.

Both Lema oryzae and L. lonorata are reported to feed on Dioscorea japonica.

828. LEFEVRE, P. C. 1948.
Acraea acerata, a parasite of yam. Bulletin agricole du Congo Belge, 39: 49-76.

829. MARSHALL, G. A. K. 1916.
On new neo-tropical Curculionidae. Ann. and Mag. Natural Hist., (London), 18(108): 449-469.

Among the new weevils described was Pachneus marmoratus found on a yam plant in Jamaica.

830. MASKEW, F. 1918.
Quarantine Division: Report for the month of September 1918. Monthly Bull. Calif. State Commiss. Hortic., Sacramento 7(10): 591-592.

From Fiji, larvae of unidentified weevils were reported to have been found on sweet potatoes and yams.

831. MASKEW, F. 1919.
Quarantine Division: Reports for the Months of October and November, 1918. Monthly Bull. Cal. State Commiss. Hort., Sacramento. 8(1): 30-33.

From Texas: Cylas formicarius was found on yam.

832. MASKEW, F. 1920.
Quarantine Division. Reports for the months of July and August, 1920: Monthly Bull. California Dept. Agric, Sacramento 9(9): 388-392.

Among the pests intercepted in July and August are Araecerus fasciculatus Cathartus sp., Silvanus sp. and undetermined Coleoptera in yams.

833. MERRILL, G. B. 1920.
The yam weevil (Paleopus dioscoreae Pierce) Quart. Bul. State Plant Bd. Fla. 4(2): 34-35.

834. MILLER, N.C.E. 1941.
Insects associated with cocoa (Theobroma cacao) in Malaya. Bull. Ent. Res., 32(1): 1-16.

Apogonia cribricollis is very abundant and, besides cocoa, the adults attack coffee, yams (Dioscorea sp.) gutta-percha (Palaquium gutta) and many other plants.

835. MUNRO, H. K. 1948.
The status of Dacus armatus, Fabricius and of Dacus bivittatus (Bigot). Trypetidae, Diptera). Bull. Ent. Research. 38(pt.4): 613-622.

D. cucumarius, Sack which is considered to be a subspecies of D. bivittatus, is said to have attacked granadilla (Passiflora quadrangularis) and Dioscorea macroura in Tanganyika.

836. NIRULA, K.K. and J. ANTONY. 1952.
A new pest of coconut palm in India. Indian Cocon. J. 5(3): 137-140.

Larvae of a Melolonthid, identified as Leucopholis coneophora Burm, were found damaging the roots of coconut palms. The larvae also attack cassava, Manihot utilissima, sweet potato, yams (Dioscorea) and Colocasia, interplanted in coconut gardens, and losses of these crops have been so severe that their cultivation is being abandoned.

837. PIERCE, W. D. 1918.
Weevils which affect Irish potato, sweet potato and yam. J. Agric. Research, Washington 12(9): 601-611.

838. PITKIN, B. R. 1973.
Larothrips dentipes (Thysanoptera, thripidae), a new genus and species of thrips from yam flowers in Nigeria. Bull. Ent. Res., 62: 415-418.

839. RITCHIE, A. H. 1919.
Annual Report of the Government Entomologist for 1918-1919. Jamaican Dept. Agric. Annual Report for the year ended 31st March, 1919. pp. 26-30.

Yams (Dioscorea sp.) were severely infested with a weevil, Palaeopus costicollis. The only preventive measure known is the careful selection of yam heads at planting time. All infested tuber should be destroyed when the crop is gathered.

840. SASSCER, E. R. 1921.
Important insects collected on imported nursery stock in 1920. J. Econ. Entomol., 14(4): 353-355, Aug.

The insects intercepted from Oct. 1919 to 31st Dec. 1920 include the following injurious pests:- Euscepes batatae, Waterh. from Puerto Rico; Palaeopus discoreae, Pierce and Palaeopus costicollis, MshL. in yams from Cuba and Jamaica.

841. SEIN, F. 1923.
El gorgojo del name (yam) Guineo. Puerto Rico Est. Exp. Agric. Circ., 82. 7p.

842. SMITH, J.G. 1965.
Yam pests. Ghana Farmer 9(1): 5-7.

843. SOMERVILLE, R. C. 1924.
The yam borer pest. J. Jamaica Agric. Soc. 28(6): 202-203.

Yams in Jamaica have been seriously damaged by a borer in the tubers and heads, particularly of yellow yams. Immersing the infested heads in a strong solution of Jeyes' fluid and lime has proved beneficial. Drought is favourable to the insect, and a mulch is recommended, as the soil is thus rendered too damp for it.

844. STAPLES, E. G. 1945.
British Honduras. Department of Agriculture. Annual Report for 1944. 12p.

It is stated inter-alia that the leaf-cutting ant, Atta cephalotes, L. is the most serious pest of crops in British Honduras and that it renders the growing of cassava, vegetables and yams difficult in some places.

845. STRONG, L. A. 1922.
Bureau of Plant Quarantine. Synopsis of work for the months of September and October 1921. Monthly Bull. California, Dept. Agric., Sacramento. 11(1): 67-72.

The pests intercepted during September and October were:- From China, undetermined Lepidopterous larvae in Chinese pears, Euscepes batatae and Cathartus advena in yams among others.

846. STRONG, L. A. 1922.
Bureau of Plant Quarantine. Synopsis of work for the months of November and December 1921. Monthly Bull. Cal Dept. Agric. Sacramento 11(4): 413-420.

Among the pests intercepted during Nov. and Dec. were:- From Hawaii, Diaspis bromeliae and Pseudococcus bromeliae on pineapples etc. From Papeete, Euscepes batatae in sweet potatoes and yams.

847. STRONG, L. A. 1922.
Bureau of Plant Quarantine. A synopsis of Work for the months of March, April, May, June and July, 1922. Monthly Bull Cal. Dept. Agric., 11(10): 775-780.

From Tonga Islands, Cathartus advena, Anisolabis annulipes, Pseudococcus citri, Hemichionaspis sp. and Euxestus parki were found infesting yams.

848. SZENT-IVANY, J. J. H. 1956.
New insect pest and host plant records in the Territory of Papua and New Guinea. Papua New Guinea Agric. J., 11(3): 82-87.

Dioscorea: Theretra neussus Sphingidae.

849. TANDON, P. L. 1973.
Dioscorea and croton, new host records of red spider mite, Tetranychus telarius Linn. Sci & Culture, 39(11): 509-510.

850. URQUHART, D. H. 1945.
Report on the Department of Agriculture (Gold Coast) for the year 1944-45. 8p.

In the section dealing with entomology, it is reported that swarms of Schistocerca that invaded Ashanti and the Northern Territories in Feb. and March 1944 left in a north-easterly direction without ovipositing, the last being reported in April. Attacks were observed on cassava (Manihot utilissima), cotton, yams (Dioscorea), ground-nuts (Arachis hypogea), and vegetable crops and on various trees.

851. WOLCOTT, G. N. 1922.
Vaquitas de importancia economica en Puerto Rico. (Weevils of economic importance in Puerto Rico). Puerto Rico Insular Expt. Sta., Rio Piedras, Circ. No.60, 20p.

Yams were reportedly attacked by Cosmopolites sordidus.

G.4 NEMATODE PESTS

852. ACOSTA, N. and A. AYALA. 1975.
Pathogenicity of Pratylenchus coffeae, Scutellonema bradys, Meloidogyne incognita and Rotylenchus reniformis on Dioscorea rotundata. J. Nematology, 7(1): 1-6.

853. ADDOH, P. G. 1968.
Importance of Meloidogyne species in Ghana. Nematologica, 14(1): 1-2.

Meloidogyne are said to include about 132 species and exist on a variety of crops and weeds including tomatoes, potatoes, okro, yams. These nematodes reduce the yield of these crops when they attack them.

854. ADESIYAN, S. O. et al. 1975.
Economic losses caused by the yam nematode, Scutellonema bradys. in Nigeria by S. O. Adesiyan, R. A. Odihirin and M. O. Adeniji. Plant Dis. Reporter, 59(6): 477-480.

855. ADESIYAN, S. O. et al. 1975.
Histopathology studies of the yam tuber (Dioscorea rotundata Poir) infected with Scutellonema bradys (Steiner & Le Hew) by S. O. Adesiyan, R. A. Odihirin and M. O. Adeniji. International Biodeterioration Bulletin, 11(2): 48-55.

856. ANONYMOUS. 1934.
Recent research on Empire products. A record of work conducted by Government Technical Depts. overseas. Agriculture. Bull Imper. Inst. 32(3): 437-467.

Contains a report on a destructive tuber rot of yams in Ibadan and Ilorin districts of Nigeria, which appears to be primarily due to the eelworm, Hoplolaimus bradys, which paves the way for more extensive infection by fungi and bacteria.

857. AYALA, A. and N. ACOSTA. 1971.
Observations on yam Dioscorea alata nematodes. Nematropica, 1(2): 39-40.

858. BRATHWAITE, C.W.D. 1972.
Preliminary studies on plant-parasitic nematodes associated with selected root crops at the University of the West Indies. Plant Disease Reporter, 56(12): 1077-1079.

The root crops were Colocasia esculenta, cassava, tannia, sweet potato and cush cush yam (D. trifida). Helicotylenchus, Rotylenchulus, and Tylenchorhynchus were frequently encountered on yams and Criconemoides was abundant.

859. BRIDGE, J. 1972.
Nematode problems with yams (Dioscorea spp.) in Nigeria. Pest Articles & News Summaries, 18(1): 89-91.

860. BRIDGE, J. 1973.
Nematodes as pests of yams in Nigeria. (Scutellonema bradys, Pratylenchus brachyurus, Meloidogyne incognita, Rotylenchus reniformis). Meded Fac Landbouwwet Rijksuniv Gent, 38(3): 841-852.

861. BRUHN, C. and W. KOCH. 1962.
Beobachtungen iiber den Beffal mittelamerikanischer Dioscoree-narten durch Meloidogyne incognita (Kofoid & White). (Observations on the attack of South American Dioscorea spp. by Meloidogyne incognita (Kafoid & White)). Nematologica, 8(4): 307-312.

Species attacked are D.composita,D.spiculiflora, and D.floribunda.

