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Interlaboratory Studies
Pieter Scheelings
Australian Government Analytical Laboratories

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Chaired by John Klensin

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David Apimerika

Software Development
Janine Lewis

International Interchange
Barbara Burlingame

Food Descriptor Language
Stewart Truswell

LIST OF PARTICIPANTS
ACKNOWLEDGEMENTS

SPONSORS

The Third OCEANIAFOODS Conference was made possible with the generous funding support from the following organisations:

New Zealand Apple and Pear Marketing Board
Kelloggs (Australia)
NZ Dairy Advisory Bureau
Goodman Fielder Wattie
Sanitarium
FOREWORD

OCEANIAFOODS is the regional group of the International Network of Food Data Systems, working to facilitate interaction and collaboration amongst the three regional member food composition programmes. Conferences are held biennially. The first OCEANIAFOODS' conference was held in Canberra in May 1987, organised and hosted by the Nutrition Section of the Commonwealth Department of Community Services and Health; the second was held in Suva in November 1989, again organised by the Commonwealth Department of Community Services and Health. This, the third OCEANIAFOODS Conference, is organised by the New Zealand Department of Scientific and Industrial Research (Crop Research Division), with funding from the New Zealand Apple and Pear Marketing Board, New Zealand Dairy Advisory Bureau, Kelloggs (Australia), Goodman Fielder Wattie, and Sanitarium.

The first day of this conference was planned to allow attendance of invited speakers and observers. This was deemed important because progress has made the input of users and potential users of the information relevant to future planning of activities in food composition analyses and database development. The second and third days of the conference were attended by OCEANIAFOODS delegates only.

The most striking post-conference observation was the significant progress made in the two years since the last conference. OCEANIAFOODS has achieved many of its goals as defined at the first and second conferences and new areas of co-operation and collaboration have now been identified.

Strategies and tactics for achieving new goals will be implemented during the period up to December 1993, when the fourth OCEANIAFOODS Conference will be held. The spirit of co-operation within OCEANIAFOODS is strong and individual goals for member groups are being constructed to be compatible with the goals of OCEANIAFOODS and INFOODS.

Barbara Burlingame & John Monro
Co-convenors, December 1991
SUMMARY OF RECOMMENDATIONS AND RESOLUTIONS

1. New Zealand's two-year convenorship of OCEANIAFOODS ends and convenorship passes to Australia in the person of Stewart Truswell.

2. Exchange of methods between laboratories will be undertaken by the Analytical Working Party, under the chairmanship of Don Buick, and involving Bill Aalbersberg and John Monro. An annotated list will be sent out for comment and final copies will be sent to the Convenor by 1 July 1992.

3. There will be an agreement to proposal on a basic set of Quality Control and Quality Assurance parameters as outlined in Pieter Scheelings' paper, and issued as Appendix A to his paper.

4. Common control samples will be identified. Members of the Analytical Working Party will supply a list, first to Don Buick, and then from Don to Convenor.

5. A session at the next OCEANIAFOODS Conference will include presentation of results of the control charts.

6. A simple Check-Sample Program will be developed, involving two samples per year, co-ordinated by Pieter Scheelings, Laboratories involved will include Fiji, Lae, Port Moresby, Bangkok, DSIR Palmerston North, AGAL Adelaide. Results will be presented at the next OCEANIAFOODS Conference.

7. It was agreed that an OCEANIAFOODS interlaboratory proficiency program would be impractical, but that laboratories should engage in external proficiency studies.
8. Pieter Scheelings will contact David Southgate, Clive West and David Buss and work out interlaboratory participation with certified reference materials used by EUROFOODS.

9. Stewart Truswell will organise contact with University of Hawaii's nutritionist and inquire about their involvement in OCEANIAFOODS.

10. OCEANIAFOODS will make contributions to Pacific Food News or Pacific Island Nutrition. Information should be sent to Stewart Truswell, who will then forward the information to the publications' editors.

