

**BIBLIOGRAPHY
OF
FRUIT AND NUTS
IN
PAPUA NEW GUINEA**

By R. Michael Bourke and K. Aburu

**DEPARTMENT OF PRIMARY
INDUSTRY
PORT MORESBY**

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ABSTRACT

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A bibliography of 126 papers on fruit and nut research and development in Papua New Guinea is presented. Excluded from the bibliography are papers that deal with peanuts, coconuts and bananas used as a staple food; and passing references in the literature to use of fruit and nut species by villagers.

BIBLIOGRAPHY

OF FRUIT AND NUTS

IN PAPUA NEW GUINEA

BY

R. MICHAEL BOURKE* AND K. ABURU**

* PRINCIPAL HORTICULTURIST,
DEPARTMENT OF PRIMARY INDUSTRY,
HIGHLANDS AGRICULTURAL EXPERIMENT STATION,
AIYURA, P.O. BOX 384,
KAINANTU, E.H.P.

** FORMERLY SENIOR HORTICULTURIST,
DEPARTMENT OF PRIMARY INDUSTRY,
LOWLANDS AGRICULTURAL EXPERIMENT STATION,
KERAVAT, E.N.B.
(NOW DECEASED.)

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- Anon. (1975). Vegetable varieties of the Enga and Western Highlands Provinces. *Highland Food Crops Newsletter* 7. Kuk Tea Research Station.
- Anon. (1981). Mango. *Nutrition and Development* 4(2):28-29.
- Anon. (1981). Papaya. *Nutrition and Development* 4(1):28-29.
- Bagar, M. R. and Malai, J. (1979). Polyethylene bags help control banana ripening. *Harvest* 5(4):217-220.
- Bernau, J. (1958). Subsistence agriculture in Melanesia. B. P. Bishop Museum Bull. 219.

ABSTRACT

A bibliography of 126 papers that refer to fruit and nuts in Papua New Guinea is presented. Excluded from the bibliography are papers that deal with peanuts, coconuts and bananas used as a staple food; and passing references in the literature to use of fruit and nut species by villagers.

INTRODUCTION

In 1981/82 the authors prepared a draft of fruit and nut research and development policy for Papua New Guinea (Bourke and Aburu, 1982). As part of this draft policy we included a bibliography. The present bibliography has been expanded from the original one. We use the terms fruit and nuts as they are used by agriculturalists, not in the stricter botanical sense. Thus we exclude botanical fruit such as tomatoes or capsicum which are traditionally classed as vegetables. We have excluded coconuts and peanuts because these two nut crops have an extensive literature in Papua New Guinea. A number of unpublished DPI papers are included because of their significance. A number of papers refer principally to vegetables, but they are included because they also cover watermelons and rockmelons (see papers by Anon (1975), Blackburn, Kemp, Kesavan and Lambert).

In general we have not included the extensive literature by anthropologists, geographers and agriculturalists in which fruit and nut species used by various groups of people are referred to in lists of crops grown. This is because this literature is so extensive. It can be noted, however, that many books, papers and theses by such workers do contain at least passing reference to traditional species such as various pandanus species, "galip" (*Canarium* sp) and breadfruit. Powell (1976) refers to some of this literature. We have also excluded papers that refer to bananas when they are grown as a staple crop, as in the Markham and Snake River Valleys, and articles that give recipes that utilize fruit and nuts.

BIBLIOGRAPHY

- Aburu, K. (1978). Planting material available from L.A.E.S.
L.A.E.S. Inform. Bull. 13.
- Aburu, K. (1979). Notes on some of the rare exotic fruit trees in Papua New Guinea. Mimeo, DPI, LAES, Keravat. 8pp.
- Aburu, K. (1982). Planting material available from H.A.E.S. Aiyura.
HAES Tech. Bull. 16.
- Aburu, K. (1982). Some fruit and nut trees in the Keravat area of East New Britain. In Proc. Second Papua New Guinea Food Crops Conf. R. M. Bourke and V. Kesavan (Eds.). Dept. Primary Industry, Port Moresby.
- Anon. (1975). Vegetable varieties of the Enga and Western Highlands Provinces.
Highland Food Crops Newsletter 7. Kuk Tea Research Station, Mt. Hagen.
- Anon. (1981). Mango. Nutrition and Development 4(2):28-29.
- Anon. (1981). Pawpaw. Nutrition and Development 4(1):28-29.
- Baqar, M. R. and Malai, J. (1979). Polyethylene bags help control banana ripening. Harvest 5(4):217-220.
- Barrau, J. (1958). Subsistence agriculture in Melanesia. B. P. Bishop Museum Bull. 219.