862. BRUHN, C. and W. KOCH. 1963.
Control of root-knot nematodes in Dioscorea tubers. Phytopathology, 53(1): 24.

863. DECKER, H. et al. 1967.
Observaciones sobre la presencia del nematodo Scutellonema bradys en el tuberculo del name (yam) en la provincia de Oriente. by H. Decker, R. Cosamayor, and D. Bosch. Centro (Cuba) 2(3): 67-76.

864. GOODEY, T. 1935.
Observations on a nematode disease of yams. J. of Helminthology, 13(3): 173-190.

865. HAWLEY, W. O. 1956.
Hot water treatment for the control of root-knot nematodes on Dioscorea floribunda. Plant Disease Reporter, 40(12): 1045-1046.

866. HICKLING, G. E. 1972.
Control of nematodes in stored yams in Jamaica. In Proc. 11th International Symposium of Nematology held by European Society of Nematologists in Reading, U.K. on Sept. 3rd - 8th, 1972.

867. JAMAICA. MINISTRY OF AGRIC. AND FISHERIES. 1973.
Report of the investigation carried out between 1964 and 1970; Bulletin No. 63. Kingston, Jamaica. Published by Agricultural Information Service. xv + 558pp (Plant nematology p.163).

It is reported, inter-alia, that when chemical and heat treatments were used against Pratylenchus on Dioscorea cayenensis (yellow yam) there were no significant differences in yield between treated and untreated plots.

868. JENKINS, W. R. and G.W. BIRD. 1962.
Nematodes associated with wild yam, Dioscorea sp., with special reference to the pathogenicity of Meloidogyne incognita incognita. Plant Disease Reporter, 46(12): 858-860.

869. KAWAMURA, T. and K. HIRANO. 1961.
Host-parasite relationship of northern root-knot nematode Meloidogyne hapla Chitwood) on yam (Dioscorea batatas Decne, Tsukune-imo). Phytopath. Soc. Japan. Ann., 26(1): 7-15.

870. KERMARREC, A. 1973.
Presence in Guadeloupe of Aphelenchoides besseyi Christie 1942 (Nematoda, Aphelenchoididae) in leaves of yams, Dioscorea trifida. Turrialba, 23(4): 389-393.

871. KERMARREC, A. and A. ANAIS. 1973.
Yam nematodes in the West Indies. Paper submitted for the 3rd Int. Symp. on Tropical Root Crops, IITA, Ibadan, Dec. 2-9, 1973. (Abstracts of Submitted Paper No. CP/15.

Meloidogyne incognita, Aphelenchoides besseyi, Helicotylenchus, Pratylenchus and Rotylenchulus were recorded on yams in Guadeloupe but not Scuttelonema bradys.

872. LORDELLO, L.G.E. 1959.
A nematosis of yam in Pernambuco, Brasil, caused by a new species of the genus "Scutellonema". Rev. Brasileira Biol., 19(1): 35-41.

873. NADAKAL, A.M. and N. THOMAS. 1967.
Observations of nematodes associated with dry rot of Dioscorea alata L. Science and Culture, 33(3): 142-143.

874. NISHIZAWA, T. et al. 1971.
Nematodes associated with black-rot disease of Chinese yam. Paper presented at the Annual Meeting of the Japanese Society of Applied Entomology and Zoology, Fuchu, Tokyo, held on April 7-9, 1971.

875. SCHIEBER, E. 1961.
Parasitic nematodes of Dioscorea in Guatemala. Plant Disease Reporter, 45(6): 425.

876. SCHIEBER, E. and K.D. LASSMANN. 1961.
Rootknot nematode on Dioscorea in Guatemala. Plant Dis. Reptr., 45(12): 981.

877. SMART, G.C. and V.G. PERRY. 1968.
Tropical nematology. Gainesville, Univ. Florida Press. pp. 98-99.

Nematodes on yams: Scutellonema bradys, Pratylenchus brachyurus, and Meloidogyne incognita.

878. SMIT, J. J. 1968.
Les nematodes parasites de l'igname en Afrique de l'Ouest. 6eme Conference biennale de la WASA/ASOA. Abidjan. 8p. multigr. (Presented at the West African Science Association Meeting).

879. SMIT, J. J. 1970.
Les nematodes parasites des ignames cultivees en Cote d'Ivoire. Rapport preliminaire lere partie: les especes observees. Adiopodoume, ORSTOM. 20p. mimeog.

880. SMIT, J. J. 1971.
Deux nouvelles especes Africaines d'Hoplolaiminae (Nematoda: Tylenchoidea): Peltamigratus striatus n. sp. et Scutellonema africanum n. sp. (Two new African species of Hoplolaiminae (Nematoda: Tylenchoidea): Peltamigratus striatus n. sp. and Scutellonema africanum n. sp.) Nematologica, 17(1): 113-126. Peltamigratus striatus found in soil around cultivated yams (Dioscorea sp.) and in newly cleared bush soil in the Ivory Coast.

881. SMIT, J. J. 1971.
Les nematodes des ignames de Cote d'Ivoire. Rapport des Travaux (1965-70). Adiopoloume, ORSTOM. 75p., 15 fig..

882. STEINER, G. 1931.
Tylenchus pratensis parasitizing yam (Dioscorea sp.) from West Africa. Plant Dis. Rept., 15: 21.

883. STEINER, G. 1931.
A nematosis of yams caused by a new species of Hoplolaimus. Plant Dis. Rept., 15(11): 121.

884. STEINER, G. 1934.
Observations on nematodes parasitic in tubers of the cinnamon - vine (Dioscorea batatas). Proceedings of the Helminthological Society of Washington, 1(1): 15-17.

885. STEINER, G. 1937.
Observations on the yam nematode (Rotylenchus bradys). Phytopathology, 27(8): 865-867.

886. STEINER, G. 1937.
Opuscula miscellanea nematologica, V. Proceedings of the Helminthological Society of Washington. 4(1): 33-38.

Gives short illustrative descriptions of Tylenchorhynchus Claytoni parasitic in tobacco roots, and Rotylenchus blaberus causing a disease of yams originating from Nigeria.

887. STEINER, G. and R.R. LETTEW. 1933.
Hoplolaimus bradys n. sp. (Tylenchidae, Nematodes), the cause of a disease of yam (Dioscorea sp.) Zoologischer Anzeiger., Nos. 9 & 10, pp. 260-264.

888. TARTE, RODRIGO. 1970.
Reconocimiento de nematodos asociados con diversos cultivos en Panama. (Survery of nematodes associated with different crops in Panama). Turrialba 20(4): 401-406. Map.

Scutellonema sp. is associated with yam.

889. THOMPSON, A.K. 1973.
Nematodes in stored yams. Exp. Agriculture., 9(3): 281-286

890. UNNY, K. L. and M.L. JERATH. 1965.
Parasitic nematodes on Dioscorea spp. in Eastern Nigeria. Plant Disease Reporter, 49(10): 875-876.

G.5 FUNGAL AND BACTERIAL DISEASES

891. ANONYMOUS. 1937.
Plant disease investigations. In Puerto Rico Station Report for 1937. pp. 46-49, 69-71.

Progress reports are given on studies of yams (Dioscorea), including delayed fungus infection following treatments of the rhizomes with hydrated lime, bordeaux mixture, and wood ashes etc.

892. ANONYMOUS. 1962.
Quarterly report for Jan.-March, 1962, of the Plant Protection Committee for the South East Asia and Pacific Regions; F.A.O. Publ. Bangkok, Thailand. 12p.

A disease, probably caused by Pythium sp., was again recorded on some taro and yam plantations in New Caledonia.

893. BAILEY, A.G. 1966.
A check list of plant diseases in Nigeria. Memo of Fed. Dept. of Agric. Research, Ibadan No. 96. 33p.

Covers the diseases of the following species of yams: D. alata, D.bulbifera, D.cayenensis, D.dumetorum, D.esculenta, D.hirtiflora, D. quartiniana and D. rotundata.

894. BATISTA, A. CHAVES and HUMBERTO CARNEIRO. 1950.
Influence of elements in fertilizer on the resistance of Dioscorea alata to infection by Tuberobium dioscoreae. Intern. Congr. Microbiol. Abstracts of Papers, 5th Congr. Rio de Janeiro, pp. 160-161.

895. BAUDIN, P. 1956.
Maladies parasitaires des ignames en Cote d'Ivoire. (Parasitic diseases of yams in the Ivory Coast). Rev. Mycol. 21(suppl. colon. 2): 87-111.

896. BEHNKE, H. D. 1965.
Uber den Feinbau "gitterartig" aufgebauter Plasmaeinschlusse in den Siebelementen von Dioscorea reticulata. Planta, 66(2): 106-112.

897. BHATNAGAR, M. K. 1968.
Combating yam disease in Rajasthan. Indian Hort., 12(3): 35.

898. BIRMINGHAM, W. A. 1924.
A fungus and some of its host plants (Sclerotium rolfsii Sacc.). Agric. Gaz. New South Wales., 35(6): 441-444.

Among the host mentioned are potato, carnation plants, French beans, delphinium, imported yams and bananas.

899. BUNTIN, R. H. 1924.
Report of the Research Branch from 1st Jan. 1922 to 31st March 1923; Appendix A. Gold Coast, Rept. Dept. of Agric. Section. pp. 19-23.

Water yams (Dioscorea alata) at Kumasi are reported to have been attacked by a species of Phyllosticta.

900. CHOUDHURY, S. 1946.
A rhizoctonia leaf blight of Dioscorea. Curr. Sci., 15(3): 81-82.

901. SHUPP, C. and D.H. LINDER. 1937.
Notes on Chinese Cercosporae. Mycologia 24(1): 26-33.

This annotated list of 15 species of Cercospora found in China includes C. cylindrata on leaves of Dioscorea sp.

902. COOK, J. 1962.
Annual report of the Sarawak Dept. of Agric. for the year 1961, 138p.

Gopiana dioscoreae was discovered on yam.

903. COOK, M.T. and A.R. LOPEZ. 1939.
Phytopathological studies by the Puerto Rico College Station. In Puerto Rico College Station Report for 1939. pp.57-60.

Brief reports of progress in the studies of diseases of bananas and plantains, and in controlling diseases of yams.