11. It was agreed that a formal Inter-Regional Interchange Group should be established involving Barbara Burlingame, Cecily Dignan, Ruth English and John Klensin, and involving ASEANFOODS. This group will investigate areas of incompatibility and report at the next OCEANIAFOODS Conference.

12. In-country training in Papua New Guinea will be investigated by SPC and AGAL.

13. New Zealand will offer training in nutritional database compilation and data management and integrity programs to SPC.

14. Australia and New Zealand will offer input into the SPC newsletters, in the form of data and text.

15. Stewart Truswell will investigate the possibility of sending two post-graduate students from the University of Sydney, Human Nutrition Department, to visit SPC and assist with the Food Composition Program.

16. The Australian delegation will make inquiries about the availability of government funding for food analyses for the Fiji laboratory. If initial response is positive, project proposals will be developed by AGAL and Bill Aalbersberg.
17. ASEANFOODS will continue to be involved in interlaboratory trials, interchange activities and meetings.

18. The next OCEANIAFOODS Conference will be held in late November or early December 1993, probably in Fiji.
PROGRAMME

OCEANIAFOODS Conference
Brooke House Conference Room
DSIR Industrial Development
Balfour Road, Auckland New Zealand

3-5 December 1991

TUESDAY, 3 DECEMBER

from
09.00am Reception and Morning Tea
10.00 Official Opening
Rt Hon Denis Marshall, Minister of DSIR

Session 1
10.15 Country Reports — Chaired by Ruth English
10.30 INFOODS: John Klensin
10.45 Australia: Ruth English
11.00 Traditional Foods (Aboriginal): Stewart Truswell
11.15 New Zealand: Barbara Burlingame
11.30 South Pacific Commission: Cecily Dignan
11.45 Fiji: Bill Aalbersberg
12.00 ASEANFOODS: Prapasri Puwastien

12.15-1.00pm Lunch

Session 2
1.00 Food Composition Database Applications & Implications — Chaired by Stewart Truswell
1.20 Labelling and Legislation Harmonization Issues: Dick Hubbard, Chairman of Food Standards
1.40 Public Health Policy: John Birkbeck,
Director of the Nutrition Foundation
2.00 Science Ethics Issues: Bob Mann,
Editor New Zealand Environment

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WEDNESDAY, 4 DECEMBER

Session 3
8.30am Sampling, Sample Documentation and Sample Preparation — Chaired by Don Buick

A discussion of problems which can arise and the need for different procedures.

Session 4
9.30 Analytical Methodology — Chaired by John Monro

A discussion of problems, procedures, and regional standardisation (including Dietary Fibre: John Monro; and Carotene Analyses: Bill Aalbersberg)

10.30-11.00 Morning tea

Session 5
11.00 Interlaboratory trials — Chaired by Pieter Scheelings

Review of the principles and procedures for interlaboratory studies and discussion on needs and priorities for the region.

12.00-1.00pm Lunch
Session 6

1.00 **Computerization** — Chaired by John Klensin

INFOODS Goals and Progress: John Klensin

Data Dissemination; Structure for Multi-purpose Output: Graham Duxfield, Computer Programmer, DSIR, Palmerston North, NZ

Data Integrity: David Apimerika, Computer Programmer, DSIR, Palmerston North, NZ

Software Development: Janine Lewis

International Interchange: Barbara Burlingame

Food Descriptor Language: Stewart Truswell

**THURSDAY, 5 DECEMBER**

Session 7

9.00am **Discussion of Policies and Final Recommendations** — Chaired by Barbara Burlingame

10.30-11.00 Morning tea

Session 8

11.00 **Demonstration of Core Computing System for Regional Centres** — Chaired by John Klensin
I am very pleased to welcome you to this, the third OCEANIAFOODS Conference. New Zealand is proud to host delegates from Australia, Fiji, and New Caledonia as well as the invited speakers and observers.

In particular may I extend warm greetings to the executive secretary of INFOODS - Dr John Klensin from the United States of America - and the ASEANFOODS representative, Dr Prapasri Puwastien from Thailand. Your presence is an illustration of the international significance of this occasion.