- Blackburn, K. (1975). A guide for lowland introduced vegetable varieties. Informat. Bull. 1. DASF Laloki Plant Introduction Station.
- Blackburn, K. J. (1976). Observations on the selection and management of introduced vegetable varieties under Port Moresby dry season conditions. In 1975 Papua New Guinea Food Crops Conf. Proc. K. Willson and R. M. Bourke (Eds.). Dept. Primary Industry, Port Moresby. pp163-186.
- Blackburn, K. (1976). Tentative recommendations for growing introduced vegetables in lowland dry season conditions. In 1975 Papua New Guinea Food Crops Conf. Proc. K. Willson and R. M. Bourke (Eds.). Dept. Primary Industry, Port Moresby. pp381-384.
- Booth, C. and Shaw, D. E. (1961). Black cross, caused by a new species of Phyllachora on bananas. Papua New Guin. agric. J. 13(4):157-159.
- Bourke, R. M. (1976). A comparison of five types of planting material for rough leaf pineapples, Papua New Guin. agric. J. 27(4):107-113.
- Bourke, R. M. (1976). Know your bananas. Harvest 3(2):48-54. Also published in 1975 Papua New Guinea Food Crops Conf. Proc. K. Willson and R. M. Bourke (Eds.). Dept. Primary Industry, Port Moresby, pp371-377.
- Bourke, R. M. (1976). Making pineapples fruit. Harvest 3(4):122-126. Also published as L.A.E.S. Informat. Bull. 9.
- Bourke, R. M. (1976). Pineapples. Rural Devel. Handbook 10. Dept. Primary Industry, Port Moresby.
- Bourke, R. M. (1976). Seasonal influences on fruiting of rough leaf pineapples. Papua New Guinea agric. J. 27(4):103-106.
- Bourke, R. M. (1977). Pineapples. Farming Notes 8. Dept. Primary Industry, Port Moresby.
- Bourke, R. M. (1980). Boron deficiency is widespread in the highlands. Harvest 6(4):175-178.
- Bourke, R. M. (1981). Some little known food crops from Papua New Guinea. IBPGR Regional Committee for Southeast Asia Newsletter 5(1):6-8.
- Bourke, R. M. (in press). Compost helps bananas grow. Harvest
- Bourke, R. M. and Aburu, K. (1982). Draft fruit and nut research and development policy for Papua New Guinea. Unpubl. paper. DPI, HAES, Aiyura. 16pp.
- Bourke, T. V., Fenner, T. L., Stibick, J.N.L., Baker, G. L., Hassan, E., O'Sullivan, D. F. and Li, C. S. (1973). Insect pest survey for the year ending 30th June, 1969. Dept. Agric. Stock Fish., Port Moresby.
- Brough, E. J. (1982). Observations of citrus insects in the Port Moresby environs. In Proc. Second Papua New Guinea Food Crops Conf. R. M. Bourke and V. Kesavan (Eds.). Dept. Primary Industry, Port Moresby.
- Burton-Bradely, B. G. (1966). Papua and New Guinean transcultural psychiatry: Some implications of betel chewing. Med. J. Aust. 2(16): 744-746.
- Byrne, P. N. (1978). National fruit and nut project. Mimeo. D.P.I. Agronomy Horticulture conference Background Paper 22. 4pp.