904. COURSEY, D.G. 1967.
Internal brown spot, a condition in Yams in Barbados. J. Agric. Soc. Trinidad Tobago, 67(4): 473-482.

905. CUMMINS, G. B. 1935.
Notes on some species of the Uredinales. Mycologia, 27(6): 605-614.

The notes show the similarities between the uredospores of a rust of yam from the Philippine Islands and Samoa and Raciborski's description, in 1910 of Uredo dioscoreae alata.

906. DADE, H.A. and J. WRIGHT. 1931.
Minor records, Division of Mycology; Gold Coast Dept. of Agric. Year-Book (1930). Bull. No. 23: 248-250.

Botryodiplodia theobromae is said to have infected yams (Dioscorea sp.) in 1930.

907. DEIGHTON, F. C. 1929.
Report on the Mycological Section. In Annual report of Sierra Leone, Lands and Forests Dept. for the year 1928. pp. 14-19.

Among the records of plant diseases in S/Leone during 1928 are the infection of groundnuts by Sclerotum rolfsii, and the infection of chinese yams (Dioscorea sp.) at Njala and Makung by the same fungus.

908. FOEX, E. et al. 1931.
La maladie des Epinards. (The spinach disease). Comptes rendus Acad. d'Agric. de France 17(7): 216-218.

Pythium ultimum is said to have been isolated from a yam (Dioscorea sp.) tuber from Seine-et-Marne.

909. FOURNET, J. et al. 1974.
Field trials on yam anthracnosis by J. Fournet, L. Degras, R. Arnolin and G. Jacqua. Paper presented at the 12th Annual Meeting of Caribeean Food Crops Society (C.F.C.S.) Jamaica. 6p.

910. FOURNET, J. et al. 1975.
Essais relatifs a L'Anthracnose de L'igname. (Trials on the yam anthracnose) by J. Fournet, L. Degras, R. Arnolin and G. Jacqua. Nouv. Agron. Antilles - Guyane 1(2): 115-122.

911. GOMEZ-NAVA, N. 1970.
Microorganisms associated with damping-off in plants of Dioscorea composita. Bol. Tec. Inst. Nac. Invest For Mex., 36: 3-12.

912. GOTO, K. 1929.
On the black-spot disease of Dioscorea alata and Dioscorea batatas. J. Soc. Trop. Agric., Formosa. 1(3): 301-313.

913. HAIGH, J. C. 1931.
Report on the work of the Mycological Division; Ceylon. Administration report of the Director of Agric. for 1930 pp. D65-D70.

A list of fungal diseases recorded for the first time in Ceylon during 1930 includes Cercospora dioscoreae on yam (Dioscorea alata).

914. ITO, S. 1912.
A new fungus disease of the yam. Sapporo Nat. Hist. Soc. Trans., 4: 8-11.

915. JOHNSTON, A. 1963.
Host list of fungi etc. recorded in the South East Asia and Pacific Region; Colocasia antiquorum-taro, Dioscorea spp., Manihot utilissima-cassava. Food & Agric. Organisation of the U.N. Plant Protection Committee for South-East Asia and Pacific Region Tech. Doc. No. 38, 8p.

916. JOHNSTON, A. 1964.
Quarterly report for Oct.-Dec., 1963 of the Plant Protection Committee for the South East Asia and Pacific Region; F.A.O. Publ., Bangkok, Thailand.

It is reported that on Saipan Is., Marianas, rust (Goplana dioscoreae) of yam caused damage to Dioscorea alata.

917. JONE, E. M. 1968.
Control of anthracnose on yams - Preliminary investigations. In Proceedings of the 6th Annual meeting of Caribbean Food Crops Soc., Trinidad. pp. 77-78.

918. KNOWLES, C. H. 1916.
Report on plant pathology. In Annual Report of Fiji Dept. Agric. for the year 1916. pp. 29-31.

Reports several diseases which attack various plants among which is Gloesporium pestis found on the leaves of more susceptible varieties of yams at Nasinu.

919. KOCH, W. 1964.
Helminthosporium leaf spot of Dioscorea in Guatemala. Phytopathology, 54: 365-366.

920. KOCH, W. 1974.
Tropical tuber crops and their diseases. (Tropische Knollenpflanzen und ihre Krankheiten.) Nachrichtenblatt des Deutschen Pflanzenschutzdienstes, 26(9): 129-135.

Includes those of yams.

921. LAMB, P. H. 1929.
Plant diseases, Nigeria. In Annual report of Agric. Dept. of Nigeria for the year 1929. pp. 15-16.

Indicates briefly a continued study of the bacterial diseases of cotton and an inquiry into an obscure water disease of yams.

922. LAMEY, H.A. 1971.
Yam disease observations. Annual In-house program review paper, IITA, Ibadan, Nigeria, Jan. 1971. 5p. (mimeog.)

The shoestring-leaf disease and the 'yam dieback' were observed; their incidences and the yield losses caused by them are reported.

923. LARTER, L.N.H. and E.B. MARTIN. 1943.
A preliminary list of plant diseases in Jamaica. Commonwealth Mycological Institute. Mycological Paper No.8. 15p.

Diseases recorded for yams are Root rot (Corticium solani; Rhizoctonia solani); Leaf Spot (Gloeosporium pestis); Black rot (Rosellinia sp.); and Sclerotium rolfsii.

924. LIMBER, D.P. 1944.
Penicillium gladioli isolated from yam. Plant Dis. Rept., 28: 82.

925. LOPEZ, A.R. 1938.
Plant pathology at the Puerto Rico College Station. In Puerto Rico Coll. Station Report for 1938. pp. 44-46, 48-54, 61-62, 75-76.

Reports pineapple diseases, diseases of yams (with special reference to fungus isolation.

926. MADUEWESI, J.N.C. and E.E. NWAUZO. 1966.
Yam-Dextrose agar for cultivation of fungi in the tropics. Phytopath., 56(11): 1336-1337.

927. MAURITIUS, DEPT. OF AGRICULTURE. 1925.
Investigations on plant diseases. In Annual report of Mauritius, Dept. of Agric., Botanical Division, for the year 1924. pp. 13-14.

Among the diseases mentioned was the effect of Gloeosporium sp. on yam.

928. McMILLAN, R. T. 1974.
Effective fungicides for control of yam anthracnose. Phytopathology, 64(6): 769.

929. MILOVIDOV, P.E. 1928.
Coloration differencielle des bacteries et des chondriosomes. Arch. Anat. Micros. 24: 19-31.

Staining of bacteria and chondriosomes in Dioscorea bulbifera.

930. MIRZA, J. H. 1968.
Urocystis dioscoreae from West Pakistan. Mycologia 60(2): 439-440.

Urocystis dioscoreae was isolated from diseased plants of Dioscorea deltoidea and shown to be the causal organism.

931. NISHIMURA, S. et al. 1969.
Relation of soil toxins to the occurrence of a new black scurf of Chinese yams in the Tottori sand dune field. Nippon Shokubutsu Byori Gakkaiho, 35(4): 286-293.

932. OGUNDANA, S. K. 1972.
Botryodiplodia leaf spot of yams. Trop. Root and Tuber Crops Newsletter, 6: 26-28.

933. OVERHOLTS, L. O. 1927.
Species of Cercospora on Smilax in the United States. Missouri Bot. Garden. Ann. 14: 425-430.

Fungus on Dioscorea villosa, p. 425.

934. PARHAM, B.E.V. 1935.
Annual report of general mycological and botanical work for 1934. Ann. Bull. Dept. Agric. Fiji. pp. 55-56.

Includes report on leaf and stem wilt of yams (Dioscorea sp.) due to Gloeosporium pestis Massee which caused failure of tuber production.

935. PRASAD, N. and H.G. SINGH. 1969.
Effect of pre-sowing treatment.with aureofungin on germination and growth of yam (Dioscorea alata). Madras Agric. J., 56(7): 491-492.

936. PRASAD, N. and R.D. SINGH. 1960.
Anthracnose disease of Dioscorea alata. Curr. Sci., 29(2): 66-67.

937. RAMAKRISHNAN, T.S. 1957.
Notes on some fungi from South India. VI. Proc. Indian Acad. Sci., Sect. B. 46(3): 149-154.

This contribution to the series includes Pellcularia filamentosa (Corticium solani) on the leaves, stem, and spikes of pepper (Piper nigrum); Cercospora carbonacea and C. dioscoreae on yam (Dioscorea alata), and one new species.

938. RANDHAWA, G.S. 1970.
Recent researches at the Inst. of Horticultural Research, Indian Council of Agric. Research, Hessaraghatta. Proc. Hortic. 1(4): 5-12.

The research carried out was on the pathology of Indian Dioscorea deltoidea and fruit vegetable crop plants.

939. RAO, V.G. 1961.
A new species of Alternaria from Bombay-Maharashtra-II. Curr. Sci., 30(12): 470-471.

This was isolated at M.A.C.S., Poona, from necrotic areas on severely blighted yam leaves and named A. dioscoreae Rao.

940. ROQUE, A. 1935.
Plant disease work by the Puerto Rico College Station. In Annual Report of Puerto Rico Coll. Station Report for 1934/35. pp. 22-40.

Includes report of yam wilt associated with a Fusarium.

941. ROQUE, A. 1936.
Annual report of the assistant phytopathologist for the fiscal year 1935/36. In Puerto Rico Coll. Station Report for 1936. pp. 47-51.

Reports the diseases of minor crops including wilt of yams.

942. SALAZAR, C. 1937.
Exterminio de una plaga del name (yam). Agric. Venozolano, 7(17): 17-18.

943. SARMIENTO, V.M. 1923.
Insect carriers of Diplodia in storage rots. Philippine Agric. 12(2): 77-91 July.

The fungus, Diplodia, is of widespread occurrence in the Phillipines, where it attacks a number of plants in storage, including roots, seeds and fruits. A study was therefore made of the insects associated with products infected with Diplodia, with a view to determining their role as transmitting agents. The most abundant on stored roots and fruits were Araecerus fasciculatus, Cylas formicarius, Musca domestica, Drosophila melanogaster etc. These together with Prometopia quadrimaculata were all found capable of producing infection on sweet potato, yams, cassava and Citrus.