OCEANIAFOODS, while important in its own right as embracing some 26 nations of the South Pacific, is part of the INFOODS network that spans the globe.

The United Nations Programme on Food, Nutrition, and Poverty set up this network to improve the quality, quantity and accessibility of food data. The importance of that data is self-evident, as food is the most basic of necessities.
This is the first OCEANIAFOODS conference to be hosted by New Zealand, with DSIR Crop Research, Food and Nutrition acting as convenor.

New Zealand is well placed to make a significant contribution in this area, as this small country has traditionally produced much more food than we consume.

In fact we are unique in that we rely on exporting food products for the vast majority of our export income - the only country in the world with our standard of living to do so.

INFOODS was formed in response to the need for high quality food data in tackling the daunting problem of global nutrition. The quality, quantity and accessibility of food composition data are crucial to solving this problem.

Since 1987 OCEANIAFOODS has provided a forum, promoted regional co-operation and linked with other networks devoted to this important work.

Information that leads to a better understanding of human health and its relationship to the environment is fundamental to the well-being of all people.

If I put on my hat as Associate Minister for Agriculture, I might also add that it is very important to the primary production sectors. New Zealand is proud of its "clean green" image, and indeed that image is becoming an increasingly important marketing factor in both domestic and international markets.

It is therefore essential that we can identify chemical residues in foodstuffs. Quality assurance, to international standard measurements, will be increasingly important to our customers as environmental awareness grows.

We must know what levels of contaminants, or additives, the human body can safely absorb. That information is vital for planning on the production side of the equation. Processors must know what techniques produce acceptable products.

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Mapping geographic areas of contaminants within population bases is important for dieticians, toxicologists and health planners.

An understanding of the nature of food is important to agricultural scientists, food technologists, and even conservationists. Putting on another of my hats, this time as Minister of Conservation, I can point to a trailblazing example which has international significance.

The kakapo is an endangered New Zealand bird which has almost become a symbol of the conservation movement. Schoolchildren in New Zealand are recycling aluminium cans, and Japanese are buying postcards to help the effort to save the kakapo.

I am pleased to say that the future of the kakapo is now more secure, and much of the credit for that must go to food technology.

DSIR examined the diet of the kakapo on its Stewart Island habitat prior to birds being transferred to safe predator-free islands. That study has led to a supplemental feeding programme in the new habitats which this season led to the first breeding success for almost a decade.

The Department of Conservation is convinced that the supplemental feeding and increased nutrients have produced healthier kakapo, and a vastly healthier outlook for the kakapo.

In New Zealand we look to the convenors of this conference, DSIR Crop Research, for expertise in these areas. The DSIR will be transformed into the CRIs next year - along with the Technology Division of the Ministry of Agriculture and Fisheries, the Forest Research Institute and the Communicable Diseases Centre.

New Zealand's contribution to OCEANIAFOODS will continue when the National Institute for Field Crop Research and the Environmental Health and Forensic Science Research Institute start work in July next year.

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The Government has established a benchmark minimum of $260 million for Public Good Science over the next five years. That should ensure the future of government-funded research. However, the new research institutes will also have more flexibility than the DSIR or its sister organisations experienced.

The CRIs will be able to join other organisations in research projects, and enjoy a pliability which the Public Finance Act does not extend to the present organisations.

I want to assure delegates that the Government supports the work of INFOODS and its regional networks. New Zealand can, and has, made a contribution to world food production which is much greater than its size and population would suggest. However, that also means accurate food data is essential for New Zealand's economic survival.

I am pleased that OCEANIAFOODS has chosen New Zealand to host this conference, and thank Barbara Burlingame for her work as its convenor. I declare this third meeting of the OCEANIAFOODS group officially open.