- Carrad, B. and Bourke, R. M. (1982). Introduced vegetables, fruit and nuts in Enga. In Enga: Foundations for Development. B. Carrad, D.A.M. Lea and K. K. Talyaga (Eds.). Enga Provincial Government and National Planning Office.
- Charles, A. E. (1972). Passionfruit industry. In Encyclopaedia of Papua New Guinea. P. Ryan (Ed.). Melb. Univ. Press. pp892-894.
- Charles, A. E. (1976). DASF food plant introduction work. In 1975 Papua New Guinea Food Crops Conf. Proc. K. Willson and R. M. Bourke (Eds.). Dept. Primary Industry, Port Moresby. pp379-380.
- Charles, A. E. (1979). Fruit trees for Papua New Guinea. Harvest 5(1):41-51.
- Charles, A. E. (1980). Fruit and nut trees. Farming Notes 26. Dept. Primary Industry, Port Moresby.
- Clarke, W. C. (1971). Place and People. ANU Press, Canberra.
- Cummins, G. B. (1961). A new rust on Finschia chloroxantha in New Guinea. Papua New Guin. agric. J. 14(1):52.
- DASF (1961). Annual Report 1959-1960. Dept. Agric. Stock Fish., Port Moresby (p61 Cashew nut).
- DASF (1965). Annual Report 1963-64. Dept. Agric. Stock Fish., Port Moresby (p73 Strawberries).
- DASF (1968). Annual Report 1965-66. Dept. Agric. Stock Fish., Port Moresby (p70, Citrus, avocado, cashew nut).
- DASF (1968). Growing passionfruit in the village. Books 1, 2, 3/Flipcharts 1, 2, 3. Dept. Informat. Exten. Serv., Port Moresby.
- DASF (1969). Annual Report 1966-67. Dept. Agric. Stock Fish., Port Moresby (p79-81 Various species).
- DASF (1972). Annual Report 1967-69. Dept. Agric. Stock Fish., Port Moresby (p75-76 Various species).
- Densley, D.R.J. (1978). Marketed fruit and vegetables. In Agriculture in the Economy. D.R.J. Densley (Ed.). Dept. Primary Industry, Port Moresby.
- Division of Botany (1969). Manual of the forest-trees of Papua and New Guinea. Dept. Forests, Lae.
- Entomology Branch (1969). Insect pest survey for the year ending 30th June, 1967. Papua New Guin. agric. J. 21(2):49-75.
- Entomology Branch (1971). Insect pest survey for the year ending 30th June, 1968. Papua New Guin. agric. J. 22(3):179-201.
- Farnworth, E. R. (1973). The composition of Papua New Guinea foods. Science in New Guinea 1(3,4):21-41.
- Farnworth, E. R. (1975). Areca catechu and Piper betle in Papua New Guinea: an elemental analysis. Science in New Guinea 3(3):211-214.
- Farnworth, E. R. (1976). Betel nut - its composition, chemistry and uses. Science in New Guinea 4(2):85-90.
- Fisher, J. M. and Shaw, D. E. (1971). Radopholus similis, the burrowing nematode in New Guinea. Papua New Guin. agric. J. 22(3):177-178.