944. SCHAEDE, R. 1939.
Die bakteriensymbiose von Dioscorea macroura. Wiss Bot. Jahrb. 88(1): 1-21.

945. SINGH, R. D. et al 1966.
On the taxonomy of the fungus causing anthracnose of Dioscorea alata L. Indian Phytopathol., 19(1): 65-71.

946. SINGH, R.D. and N. PRASAD. 1966.
Efficacy of different fungicides for control of anthracnose of Dioscorea alata. Plant Disease Reptr. 50(6): 385-387.

947. SINGH, R.D. and N. PRASAD. 1967.
Epidemiological studies on the anthracnose of Dioscorea alata L. (Ratalu) - yam. Indian Phytopathol., 20(3): 226-236.

948. SINGH, R.D. and N. PRASAD. 1967.
The influence of vitamins on growth and sporulation of a few isolates of Colletotrichum gloeosporioides. Labdev. J. Sci. Technol., 5(4): 315-317.

Describes the effects of riboflavin, biotin, thiamine, folic acid and inositol on growth and sporulation of C.gloeosporioides isolates from yam.

949. SINGH, R.D. and N. PRASAD. 1967.
Nutritional studies of Colletotrichum gloeosporioides f. alatae. I. Response to different trace elements. Indian Phytopath. 20(2): 97-102.

The rate of growth of 3 isolates of C. gloeosporioides f. sp. alatae from yam was compared based on amount of different elements absorbed.

950. SINGH, R.D. 1970.
Histopathological studies on anthracnose of Dioscorea alata L. Nava Hedwigia, 18(214): 577-580.

951. SMITH, F.E.V. 1929.
Plant diseases in Jamaica in 1928; Report of the Government Microbiologist. In Ann. Rept. of Dept. of Agric., Jamaica for the year ended 31st December 1928. pp. 17-20.

Rosellinia sp. are reported to be responsible for a disease known as black rot, which affects avocado pears, yams (Dioscorea spp.), cocoes, ginger, coffee etc.

952. STEHLE, H. and F. GENLY, 1954.
Crown gall (Phytomonas (Agrobacterium) tumefaciens) of yams in Guadeloupe. In Congres de la protection des vegetaux et de leurs produits sous les climats chauds. (Congress on the protection of plants and their products in hot climates). Marseille, Institut Francais d'Outre-Mer., 543p.

953. STEINER, G.and E.M. BUHRER. 1934.
Disease symptoms produced by Anguillulina pratensis in yams. Phytopathology, 24(2): 164-165.

954. STEVENS, F. L. 1929.
Fungi from Costa Rica and Panama. Illinois Biol. Monog., 11(2): 1-102.

There is a mention of Haplothecium dioscoreae on Dioscorea spp.

955. TAKASUGI, H. 1934.
Additional list of fungi of Manchukuo (first note). Trans. Sapporo Nat. Hist. Soc., 13(3): 185-190

A list is given of 52 species of parasitic fungi collected during 1926-33 in Manchukuo. One of the fungi is Phyllosticta dioscoreae which occurs on Dioscorea batatas Decne.

956. TEHON, L.R. 1933.
Notes on the parasitic fungi of Illinois. Mycologia, 25: 237-257.

Colletotrichum dioscoreae, a new sp. on Dioscorea villosa is mentioned.

957. THOROLD, C.A. 1956.
Plant Pathology. In Part II of the annual report of the Central Research Station of Fed. Dept. of Agric. Research of Nigeria for the year 1953/54, 52p.

A disease of yam of unknown etiology was observed in a fertilizer trial. Symptoms included stunting and distortion of the leaves in severe cases, while the leaves of less seriously affected plants were mottled along the veins.

958. TUCKER, C.M. 1927.
Report of the Plant Pathologist. In Report of Puerto Rico Agric. Exp. Station for the year 1925. pp. 24-40.

Includes a report of the infection of yams by Cercospora carbonacea.

959. VASUDEVA, R.S. 1960.
Report of the Division of Mycology and Plant Pathology. In Sci. Rep. of Agric. Research Inst., N. Delhi, for the year 1957/58, pp. 111-130.

This report includes the recording, for the first time in India, of 19 species of Cercospora. These include C. cruciferarum on radish, C. malayensis on Hibiscus, C. ubi on yam, C. zebrina on clover.

960. WAKEFIELD, E.M. 1918.
A disease of the yam (Bagnisiopsis dioscoreae). Kew Bull. Misc. Inform. (1918): pp. 199-201.

961. WARD, F.S. 1939.
Annual report of the Plant Pathologist for the year 1938. Jamaica, Dept. Sci. & Agric., pp. 90-93.

White and yellow yams (Dioscorea alata and D. cayenensis) were attacked by a leaf spot apparently due to Gleosporium pestis.

962. WESTSTEIJN, G. and N. OKAFOR. 1971.
Comparison of cassava, yam and potato dextrose agars as fungal culture media. Netherland J. Plant Pathol., 77(4): 134-139.

963. WILSON, K. I. 1960.
A new host of Colletotrichum necator from Kerala. Science & Culture, 25(10): 604-605.

The fungus was found on Dioscorea triphylla.

964. YAMAMOTO, W. 1934.
Cercospora artenaus Taiwan (Formosa) II. (Species of Cercospora from Taiwan (Formosa) II.). J. Soc. Trop. Agric. Taiwan, 6: 599-608.

Notes are given on 19 species of Cercospora collected in Formosa during 1933/34 and it includes those which infect Dioscorea alata.

965. YEN, J.M. 1973.
A study on parasitic fungi of Southeast Asia. XXI Uredinales of Malaysia. Bull. Trimestriel de la Societe Mycologique de France. 89(3/4): 345-335.

Some were found on yam.

966. ZENDEL, G. L. 1953.
The Ustiginales of the world. Penn. State University Contributions No. 176, p. 315.

The only species of Urocystis recorded on Dioscorea species is U. dioscoreae H. Sydow & P. Sydow(=Tuburcinia dioscoreae Liro) and was recorded on D.tokoro and D. quinqueloba from Japan and on the latter from China.

G.6 VIRUS DISEASES

967. ADSUAR, J. 1955.
A mosaic disease of the yam, Dioscorea rotundata, in Puerto Rico. J. of Agric. of the Univ. of Puerto Rico. 39(2): 111-113.

968. ALCONERO, R. 1969.
Control of Dioscorea green-banding virus with Demeton foliar sprays. Plant Dis. Rep. 53(6): 450-452.

969. CHANT, S.R. 1957.
Plant pathology. In Annual report of Nigeria, Fed. Dept. of Agric. Research, for the year 1954/55., 24p.

The author reported that the suspected virus disease of yams at Upper Ogun Estate has also been observed in the Ogbomosho and Oyo areas, in the latter of which it was first seen in 1935.

970. CHANT, S.R. 1959.
Cassava mosaic virus. In Annual report of Nigeria, Fed. Dept. of Agric. Research, for the year 1957/58, 43p.

The author reported that it had not been possible to transmit the suspected virus disease of yams by grafting etc.

971. DEIGHTON, F.C. 1936.
Mycological work; Report of Dept. Agric. Sierra Leone for the year 1935. pp. 22-26.

The report says virus diseases were recorded for the first time on Phaseolus lunatus, Canavalia ensiformis and yellow yam (Dioscorea sp.).

972. DEIGHTON, F.C. 1938.
Mycological work; Report of Dept. Agric. Sierra Leone for the year 1937, pp. 45-47.

Included in the report were new host records of Macrophomina phaseoli: African marigold, Cosmos sulphureus, and Zinnia. Yam (Dioscorea alata) was affected by a mosaic disease, due to a virus.

973. HARRISON, B.D. 1967.
Association of flexuous virus-like particles, from White Lisbon yams with brown spot, from Barbados. In the Forty-seventh Report of the National Institute of Agric. Botany, Cambridge for the year 1966. 66p.

974. HARRISON, B.D. and I.M. ROBERTS. 1971.
Bacilliform particles in yam plants from tubers with brown spot disease from Barbados. In Seventeenth Annual Report of the Scottish Horticultural Research Institute for the year 1970. 69p.

975. HARRISON, B.D. 1973.
Association of virus-like particles with internal brown spot of yam (Dioscorea alata) Tropical Agric., 50(4): 335-440.

976. HOPKINS, J.C.F. 1957.
Plant diseases in British Colonial Dependencies. F.A.O. Pl. Prot. Bull., 6(1): 9.

It is reported that at Moor Plantation Ibadan, Nigeria, yams were attacked by a suspected virus disease, white varieties being more susceptible than yellow.

977. MARTIN, F.W. and N.E. DELFEL. 1967.
The tubers, sapogenins, and virus resistance of Dioscorea species hybrids. Amer. J. Bot., 54(9): 1158-1162.

978. NIGERIA. FEDERAL DEPARTMENT OF AGRIC. RESEARCH. 1960.
Suspected virus disease of yams. Annual report... for the year 1958/59, p. 21.

979. NIGERIA. FEDERAL DEPARTMENT OF AGRIC. RESEARCH. 1961.
Suspected virus disease of yams. In Annual Report for the year 1959/60, p. 32.

980. ROBERTSON, D.G. 1963.
Plant virus diseases in Nigeria. Ibadan, Federal Dept. of Agric. Research Memorandum No. 47. 10p.

Reports suspected virus disease on Dioscorea alata, D. cayenensis, and D. Rotundata.

981. RUPPEL, E.G. et al. 1966.
Preliminary studies on a virus disease of a sapogenin producing Dioscorea species in Puerto Rico by E.G. Ruppel, H. Delpin and F.W. Martin. J. Agric. Univ. of PUerto Rico, 50(2): 151-157.

982. WATERWORTH, H.E. et al. 1974.
Purification, electron microscopy, and serology of Dioscorea latent virus. by H.E. Waterworth, R.H. Lawson, and R.P. Kahn. J. Agric. Univ. of Puerto Rico, 58(3): 351-357.

H.1 STORAGE AND STORAGE PROBLEMS (GENERAL)

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The relationship between relative humidity and moisture content of some Nigerian foodstuffs. In Ann. Rep. Nigerian Stored Prod. Res. Inst. for the year 1970. pp. 61-65. (Publ. also as Tech. Report No. 8).

The foodstuffs were yam flour, and brown and white cowpeas. The 'safe' moisture content taken as moisture content in equilibrium with 70% relative humidity was 15.8 per cent.