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National Food Composition Program in Australia

Ruth M English, Chief Nutritionist
National Food Authority, Canberra

Introduction

The first set of Australian food composition tables was published in the late 1930's in a report of the National Advisory Council on Nutrition (1). These tables, developed by Dr Geoffrey Bourne provided proximate values on some 1200 foods for an analysis of a dietary survey, conducted in four States - New South Wales, Victoria, South Australia and Queensland. The first published monograph of food composition data, under the title of Tables of composition of Australian foods, was compiled by Anita Osmond and released in 1946 as the National Health and Medical Research Council's (NHMRC) Special Report Series No 2 (2). These tables were revised in 1954 by Winifred Wilson (3) and republished in 1970 with extensive revisions and re-formatting under the authorship of Sucy Thomas and Margaret Corden (4). In 1979, a Working Party of the Nutrition Committee of NHMRC was established to plan a revision of the Australian food tables to be based on a major analytical program of national foods. The analytical program commenced in 1981 and has been maintained through the 1980's and now into the 1990's.

Sampling Program

The sampling program for the food analysis is based on foods available to the consumer in the market-place, taking into consideration the contribution of foods to the national diet or the diet of subgroups in the overall population. Within the limitations of resources available for the Australian or indeed any food composition program, it is not possible to consider analysing the majority of food items in a modern food supply, estimated to be some 16,000 individual products in the Australian market-place. Therefore it is important that within each major analytical program for a specific food grouping.
foods selected are those commonly consumed, balanced by the significance of their nutrient contribution.

For the actual sampling process, consideration is given to the geographical density of the population, the venues where food is purchased, the originating source of the food and factors that might influence the variability of the nutrients in the food at the time of purchase and during and after sampling. For processed and manufactured foods, sampling is based on market shares and production runs. Packaged foods are analysed within the product shelf-life, as identified by the use-by date. For most foods, a composite sample is prepared for analysis from multiple individual samples.

**Determination of Nutrients**

Currently, nearly all analyses are undertaken by the Australian Government Analytical Laboratories. Through their food analytical work, Associate Professor Heather Greenfield and colleagues at the University of New South Wales have contributed significantly to the analytical program and subsequent publications. The analysis of a number of nutrients has required a considerable time period for setting-up methods, solving problems and achieving acceptable quality assurance standards. Nutrients included in the analytical programs to 1989 were:

- Water, nitrogen, amino acids
- Fat, fatty acids, cholesterol
- Sugars, starches, organic acids
- Ash
- Dietary fibre (AOAC method)
- Vitamins - A, carotenes, B-1, B-2, niacin, C
- Minerals - Na, K, Ca, P, Mg, Fe, Zn, Cu, Mn.

Since 1989, the following nutrients have been included in the analytical program:

- Vitamins - B-6, biotin, pantothenic acid, B-1 2, folates
- Minerals - Se, S, Cl, Fl.

To date, some 2000 foods have been analysed in the current food composition program.

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Validation Process

Nutritionists previously within the Department of Health, and now in the National Food Authority, have the responsibility for developing the sampling program, overall monitoring of sample purchasing and analysis, and validating of analytical data for publication. The validation process may result in repeating, extending or rejecting data analyses, based on detailed scrutiny of nutrient results with reference to Australian food standards, package labelling information, data from other food composition tables or from other sources, and discussion with the relevant food industry body or food manufacturer.

Program Publications

Since August 1989, eight publications have been released from the food composition program, in three different formats to meet specific user demands. The main product is the Composition of foods, Australia series, with five volumes now published. These are:

* Volume 1 - Meat, vegetables, fruit, take-away and snack foods (5),
* Volume 2 - Cereal and cereal products (6),
* Volume 3 - Dairy products, fish and eggs (7),
* Volume 4 - Fats and oils, processed meat, fruit and vegetables (8),
* Volume 5 - Legumes and nuts, beverages and miscellaneous foods (9).

The second major product is the computerised database NUTTAB, commercially released in 1989 and revised in 1990 and 1991 (10).

The last of the present formats is the popular, condensed and tabulated publication Nutritional values of Australian foods (12). It includes all foods detailed in the Composition of foods, Australia series, providing data on 25 nutrients for each food.

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