- French, B. and Bridle, C. (1979). Food crops of Papua New Guinea. Vudal Agric. College.
- Gallasch, H. (1976). Grow food crops under your coconuts. Nutrition and Development 2(1):22-25.
- Gallasch, H. (1976). Integration of cash and food cropping in the lowlands of Papua New Guinea. In 1975 Papua New Guinea Food Crops Conf. Proc. K. Willson and R. M. Bourke (Eds.). Dept. Primary Industry, Port Moresby. pp101-116.
- Gallasch, H. (1978). Grow food crops with your coconuts. L.A.E.S. Inform. Bull. 12.
- Greve, J.E. van S. and Ismay, J. W. (1982). (Eds.). Crop insect survey 1969 to 1978. Papua New Guin. agric. J. 32.
- Hale, P. R. and Williams, B. D. (1977). (Eds.). Liklik Buk. Melanesian Council of Churches, Lae.
- Harris, R. J. (1954). The propagation of citrus in the Keravat-Rabaul area. Papua New Guin. agric. Gaz. 8(3):7-17.
- Hartley, A. (1974). The cashew nut in Papua New Guinea. Dept. Agric. Stock Fish., Konedobu.
- Heenan, D. P. (1973). Bunch covers for bananas in the Northern District. Papua New Guin. agric. J. 24(4):156-161.
- Heenan, D. P. (1973). Preliminary observations on the growth and production of bananas in the Northern District of Papua New Guinea. Papua New Guin. agric. J. 24(4):145-155.
- Heenan, D. P. (?). The major pest and diseases found associated with bananas (Cavendish) at Lejo, Northern District. Unpubl. paper, DPI, Popondetta (File 23-1-Q. PMCI Entomology Section, DPI, Popondetta).
- Heenan, D. P. (1975). Bananas. Farming Notes 12. Dept. Primary Industry, Port Moresby.
- Heenan, D. P. (1976). Methods for commercial banana growing. Harvest 3(2): 42-47.
- Henty, E. E. (1982). Some nut-bearing plants in Papua New Guinea. In Proc. Second Papua New Guinea Food Crops Conf. R. M. Bourke and V. Kesavan (Eds.). Dept. Primary Industry, Port Moresby.
- Hepworth, A. (1976). Fruit and vegetable processing. In 1975 Papua New Guinea Food Crops Conference Proc. K. Willson and R. M. Bourke (Eds.). Dept. Primary Industry, Port Moresby. pp327-331.
- Hick, S. (1980). Insect and nematode pests of crops. Rural Development Handbook 17. Dept. Primary Industry, Port Moresby.
- Hoy, G.S.M. (1968). Citrus - some notes. DASF Rural Digest 9(6):14-22.
- Hunter, M. N. and Sickey, B. (1972). Pineapple production in the Markham Valley. Harvest 2(1):5-8.
- Ismay, J. W. and Dori, F. M. (in prep.) (Eds.). Crop insect survey 1979 to 1981. Papua New Guin. agric. J.

- Kemp, C. (1976). Trial work with introduced vegetables in West New Britain. In 1975 Papua New Guinea Food Crops Conf. Proc. K. Willson and R. M. Bourke (Eds.). Dept. Primary Industry, Port Moresby. pp187-204.
- Kesavan, V. (1977). Potential and problems of vegetable production in lowland Papua New Guinea. In Agriculture in the Tropics. B.A.C. Enyi and T. Varghese (Eds.). University Papua New Guinea. pp453-462.
- Lambert, M. (1975). Special project on vegetable production results of 1974 variety trials. Informat. Circ. 66. South Pacific Comm., Noumea.
- Loh, D. W. (1975). Planting material available from L.A.E.S. L.A.E.S. Inform. Bull. 5.
- Magee, C. J. (1952). Report on a survey of passionfruit disease in the Central and Western Highlands of New Guinea. Typescript, Dept. Agriculture, N.S.W.
- Magee, C. J. (1954). Report on a plant virus disease survey in the Territory of Papua and New Guinea - Part I (Mahila Hemp). Papua New Guin. agric. Gaz. 8(4):12-27.
- Magee, C. J. (1954). Report on survey of virus diseases of food crops in the Territory of Papua and New Guinea with special reference to plant quarantine - Part II. Papua New Guin. agric. Gaz. 9(1):17-26.
- Massal, E. and Barrau, J. (1956). Food plants of the South Sea Islands. Tech. Paper 94. South Pacific Comm., Noumea.
- Monro, G. (1980). Essays on pandanus. No. 1. Review of edible pandanus in Papua New Guinea. Unpubl. report. H.A.E.S., DPI, Tambul.
- Nitsche, J. J. (1971). The growing of passionfruit. Harvest 1(2):56-60.
- Nitsche, J. J. (1976). Passionfruit. Farming Notes 5. Dept. Primary Industry, Port Moresby.
- Norgan, N. G., Durnin, J.V.G.A., Ferro-Luzzi, A. (1979). The composition of some New Guinea foods. Papua New Guin. agric. J. 30(1-3):25-39.
- Nutrition Section (1975). Nutrition for Papua New Guinea. Dept. Public Health, Konedobu.
- Paine, R. W. (1961). Observations on the banana scab moth in the Territory of Papua and New Guinea. Papua New Guin. agric. J. 14(1):45-47.
- Paine, R. W. (1964). The banana scab moth, Nacoleia octasema (Meyrick): its distribution, ecology, and control. Tech. Paper 145. South Pacific Comm., Noumea.
- Pearson, M. N. (1982). A review of virus and mycoplasma diseases of food crops in Papua New Guinea. In Proc. Second Papua New Guinea Food Crops Conf. R. M. Bourke and V. Kesavan (Eds.). Dept. Primary Industry, Port Moresby.
- Powell, J. M. (1976). Ethnobotany. In New Guinea Vegetation. K. Pajmans (Ed.) ANU Press, Canberra. pp106-183.
- Richardson, D. L., Hamilton, K. S. and Hutchinson, D. J. (1965). Notes on bananas I. Natural edible tetraploids. Trop. Agric. (Trid.) 42(2):125-137.
- Rose, C. J. (1982). Preliminary observations on the pandanus nut (Pandanus julianetti Martelli). In Proc. Second Papua New Guinea Food Crops Conf. R. M. Bourke and V. Kesavan (Eds.). Dept. Primary Industry, Port Moresby.