984. ADESUYI, S.A. and J.A. MACKENZIE. 1973.
Inhibition of sprouting in stored yams, Dioscorea rotundata Poir, by gamma radiation & chemicals. In Radiation Preservation of food; Proceedings of a Symposium, Bombay, 13-17 Nov. 1972, Organised by IAEA and FAO. pp. 127-136.

985. ADESUYI, S.A. 1974.
Advances in yam storage research in Nigeria; Paper presented at the 3rd International Symposium on tropical root crops held at IITA, Ibadan, Nigeria from 2nd to 9th Dec., 1973. 13p.

986. AFFUL, B.B. and A. OFOSU. 1969.
Reduction of losses in stored yams. In Annual Report for the year 1965, Crops Research Institute. Accra, Ghana Academy of Sciences, 123p.

987. BOOTH, R.H. 1974.
Post-harvest deterioration of tropical root crops: losses and their control. Tropical Science 16(2): 49-63.

Work carried out on post-harvest problems of cassava, yams, sweet potatoes etc. is reviewed.

988. BRITISH SOLOMON ISLANDS PROTECTORATE DEPARTMENT OF AGRICULTURE. 1969.
Annual report for the year 1968. Honiara, Dept. of Agriculture. 15p.

On page 8 is described the weight losses in yams when stored well for 5 months.

989. BUREAU, FRANCOISE. 1972.
La conservation de ligname (recherche bibliographique). Rapport redige en vue de l'obtention du diplome technique de documentaliste (Session 1972). Paris, Institute National des Techniques de la Documentation, Conservatoire National des Arts et Metiers. 46p.

990. CAMPBELL, J.S. et al. 1962.
Some physiological experiments with the White Lisbon yam (Dioscorea alata L.) in Trinidad. III. The effect of chemicals on storage by J.S. Campbell, V.O. Chukwueke, F.A. Teriba and H.V.S. Ho-A-Shu. Empire J. Expt. Agric., 30(120): 335-344.

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A checklist of the insects associated with stored products in Nigeria rev. ed. In. Ann. Rep. Nigerian Stored Prod. Res. Inst. for 1971, pp. 73-98. (Published also as Tech. Rept. No.11).

Insects recorded on stored yams and yam products include 22 species and are listed on pp. 91-92.

992. COURSEY, D.G. et al. 1960.
The distribution of moisture in yams. In Report of W. African Stored Product Research Unit. pp. 59-60.

993. COURSEY, D.G. 1961.
The magnitude and origins of storage losses in Nigerian yams. J. Sci. Food & Agric. 12(8): 574-580, Aug. 12.

994. COURSEY, D.G. 1963.
Storage losses in yams. Nigerian Grower & Prod., 2(3): 43-45.

995. COURSEY, D.G. 1964.
The storage behaviour of yams; a summary of recent investigations in Nigeria. Trop. Stored Prod. Inform., 7: 269-275.

996. COURSEY, D.G. 1967.
Post-harvest problems of the yams. (Dioscorea). In Proceedings of the First International Symp. on Tropical Root Crops, St. Augustine, Trinidad 2(Sect. VI): pp. 28-36.

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Yam storage. I. A review of yam storage practices and of information on storage losses. J. Stored Prod. Res., 2(3): 229-244.

998. COURSEY, D.G. 1968.
Low temperature injury in yams. J. Food Tech., 3(2): 143-150.

999. COURSEY, D.G. 1969.
Chilling injury in yams. Tropical Root and Tuber Crops Newsletter, 2: 17.

1000. COURSEY, D.G. and F.I. NWANKWO. 1968.
Effects of insolation and of shade on the storage behaviour of yams in W. Africa. Ghana J. Sci., 8(1/2): 74-81.

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A study of the origins of weight losses in stored yams. In Annual Report of W. Af. Stored Products Research Unit. for the year 1960. pp. 61-64.

1002. CZYHRINCIW, N. and W.G. JAFFE. 1951.
Chemical changes during storage of roots and tubers. Archivos Venezolanos de nutricion 2: 49-67.

Least change occured when apio, yampi (Dioscorea trifida), yauti and cassava were stored at 3°; also Dioscorea alata at 25°.

1003. EKANEN, A.B. 1959.
Investigations into the storage of yams. (Dioscorea spp.) and sweet potatoes (Ipomea batatas). St. Augustine, Trinidad, Imp. Coll. Trop. Agric.

1004. GETZENDANER, M.E. and HENRY H. RICHARDSON. 1966.
Bromide residues from methyl bromide funmigations of fruits and vegetables subjected to quarantine schedules. J. of Agric. and Food Chem., 14(1): 59-62.

Fruits and vegetables were fumigated with MeBr using schedules with different dose rate, time, pressure, and chamber load, then samples were analyzed to determine bromide residues. After fumigation under atm. pressure, most fruits and vegetables showed net residues less than 25 ppm. with yams going to 29 ppm.

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The effect of preharvest foliar spraying with maleic hydrazide on the storage of yams. In Annual Report of the West African Stored Products Research Unit for the year 1961., pp. 107-115.

1007. HAYWARD, L.A.W. and H.M. WALKER.1962.
Yam storage in Nigeria; Paper presented at the CCTA/FAO Symposium on Stored Food, at Freetown on 15th Dec., 1961. 26p.

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Division of Entomology. Ann. Report. Fiji Dept. Agric. 1919; Suva Council Paper no. 65. pp. 7-14.

Report says that yams in storage are attacked by a borer that in its larval habits closely resembles Cosmopolites sordidus in bananas. Careful search should be made among stored yams and damaged ones should be removed from the heap and fumigated with carbon bisulphite or hydrocyanic acid gas.

1009. MARTIN, F.W. 1972.
Yam conservation problems. (Varieties). Plant Genet Resour Newsl., 28: 35-36.

1010. MARTIN, F.W. 1974.
Effects of type of wound, species, and humidity on curing of yam (Dioscorea alata L.) tubers before storage. Journal of Agriculture Univ. Puerto Rico, 58(2): 211-218.

1011. MARTIN, F.W. 1975.
The storage of germplasm of tropical roots and tubers in the vegetative form. In O.H. Frankel and J. G. Hawkes (editors). Crop genetic resources for today and tomorrow. Cambridge, Cambridge University Press. pp. 369-377.

The root and tuber crops discussed are: Yams (pp. 369-371), cassava, sweet potato, aroids and potatoes.

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Low temperature storage of yams. Agric. Hort., 42(8): 103-104.

1014. OLORUNDA, A.O. and S.A. ADESUYI. 1973.
A comparison between the barn and the clamp methods of storing yams. In Annual Report of Nigerian Stored Product Research Institute for the year 1970. pp. 57-59. (Publ. as Tech. Rept. No. 7).

Sprouting and rot were more pronounced in the clamps and yams from them were less palatable.

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Some physiological investigations on chilling injury in the yam, Dioscorea alata L.; Paper presented at the Third International Symposium on Tropical Root Crops held at IITA, Ibadan from 2nd - 9th Dec., 1973. 15p. (Mimeograph).

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Effects of temperature and chlorpropham on the storage of the yam. J. of the Science of Food and Agric., 25(10): 1233-1238.

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Preparation and storage properties of drum dried white yam (Dioscorea rotundata Poir) flakes. J. Food Sci. 39(3): 559-562.

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Yam losses during storage. "Crop storage", Technical Report No,1 of the Food Research and Dev. Unit, Accra, Ghana. pp. 32-38.

1019. RICCI, P. and R. ARNOLIN. 1973.
Interet d'un traitement fongicide pour la conservation des tubercules d'igname "Cousse-couche" (Dioscorea trifida). Nelles Maraich. et Vivr. INRA Antilles., 5: 29-35.

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Maladies des "Cousse-couche" survenant au cours de stockage en Gaudeloupe (Storage diseases of cush-cush yams in Guadelupe.), by P. Ricci, J.P. Torregrossa and J. Fournet. Nouv. Agron. Antilles-Guyane 1(2): 139-152.

1021. RIVERA, J.R. et al. 1974.
An improved method for storing yam (Dioscorea alata) by J. R. Rivera, M.A. Gonzalez, A. Collazode Rivera and J. Cuevas Ruiz. J. Agric. Univ. of Puerto Rico, 58(4): 456-465.

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Tolerance of some imported vegetables to methyl bromide fumigation and hot water treatments. J. Econ. Entomol,, 58(6): 1086-1089.

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Antiseptics studied in storage of yams. Shizuoka-Ken Seishi Kogyo Shikenzyo Shiken Kenkyu Hokokusho 1957(1): 17-25.

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Modification of the A.O.A.C. (Association of Official Analytical Chemists) extraction procedures for parathion residues on tropical root crops. J. Agr. Univ. of Puerto Rico, 54(1): 189-191.

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The inhibition effect of MH on the stored corms of chinese yam (Dioscorea batatas Decne). Proc. Crop Sci. Soc. Japan, 24: 133-134.

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Reduction of wastage in stored yams by A.K. Thompson, B.O. Been and Cynthia Perkins; Paper presented at the Third International Symposium on Tropical Root Crops held at IITA, Ibadan, Nigeria from 2nd to 9th Dec., 1973. 8p. mimeog.

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The sealed storage of yams. In Report of W. Afr. Stored Prod. Res. Unit(1961), pp. 103-106.

H.2 ROTS OF YAMS

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Fungi associated with storage decay of yam in Nigeria. Phytopathology 60(4): 590-592.

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Curing technique for reducing the incidence of rot in yams. In Annual Report of the Nigerian Stored Products Research Institute for the year 1971. pp. 57-63. (Published also as Tech. Report No.9).

1032. AGRAWAL, S.B. 1973.
A new record of Penicillium sclerotigenum causing dry rot of Ratalu Dioscorea alata. Indian Phytopathol. 26(3): 577-578.

1033. ALVAREZ-GARCIA, L.A. and A.
CURRUTACA CORTES MONLLOR. 1971.
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The fungus, Pythium ultimum was found to be the cause of a soft rot disease in cocoyam and yam.

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Diseases of tropical vegetables on the Chicago market. Trop. Agric. (Trinidad), 47(4): 303-313.

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Fungi associated with soft rot of yams (Dioscorea spp.) in storage in Nigeria. by S. K. Ogundana, S.H.Z. Naqvi and J. A. Ekundayo. British Mycological Society Transactions 54(3): 445-451.

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I. PROCESSING

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1069. CZYHRINCIW, N. 1969.
Consideraciones sobre industrializacion de raice y tuberculos tropicales. (Consideration on the industrialization of tropical roots and tubers). Revista de la Facultad de Agronomia, 5(2): 110-7.

The physical, structural, chemical and nutritional characteristics of roots of tubers of 5 crops are reviewed in respect to problems related to processing aimed at increased consumption in Venezuela; the crops are arracacia, cassava, tanier, and the yams (Dioscorea trifida and D. alata).

1070. DENDY, D.A.V. et al. 1970.
The use of wheat and non-wheat flours in bread-making. Tropical Science, 12(2): 131-142.

Experiments showed that most tropical starch materials e.g. sweet potato, yam, sago, banana, contain little protein and therefore bread made from them require enrichment with protein. Problems associated with such enrichments are discussed.

1071. GHANA. NATIONAL STANDARDS BOARD. 1970.
Canned yams. Ghanaian Standard GS F10. (1970). 4p.

Gives the definition, designation, packing media, other ingredients, quality criteria etc. of peeled, sliced or diced tubers of yam varieties from which extraneous matter has been excluded.

1072. GOODING, E.G.B. 1972.
The production of instant yam in Barbados. Part I: Process development. Trop. Sci., 14(4): 323-333.

1073. GOODING, E.G.B. 1973.
Production of instant yam in Barbados. I. Process development J. Agric. Soc. Trinidad Tobago 73(2): 224-225; 227-239.

1074. HAHN, P.P. and V. RASPER. 1974.
The effect of nonstarchy polysaccharides from yam, sorghum and millet flours on the rheological behaviour of wheat dough. Cereal Chemistry 51(6): 734-750.

1075. ISHITANI, T. 1973.
Studies on dehydrated foods by freeze-drying. 9. Freeze-drying of yam and its utilization for Karukan. Report of the Food Research Institute (Japan), 28: 88-93.

1076. JARMAI, S. and L.C. MONTFORD. 1968.
Yam flour for the production of fufu. Ghana J. Agric. Sci., 1(2): 161-163. Dec.

1077. KIM, J.C. and D. de RUITER. 1969.
Bakery products with non-wheat flour; a review. Bakers' Digest, 43(3): 58-63.

The non-wheat flours are made from yam, sago, soybean, peanut etc.

1078. KIRAM, J.C. and D.de RUITER. 1968.
Bread from non-wheat flours. Food Technology, 22(7): 867-878.

The suitability of 20 different substances for use as starch granule binders, was tested in bread made from wheat starch. Glyceryl monostearate was shown to be a suitable binder. Comparative tests were made with 16 protein concentrates using yam flour as the starchy component. The bread leaf volume, crumb colour and taste were compared for a mixture of yam, Maranta flours, palm starch sago and cassava; and a mixture of cassava starch, soybean or peanut flour.

1079. LASHBROOK, BRENDA. 1973.
Yam flavor and color fall menus. Sch. Foodserv. J., 27(9): 64, 66-67.

1080. LEHMANN, G. 1971.
Lebensmittelund Ernahrungsprobleme in Entwicklungs-Landern. I. Uber dei Brotversorgung. (Food and nutrition problems in developing countries. 1. The bread situation). Ernahrungs-Umschau 18(12): 505-510.

Cultivation, utilization, yield in tonnes, nutritional value and uses of tapioca, yams, potatoes, sweet potatoes, maize, rice, and bananas are discussed and reviewed with reference to factors of economic importance and production of bread based on flour from plant sources other than wheat in developing countries.

1081. LEHMANN, G. and F. MIINZBERG. 1972.
Lebensmittel-und ernahrungsprobleme in entwick-lungsladern. II. Uber die mehl-und brotherstellung. (Food and nutrition problems in developing countries. II. Flour & bread manufacture). Ernahrungs-Umschau 19(9): 316-320.

Methods of flour preparation by addition of cooked and raw potatoes, potato flour, yams, sweet potatoes, bananas, rice, maize and barley to wheat flour are discussed, and baking techniques outlined.

1082. MAKANJUOLA, G. A. 1974.
A machine for preparing pounded yam and similar food in Nigeria. Appropriate Technology, 1(4): 9-10.

1083. MARTIN, F.W, and R. RUBERTE. 1972.
Yams (Dioscorea spp.) for production of chips and French fries. J. Agr. Univ. Puerto Rico, 56(3): 228-234.

1084. MISAWA, MITSUNOBU and HIROMICHI MATSUBARA. 1965
Manufacture of the tuber powder of yam (Dioscorea batatas). Nippon Shokuhin Kogyo Gakkaishi, 12(4): 143-149.

1085. MISAWA, M. and H. MATSUBARA. 1965.
Studies on the manufacturing of the powder of the tubers of the yam. J. Food Sci. Technol. 13(4): 23-29.

1086. RAI, M.M. and N.L. JAIN. 1970.
Some studies on the freeze-drying of common vegetables. J. of Food Science and Tech., 7(Supl.): 22-28.

Several vegetables, including cauliflowers, carrots, okra, tomatoes, yam etc. were prepared as for normal cooking and then freeze-dried by the accelerated freeze-drying (AFD) process and the freeze-dried products were tested for reconstitution properties, colour, appearance, flavour and storage stability. The AFD products were found to be organoleptically and nutritionally acceptable.

1087. RIVERA-ORTIZ, J.M. and M.A. GONZALEZ. 1972.
Lye peeling of fresh yam, Dioscorea alata. J. Agric. Univ. Puerto Rico, 56(1): 57-63.

1088. RODRIGUEZ-SOSA, E.J. and M.A. GONZALEZ. 1972.
Preparation of yam (Dioscorea alata L.) flakes. J. Agric. Univ. Puerto Rico, 56(L): 39-45.

1089. RODRIGUEZ-SOSA, E.J.; M.A. GONZALEZ, and F.W. MARTIN. 1972.'
Evaluation of ten varieties of yam (Dioscorea spp.) for production of instant flakes. J. Agr. Univ. Puerto Rico, 56(3): 235-243.

1090. RODRIGUEZ-SOSA, E.J. 1973.
Shelf-life study of Farm Lisbon yam (Dioscorea alata) chips. J. Agric. Univ. P. Rico 57(3): 196-202.

1091. RODRIGUEZ-SOSA, E.J. 1974.
Effect of flake size on pasting characteristics of instant Florido yam (Dioscorea alata) flake slurries. J. Agric. Univ. Puerto Rico, 58(2): 219-224.

1092. RODRIGUEZ-SOSA, E.J. 1974.
Effect of precooking on quality of instant flakes from Florido yam (Dioscorea alata L.) J. Agric. Univ. P. Rico, 58(3): 317-321.

1093. SAMMY, G. M. 1971.
Proceedings of the Postgraduate Seminar on Food Technology held on 24th April, 1971 at the Univ. of the W. Indies, Trinidad, and issued by the University as Food Technology Series No.5.

Includes processing potential of some tropical root-crops by J. Forgenie (13pp); Research report on the processing potential of yams (Dioscorea) by W. J. Steele.

1094. SAMMY, G.M. 1973.
The status of root crop processing research at the University of the West Indies, St. Augustine. Paper submitted for the 3rd Int. Symp. on Tropical Root Crops, IITA, Ibadan, Dec. 2-9 1973. (Abstracts of Submitted Papers No. SPUF/13).

Reports work on composite flour development from sweet potato or yam flours with wheat flour for bread making.

1095. SATOH, TOSHIO et al. 1967.
Purification and properties of the mucilage of the yam (Dioscorea batatas). Nippon Kagaku Zasshi 88(2): 216-220.

1096. SATOH, TOSHIO. 1967.
Action of enzymes on the mucilage of the yam (Dioscorea batatas forma icho). Nippon Kagaku Zasshi, 88(9): 989-991.

1097. STEELE, W. and G.M. SAMMY. 1973.
Instant dehydrated yam. Paper submitted for the 3rd Int. Symp. on Trop. Root crops, IITA, Ibadan, Nigeria, Dec. 2-9, 1973. (Abstracts of Submitted Papers, No. SPUF/14).

1098. SULIT, M.D. 1932.
Native methods of preparing nami (Dioscorea hispida Dennst.) tuber for food. Philippine Agric., 20: 637-641.

1099. SULIT, J.I. 1967.
Method of processing and utilization of nami (Dioscorea hispida) tubers. Araneta J. Agric., 14(4): 203-221

J.1 YAMS AS FOOD, NUTRITIVE VALUE AND PROXIMATE COMPOSITION

1100. AMMANN, P. 1905.
Analyses of some Martinique food plants. Agr. Prat. Pays Chauds. 5(32): 439-440.

Analyses of several samples of yautia and yam are reported.

1101. ANONYMOUS. 1933.
Analysis of green vegetables Sci. Rep. Govt. Agric. Chem., Coimbatore, 1932-33, 22p.

Analytical data are given for ash gourd, pumpkin, radish, sword bean, carrot, yam, Dioscorea, tapioca etc.

1102. ARIE, JUNKO et al. 1972.
Study on food life of coastal region in Ghana. Bull. of Institute Consc. Med. Kumamoto Univ. 23(1): 63-72.

The main staple food is corn, but it is gradually being replaced by bread and rice as urbanization progresses. In addition to cereals the local people consume yam, taro, cassava and plantain.

1103. ARNAL-PEYROT, FRANCOISE and JEAN ANDRIAN. 1970.
Nutritional role of certain tropical food leaves (manioc, yam, baobab, and silk-cotton tree). Annales de la Nutrition et de l'Alimentation 24(6): 137-153. (In French).

1104. BAILEY, K. V. 1965.
Quantity and composition of breastmilk in some New Guinea populations. J. Trop. Pediat. 11: 35-49.

Discusses the relationship of the quantity and composition of breastmilk to the consumption of yam and other staple foods.

1105. BARRAU, J. 1956.
Plantes alimentaires de base des Melanesiens. (Basic food plants of the Melanesians.) J. Agric. Trop. et Bot. Appl.3 (1/2): 32-49.