- Sabub-Kanai, H. (1980). The food value of soursop. Nutrition and Development 3(1):8-10.
- Shaw, D. E. (1963). Plant pathogens and other microorganisms in Papua and New Guinea. Resear. Bull. 1. Dept. Agric. Stock Fish., Port Moresby.
- Shepherd, A. (1978). Passionfruit in Papua New Guinea. Unpubl. report. P.E.M. Branch, Dept. Primary Industry, Port Moresby.
- Simmonds, N. W. (1956). A banana collecting expedition to South East Asia and the Pacific. Trop. Agric. (Trid.) 33(4):251-271.
- Simmonds, N. W. (1959). Bananas. Longmans, Bristol.
- Simmonds, N. W. (1962). The Evolution of Bananas. Longmans, Bristol.
- Simpson, J. A. and Arentz, F. (1982). Notes on tree fruits cultivated in the Bulolo and Wau Valley with particular reference to pests and diseases. In Proc. Second Papua New Guinea Food Crops Conf. R. M. Bourke and V. Kesavan (Eds.). Dept. Primary Industry, Port Moresby.
- Smith, E.S.C. (1977). A fruit fly trapping programme in the Northern Province. Science in New Guinea 5(1):38-42.
- Smith, E.S.C. (1977). Studies on the biology and commodity control of the banana fruit fly Dacus musae Tryon in Papua New Guinea. In Agriculture in the Tropics. B.A.C. Enyi and T. Varghese (Eds.). Univ. Papua New Guinea. pp323-329. Also published in Papua New Guin. agric. J. 28(2,3,4):47-56.
- Smith, E.S.C. and Thistleton, B. M. (1982). Some common pests of vegetable and fruit in Papua New Guinea and their control. In Proc. Second Papua New Guinea Food Crops Conf. R. M. Bourke and V. Kesavan (Eds.). Dept. Primary Industry, Port Moresby.
- So'on, M. (1982). Fruit promotion in conjunction with world food day - Madang Province. Nutrition and Development 4(4):26-27.
- St. John, H. (1974). New pandanus species from New Guinea and Bougainville Island. Contr. Herb. Aust. 3:1-6.
- Stone, B. C. (1974). Studies in Malesian Pandanaceae. XIII. New and noteworthy pandanaceae from Papuasias. Contr. Herb. Aust. 4:7-40.
- Stone, B. C. (1981). Proposal for an agronomic study of "karuka". Typescript. Dept. Primary Industry, Konedobu. 4pp.
- Szent-Ivany, J.J.H. (1955). The cupmoth Scopelodes dinawa B. Bak (Family Limacodidae) as a pest of manila hemp and mango. Papua New Guinea agric. J. 9(3):124-128.
- Szent-Ivany, J.J.H. (1959). Host plant and distribution records of some insects in New Guinea. Pacific Insects 1(4):423-429.
- Szent-Ivany, J.J.H. and Barrett, J. H. (1956). Some insects of bananas in the Territory of Papua and New Guinea. Papua New Guin. agric. J. 11(1):40-44.
- Szent-Ivany, J.J.H. and Cutley, A. (1966). Host plant and distribution records of some insects. 1. New Guinea and adjacent islands. Pacific Insects 2(3):255-261.
- Tarepe, T. N. (1978). Fruits and nuts programme - H.A.E.S. - Aiyura. Mimeo. D.P.I. Agronomy/Horticulture Conference. Background Paper 17. 8pp.