Among the starch plants studied are Dioscorea alata, D. esculenta, Manihot esculenta, and Ipomoea batatas.

1106. BARRAU, J. 1956.
Les ignames alimentaires des iles du Pacifique Sud. (The yams used for food in South Pacific islands.) J. Agric. Trop. et Bot. Appl. 3 (7/8): 385-401. bibl. illus.

Information, including synonyms, varieties, vernacular names, geographical distribution and cultural methods, is given on Dioscorea spp. used for food in the South Pacific.

1107. BHATNAGAR, M.S. and L.D. TEWARI. 1971.
Chemical composition of some uncommon vegetables of North India. Indian J. Nutritional Diet. 8(2): 72-76.

Selected for study are edible parts of different plants including the tuber of Dioscorea bulbifera; their total moisture, dry matter, crude protein, ether ext., carbohydrate, ash, Ca, P, Fe, Cu, and Mn, content were determined.

1108. BISHA, Th. and T. PISHA. 1967.
Chemical composition of Dioscorea balcanica. Bul. Univ. Shteteror Tiranes, Serv. Shkencat Natyrore. 21(4): 119-127.

1109. BISWAS, K. and M.A.S. KUMARAN. 1949.
The Indian Dioscoreas and their importance on dietary. Indian Science Congress Proceeding, 36(3): 127.

1110. BOIS, D. 1900.
New food yam, Dioscorea fargesii. Rev. Hort. 72(24): 684-685.

1111. BOURRET, D. et al. 1973.
Donnees analytiques sur les tubercules de Dioscoreaceae alimentaires de Nouvelle-Caledonie. (Analytical findings on the food tubers of Dioscoreaceae from New Caledonia). Medecine Tropicale 33(6): 617-619.

1112. CINTRON, C.L. and D.H. COOK. 1932.
Nutritional studies of the food stuffs used in the Puerto Rican dietary. II. Proximate and ash analyses. Puerto Rico J. Public Health and Trop. Med. 7(4): 435-441.

The food tested, which are listed in the tables under their local Spanish names are avocado, eggplant, pigeon pea, apple, white yam, okra etc. Most of the foods are said to be low in protein and fat contents.

1113. CORKILL, N.L. 1948.
The poisonous wild cluster yam, Dioscorea dumetorum Pax, as a famine food in the Anglo-Egyptian Sudan. Ann. Trop. Med. Parasitol., 42(3 /4): 278-287.

1114. DAKSHINAMURTI, K. 1955.
Chlorine content of South Indian foods. Current Science 24: 194-195.

The chlorine content of S. Indian foods in mg/100g as determined by the colorimetric method of Engel is 23 for yam.

1115. EHRHARDT, J.D. and M. BLOCK. 1909.
Nutritive value of the yams of Annan and of Tonkin. Bull. of Sci. Pharmacolog., 16(9): 509-515.

1116. GARCIA, J.P. 1965.
Estudio de las principales propiedades fisicas y quimicas del apio (Arracacia xanthorrhiza), name (Dioscorea alata) y ocumo (Xanthosoma sagittifolium) y sus cambios en funcion del tratamiento termico previo. Caracas. 52p. (Tesis Univ. Cent. Venezuela, Fac. Ciencias.)

1117. HENRY, T. and G. MUIA. 1959.
Special report on the diet of the Sepik River people. Papua New Guinea Agric. J. (Port Moresby) 12(1): 41-43.

(Diet includes Dioscorea sp.)

1118. HOOPER, D. 1911.
Composition of Indian yams. J. Asiatic Soc. 1911: 57-62.

1119. HOOPER, D. 1911.
Composition of Indian yams. J. Soc. Chem. Ind. 30: 1027.

Analysis of 40 specimens of different species of yams are recorded.

1120. HORIGOME, TAKAO and YASUKO KUMAGAI. 1970.'
Phenol oxidative enzymes of several vegetables. Miyazaki Daigaku Nogakubu, Kenkyu Hokoku. 17(2): 234-240.

The occurrence of phenol oxidative enzymes in tuber of Dioscorea batatas and some other plants was studied. Studies showed catecholase activity in yam was greater in the basal portion of root than in the central and the end portion.

1121. HSU, HUNG-YUAN and CHUNG-CHIH CHO. 1951.
The nutritive value of Chinese formula Su-Chiu. J. Taiwan. Pharm. Assoc. 3: 25-28.

Fu-Ling (Pachyma hoelen), Ling Tzu (Nelumbo nucifera), Huai-Shan (Dioscorea) etc. are the components of Su-Shiu, a tonic especially for the growth of children. The nutritive value of Su-Shin was determined by the general analyses, and the determination of carotene and vitamin B_1 contents of the drugs.

1122. IDUSOGIE, E.O. and S.O. OLAYIDE. 1973.
Role of roots and tubers in Nigerian nutrition and agricultural development; Paper presented at the International Symposium on root crops, held at IITA, Ibadan, Dec. 1973. 23p.

1123. JEFFERS, H.F. and P.H. HAYNES. 1967.
A preliminary study of the nutritive value of some dehydrated tropical roots. In Proceedings of the first International Symposium on Tropical Crops, St. Augustine, Trinidad. 2(Sect. VI.): 72-77.

Crops studied were Dioscorea alata, cassava, sweet potatoes, Colocasia esculenta and tannia.

1124. JENKINS, G.N. et al. 1945.
Laboratory assessment of nutritive value of meals as eaten. Proceedings of Nutrition Soc. 3: 124-131.

A discussion of the methods of sampling and analysis for carbohydrate, fat, protein, mineral salts, thiamine and ascorbic acid of foods including yams.

1125. JOACHIM, A.W.R. 1929.
Analyses of Leucaena glauca, Hibiscus esculentus, Moringa plerygosperma and king yams. Tropical Agr., 72: 279-280.

1126. JOHNSON, D. F. et al. 1963.
Cholesterol in higher plants. Science, 140(3563): 198-199, April 12.

Cholesterol reported in Solanum tuberosum and Dioscorea spiculiflora.

1127. JONES, W. O. 1967.
Starchy roots in the dietaries of developing tropical countries. In Proceedings of the first International Symposium on Tropical Root Crops. 2(Sect.V): 34-44.

1128. KETIKU, A.O. and V.A. OYENUGA. 1973.
Dehydrated yam (Dioscorea rotundata) and cassava (Manihot utilissima) as sources of energy to the laboratory rat. W. Afr. J. Biol. Appl. Chem. 16(2): 9-13.

1129. KOTAEVA, D.V. 1971.
Nucleic acid levels in leaves of some dioecious woody and herbaceous species. Soobshch. Akad. Nauk Cruz. SSR. 63(2): 421-424.

Nucleic acid dynamics were checked in leaves and buds of wood and herbaceous plants including Dioscorea caucasica at different stages of plants' growth.

1130. MARIN, A.H. 1973.
Digestibility, energies of digestion & metabolization of sugarcane and yams in young pigs. Rev. ICA (Inst. Colomb. Agropecuaria) 8(2): 145-156.

1131. MERRILL, L.H. 1908.
Food of man studies. Maine Sta. Bull., 158: 219-238.

Among the food analysed is Dioscorea bulbifera.

1132. MORRIS, M.P. et al. 1958.
Simple procedure for the routine assay of Dioscorea tubers by M.P. Morris, A.R. Bruce, and B. Cancel. J. Agric. and Food Chem., 6(11): 856-858.

1133. MOURA CAMPOS, F.A. De et al. 1939.
O valor nutritivo do cara (The nutritive value of yam) by F. A. De Moura Campos, D. Orsini, and G.Colonnese. Ann. Fac. Med., Univ. Sao Paulo., 15: 97-111.

Previous studies of the nutritive value of cara or yam with regard to protein and mineral content are summarised.

1134. MOURA CAMPOS, F.A. De. 1943.
Nutritive value of cara (Dioscorea brasiliensis). Hospital (Rio), 24: 877-892.

1135. MUNSELL, H.E. et al. 1949.
Composition of food plants of Central America. I. Honduras. Food Research, 14: 144-164.

The Nutritional Biochemistry Laboratories in Massachusetts carried out the series of investigations on the composition of Vigna unguiculata, Cajanus cajan, Dioscorea alata, Manihot esculenta among others. This is the first report.

1136. MUNSELL, H.E. et al. 1950.
Composition of food plants of Central America. II. and III. Guatemala. Food Research, 15: 16-33; 15: 34-52.

The food plants included Dioscorea alata.

1137. MUNSELL, H.E. et al. 1950.
Composition of food plants of Central America. IV: El Salvador. Food Research, 15: 263-296.

Dioscorea alata is one of the food plants.

1138. MUNSELL, H.E. et al. 1950.
Composition of food plants of Central America. V: Nicaragua. Food Research, 15: 355-365.

The food plants include Dioscorea alata.

1139. MUNSELL, H.E. et al. 1950.
Composition of food plants of Central America. VI. Costa Rica. Food Research, 15: 379-404.

The food plants include Dioscorea alata.

1140. MUNSELL, H.E. et al. 1950.
Composition of food plants of Central America. VII. Honduras. Food Research, 15: 421-438.

Dioscorea alata is one of the food plants.

1141. MUNSELL, H.E. 1950.
Composition of food plants of Central America. VIII. Guatemala. Food Research, 15: 439-453.

Dioscorea alata is one of the food plants.

1142. NAKAGAWA, YUKIO 1970.
Yams (Dioscorea sp.) as a food crop in some pacific island. Tropical Root and Tuber Crops Tomorrow vol.II. Proc. 2nd Intern. Symp. on Trop. Root and Tuber Crops, pp.23-24.

1143. NICOL, B.M. 1959.
Calorie requirements of Nigerian peasant farmers. Brit. J. of Nutrition, 13: 293-306.

In yam-eating areas the total protein was barely adequate and never at a safe level. The grain eating adults were significantly taller. Weights and subcutaneous fat of men, women, and children varied very little with the amount of protein ingested.

1144. OKE, O.L. 1965.
Nutritional studies on Nigerian tubers. W. African Pharmacist, 7(6): 109-110, 113.

Cassava, cocoyam, sweet potato, and yam were analysed for protein, carbohydrate, ash, ethanol extract, crude fibre and Ca. The percent of major (K,P,Ca, Mg) and trace (Na,Mn,Fe,B, Zn, Mo, Al) elements was determined along with $H_2C_2O_4$ and HCN, and phytic acid P.

1145. OKE, O.L. 1972.
Yam - a valuable source of food and drugs. World Rev. Nutr. & Diet., 15: 156-184.

1146. OOMEN, H.A.P.C. 1971.
Ecology of human nutrition in New Guinea. Evaluation of subsistence patterns. Ecology of Food and Nutrition 1(1): 3-18.

Tables provide the average adult daily intake of New Guinea staple foods including taro, yam, banana, cassava, sago etc.

1147. OYENUGA, V.A. 1955.
The composition and nutritive value of certain feeding stuffs in Nigeria. I. Roots, tubers, and green leaves. Emp. J. Exper. Agric., 23(90): 81-95.

Includes information on yams.

1148. PAIRAULT, A. 1901.
Starch-yielding plants grown for food in the Antilles. Bull. Assoc. Chim Sucr. et Distill. 18(1/2): 77-84.

Descriptions and analyses are given of the following plants: yams (*Dioscorea alata*, *D. trifida* and *D. tuberosa*), taro, sweet potatoes, banana, etc.

1149. PARK, BOO KIL. 1972.
Components of *Dioscorea batatas*. Kangwon Taehak Yon'gu Nonmunjip 6: 89-92.

1150. PETERS, F.E. 1959.
Chemical composition of some South Pacific foods. Qualitas Plant et Materiae Vegetabiles. 5: 313-343.

Moisture, ash, fiber, ether extract, total N, reducing sugars, starch, carotene, thiamine, miacin, and ascorbic acid values are given for several foods including *Dioscorea alata*, *D. pentaphylla*.

1151. RAO, P.S. and R.M. BERI. 1953.
Non-cereal foods: tubers of Dioscorea species. Indian Forester, 79(10): 568-571.

1152. RASPER, V. and D. MAcGREGOR. 1969.
Starchy root crops in the Ghanaian diet and aspects of their industrial utilisation. Gordian, (W. Af. Edition), 69(2): 47-50.

A general survey of the properties and utilization of yam, cocoyam and cassava, including a table of their chemical composition.

1153. SANCHEZ, A. et al. 1971.
The value of indigenous foods on brain and muscle size, and physical endurance of rats fed diets composed of West African Staples by A. Sanchez, R.R. Steinman and J. Leonora. Fed. Proc., 30(2): 298.

Discusses human nutrition education in connection with cassava, plantain, corn, rice, melon, peanut, yam etc.

1154. SHERMAN, HARTLEY E. and
TSAN CHING WANG. 1929.
Chemical analyses of 37 oriental foods. Philippine J. Sci., 38: 69-79.

Analyses for water, fat, ash, protein, carbohydrate, crude fibre and fuel value are tabulated for 37 native Chinese foods. These include yams.

1155. SPLITTSTOESSER, W.E. 1973.
Nutritional value of some tropical root crops (Yams, cassava). Proc. Trop. Reg. Am. Soc. Hortic. Sci., 17: 290-294.

1156. STOLLER, E.W. 1974.
Fatty acid composition of lipid of Corchorus, Yucca, Dioscorea, Withania & Rivea tissue cultures. LLoydia, 37(2): 309-312.

1157. TAKAHASHI, T. and H. YOKOYAMA. 1934.
Nutrition with edible tubers. 1. Effects of common edible tubers and polished rice on breeding. J. Agric. Chem Soc. of Japan. 10: 451-458.

Experiments with rats showed that when powdered tuber and polished rice, potatoes and yam are eaten in the ratio 20:100 there is no improvement in growth.

J.2 PROTEINS AND AMINO ACIDS

1158. ANONYMOUS. 1970.
New protein from carbohydrate waste. National backing for Rank-Hovis McDougall research. Milling, 152(6): 35-36.

A continuous process has been developed at Rank Hovis Mc-Dougall which uses carbohydrate waste from flour milling and from sugar, potato, yam, cassava and other starchy crops to produce protein.

1159. ANONYMOUS. 1972.
A study on protein contents of yams. PAG. Bulletin, 2(1): 40.

Report based on work done at Mayaguez, Puerto Rico with 40 cv of D. alata, D. esculenta, D. bulbifera, D. rotundata, and D. trifida.

1160. FRANCIS, B.J. et al. 1975.
Yams as a source of edible protein by B.J. Francis, D. Halliday and J.M. Robinson. Tropical Science, 17(2): 103-110.

1161. HISATAKE, A. 1964.
Biochemical studies on yam. I. Isolation and purification of a glycoprotein. Seikagaku, 36: 821-828.

1162. IMOTO, TAIJI and KAZUYOSHI YAMASHITA. 1973.
Chitin coated cellulose as an adsorbent of lysozymelike enzymes. Applications. Agricultural & Biological Chem., 37(5): 1191-1192.

Lysozyme-like enzymes were isolated from saliva, taro, and yam by chromatography on chitin coated cellulose columns.

1163. MARTIN, F.W. and A.E. THOMPSON. 1971.
A study on protein contents of yams. PAG Bull. 2(1): 40.

1164. MARTIN, F.W. and A.E. THOMPSON. 1971.
Crude protein content of yams. HortScience, 6(6): 545-546.

Yams (Dioscorea spp.) contained 6.3% - 13.4% crude protein, as measured by the Kjeldahl N technique. The protein is highest in the oldest region but generally contain sufficient quantities of protein to merit nutritional considerations.

1165. MARTIN, F.W. and A.R. THOMPSON.
Protein content and amino acid balance of yams. J. of Agric. Univ. Puerto Rico., 57(1): 78-83.

1166. MIEGE, M.N. and J. MIEGE. 1971.
Les proteines des graines de quatre especes de Dioscorea d'Afrique occidentale (Seed proteins in four species of Dioscorea from West Africa). C.R. Hebd Sceances Acad Sci. Ser. D. Sci. Natur., 272(20): 2536-2539.

1167. SPLITTSTOESSER, W.E. 1973.
Amino acid composition of five species of yams (Dioscorea). J. Am. Soc. Hortic. Science, 98(6): 563-567.

1168. SPLITTSTOESSER, W.E. and A.M. RHODES. 1973.
Protein and amino acid values of some tropical root crops. Illinois Research, 15(4): 6-7.

Gives the percentage protein content and amino acid value of Dioscorea, Cassava, Colocasia, Xanthosoma, Ipomea etc.

1169. SPLITTSTOESSER, W.E. and F.W. MARTIN. 1975.
The tryptophan content of tropical roots and tubers. HortScience, 10(1): 23-24.

1170. TAKAHASHI, TEIZO. 1928.
The protein(s) of the tuber of the yam. Bull Agric. & Chem. Soc., 4: 55-87.

1171. TANAKA, SHINJIRO. 1938.
Food containing glycoprotein. (One-half assigned to Jirokichi Suzuki). U.S. Pantent No.2,119,302. Granted May 31.

The glycoprotein was from the crushed root of D. japonica.

1172. TONO, T. 1968.
Food chemical studies on the Chinese yam. Analysis of glycoproteins and free amino acids by using amino acid analyzer. Tottori Soc. Agric. Sci. Trans., 20: 129-135.

J.3 VITAMINS AND MINERALS

1173. AXTMAYER, J.H. and D.H. COOK. 1932.
Nutrition studies of foodstuffs used in the Puerto Rican dietary. I. The vitamin A content of white and yellow yams. American J. Trop. Med. 12(4): 317-321.

1174. BANERGEE, D.K. and CHATTERJEA. 1964.
Folic acid activity of Indian dietary articles and the effect of cooking on it. Food Technology 18(7): 1081-1083.

Folic acid activity was substantial in coconut, followed in order by poppy seeds, yam, and germinated seed.

1175. COURSEY, D.G. and A. AIDOO. 1966.
Ascorbic acid levels in Ghanaian yams. J. Sci. Food & Agric. 17(10): 446-449. Oct.

1176. FERGUSON, T.U. 1969.
Mineral and calorie content of yam tubers. In half yearly report of Trinidad, Univ. West Indies, Fac. Agric. for the year 1968/69.

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Nutrition value of cara. O Hospital, 24: 877-892.

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Ascorbic acid content of some local Barbados foods. Nature, 164: 531-532.

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J.4 STARCHES, CARBOHYDRATES AND SUGARS

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Carbohydrate content in tubers of Chinese yam produced under various cultural conditions and at various stages of tuber growth Yamagata Daigaku Kiyo Kogaku, 3(1): 263-271.

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Extraction, purification and amylose content of some starches. J. Agric. Univ. of Puerto Rico 55(2): 263-264.

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Properties of starch from Florida yam (Dioscorea alata L.) J. Agric. Univ. Puerto Rico, 58(3): 312-316.

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Digestibility of starches from various food plants of southern Cameroons. Effect of technological transformation on manioc starch. Industries Alimentaires et Agricoles. 86(1): 9-13.

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Free sugars & polysaccharides of Dioscorea species (Yams). Arquivos de Biologia e Tecnologia, 16(2): 135-139.

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The X-ray study of starch. J. Agric. & Chem. Soc. Japan, 22: 91-93.

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Investigations on starches from major starch crops grown in Ghana. II. Swelling and solubility patterns: amyloclastic susceptibility. J. Sci. Food & Agric., 20(11): 642-646.

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Hydrolytic products of the mucilage of yam. J. Agric. & Chem. Soc. Japan 14: 650-658.

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Purification of Chinese yam amylase. Hokkaido Daigaku Nogakubu Hobun Kiyo 6(1): 63-72.

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J.5 NON-FOOD, NON-PHARMACEUTICAL USES

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K.1 TOXIC AND PHARMACOLOGICALLY ACTIVE CONSTITUENTS (GENERAL)

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Laboratory studies on the detection and treatment of yam poisoning (Dioscorea dumetorum). W. African Med. J. 5: 76-79.

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Anorexiant activity of Kalio-Kund. (Dioscorea bulbifera), methylphenidate and cocaine in rats. Indian J. Med. Res. 57(6): 1075-1080.

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Structure of diosbulbine. Indian J. Chem. 7(5): 452-456.

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K. 6 DIOSGENIN

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