- Tarepe, T. N. (1979). Growing strawberries. HAES Tech. Bull. 9.
- Tarepe, T. and Bourke, R. M. (1982). Fruit crops in the Papua New Guinea highlands. In Proc. Second Papua New Guinea Food Crops Conf. R. M. Bourke and V. Kesavan (Eds.). Dept. Primary Industry, Port Moresby.
- Teke, W. (1980). Tok save long stroberi. HAES Aiyura Toktok 3.
- Templeton, H. (1976). Machines and equipment for the production of food products (vegetables and fruit). In 1975 Papua New Guinea Food Crops Conf. Proc. K. Willson and R. M. Bourke (Eds.). Dept. Primary Industry, Port Moresby. pp241-246.
- Thomas, G. S. (1982). Review of the prospects for food processing in Papua New Guinea. In Proc. Second Papua New Guinea Food Crops Conf. R. M. Bourke and V. Kesavan (Eds.). Dept. Primary Industry, Port Moresby.
- Thrower, L. B. (1958). Observations on the root-knot nematode in Papua New Guinea. Trop. Agric. (Trid.) 35:213-217.
- Thrower, L. B. (1960). The root-knot nematode. Papua New Guin. agric. J. 13(3): 119-124.
- van Velsen, R. (1960). A strain of melon mosaic virus on "Cucurbita Moschata Duchesne" in New Guinea. Papua New Guin. agric. J. 13(1):36-38.
- van Velsen, R. J. (1961). Chlorotic spot, a virus disease of Passiflora foetida in New Guinea. Papua New Guin. agric. J. 13(4):160-166.
- White, C. T. (1961). Forest Botany Lectures. Division of Botany, Dept. Forests.
- Willson, K. C. (1976). Some thoughts on fruit. In 1975 Papua New Guinea Food Crops Conf. Proc. K. Willson and R. M. Bourke (Eds.). Dept. Primary Industry, Port Moresby. pp237-239.
- Willson, K. C. (1977). Preliminary notes on growing apples in the highlands of Papua New Guinea. Science in New Guinea 5(3):121-126.
- Willson, K. C. (1982). Apples in the highlands: results, culture and potential for high-altitude gardens. In Proc. Second Papua New Guinea Food Crops Conf. R. M. Bourke and V. Kesavan (Eds.). Dept. Primary Industry, Port Moresby.
- Womersley, J. S. (1972). Crop plants. In Encyclopaedia of Papua and New Guinea. P. Ryan (Ed.). Melb. Univ. Press/Univ. Papua New Guinea. pp222-232
- Womersley, J. S. (1978). (Ed.). Handbooks of the Flora of Papua New Guinea. Vol. 1. Melb. Univ. Press, Melbourne.

ADDENDUM

The following papers need to be added to this bibliography.

- Malai, J. (1978). Post-harvest physiology of banana fruit ripening. Dept. Chem. Tech., Univ. Tech., Lae.
- Millar, A. N. and Dodd, J. (in press). Wild and cultivated fruit and nut crops of Papua New Guinea. In Tree Crops - The Third Component. Proc. First Australasian Conf. Tree Nut Crops. Coruocopic Press, Perth.

Tarepe, T. N. (in press). Ripening bananas quickly. Harvest

Tarepe, T. N. (in press). Naranjilla: a new fruit for the highlands. Harvest

Willson, K. C. (in press). Evaluation of apple cultivars and growing techniques in the Papua New Guinea highlands. Papua New Guinea agric. J.

