Eco-Nutrition

Charge:
The linkage of the food, nutrition and environmental sciences, to address questions of sustainability and food security.

Chairperson:

Dr. Richard Deckelbaum
Director
Institute of Human Nutrition
PH 15-1512E
Columbia University
630 West 168th Street
New York, NY 10032

E-mail: rjd20@columbia.edu

http://www.iuns.org/taskforces.htm

Econutrition: Integrating food based human nutrition with ecology and agrodiversity

Session Introduction:
Under the auspices of the IUNS an econutrition working group has been established with regular meetings (by conference call) since July 2007. The goals of the Working Group are to plan strategies, and implementation approaches that could be coordinated with different organizations (e.g. IUNS, FAO, World Agroforestry Centre, etc.) to better coordinate and provide templates for integration of human nutrition, agriculture, and ecology. The plan is to develop about 5 working papers which would be made available for publication, likely as a supplement to a journal, such as the Food and Nutrition Bulletin, just before the ICN ‘09 meeting.

Session Chair/Co-Chair:
TBI

Session Topics and Speakers:
Topic 1: Food based approaches (including discussion of micronutrient supplements and biofortification)
Speaker: Richard Deckelbaum, MD (Chair), Director, Institute of Human Nutrition, Columbia University

Topic 2: Bioavailability of nutrients
Speaker: Lena Davidsson, PhD, Section Head, Nutritional and Health Related Environmental Studies Section Division of Human Health, International Atomic Energy Agency (IAEA)

Topic 3: Ecological approaches and agrodiversity
Speaker: Fabrice De Clerck, PhD, Assistant Professor, Landscape and Community Ecologist, Center for Research, Education and Outreach in Tropical Agriculture (CATIE), Costa Rica and/or Cheryl Palm, Senior Research Scientist, International Research Institute for Climate Prediction, Tropical Agriculture Program, the Earth Institute, Columbia University

Topic 4: Socio-economic/behavioral aspects of econutrition
Speaker: Howarth Bouis, PhD, Program Director, Harvest Plus at the International Food Policy Research Institute (IFPRI)


● **Eco-Nutrition**

- [ Diese Seite übersetzen ]

Environment (Eco-nutrition & Sustainability)

- 🌿 Rising fuel and food prices may compromise your nutritional status and expand your waistline
- 🍗 Meat-based diets devour our water supplies
- 🌿 Organic foods


*Prospects for the Future: Nutrition, Environment and Sustainable Food Production*
By Professor Mark Wahlqvist.
Conference on International Food Trade
Beyond 2000: Science-Based Decisions, Harmonization, Equivalence and Mutual Recognition
Melbourne, Australia, 11-15 October 1999

Prospects for the Future:
Nutrition, Environment and Sustainable Food Production

by

Prof. M. Wahlqvist, Director, International Health and Development Unit and Asia Pacific Health and Nutrition Centre, Monash University

Table of Contents

I. Evidence Based Nutrition and Ecoscience

II. Role of the International Community

III. Food Variety and Human Health

IV. Biodiversity and Human Health
I. Evidence Based Nutrition and Ecoscience

1. In policy making, project planning and health sciences, there are now strong moves to make decisions and recommendations more robust by marshalling evidence about the complex systems involved. Following on from the implementation of such decisions, monitoring and evaluation with revision of strategies is still required. The kinds of evidence relevant for the broad field of nutrition and eco-science include familiar analytic, observational, experimental and deductive methods of science, with hypothesis formulation and testing. However, with the levels of complexity involved, predictive models, where contributors to the model are well-defined, with various interventions, accompanied by outcome measures, are more likely to be used.

2. Final decisions about how intrusive of the environment food production for humans can be, will rest on the limits of such evidence and future predictions, and take account of ethical, socio-cultural, economic and political matters.

II. Role of the International Community

3. Through international agencies, like the Food and Agriculture Organization (FAO), World Health Organization (WHO) and World Trade Organization (WTO), it is possible to adduce evidence, make recommendations and set benchmarks in food production for practices which will encourage food security, food of which food safety is part, in the short and long term, which means sustainability. National and local governments have a role to reflect these benchmarks in policy and in regulatory frameworks.

4. Of increasing importance, as the revenue base of governments diminishes, are the roles of the corporate sector and non-government organizations (NGOs) in creating the milieu for
sustainability. Local communities, the old and new villages, allow realistic approaches to sustainability to develop.

5. Alliances between the various constituencies of the international community are required to match ecosystem needs. At the same time, a sense of individual identification with an ecological niche will facilitate sustainability - and part of this identification will come from a knowledge of the origins of food. Edward Wilson developed the concept of “biophilia” for a deep biological need for affiliating with life and nature. He identified several values of nature that have to do with human development (Table 1).

<table>
<thead>
<tr>
<th>Value</th>
<th>Definition</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilitarian</td>
<td>Practical and material exploitation of nature</td>
<td>Physical sustenance/security</td>
</tr>
<tr>
<td>Naturalistic</td>
<td>Direct experience and exploration of nature</td>
<td>Curiosity, discovery, recreation</td>
</tr>
<tr>
<td>Ecologic-Scientific</td>
<td>Systematic study of structure, function and relationship in nature</td>
<td>Knowledge, understanding, observational skills</td>
</tr>
<tr>
<td>Aesthetic</td>
<td>Physical appearance and beauty of nature</td>
<td>Inspiration, harmony, security</td>
</tr>
<tr>
<td>Symbolic</td>
<td>Use of nature for language and thought</td>
<td>Communication, mental development</td>
</tr>
<tr>
<td>Dominionistic</td>
<td>Mastery, physical control, dominance of nature</td>
<td>Mechanical skills, physical prowess, ability to subdue</td>
</tr>
<tr>
<td>Humanistic</td>
<td>Strong emotional attachment and &quot;love&quot; for aspects of nature</td>
<td>Bonding, sharing, cooperation, companionship</td>
</tr>
<tr>
<td>Moralistic</td>
<td>Spiritual reverence and ethical concern for nature</td>
<td>Order, meaning, kinship, altruism</td>
</tr>
<tr>
<td>Negativistic</td>
<td>Fear, aversion, alienation</td>
<td>Security, protection, safety, awe from nature</td>
</tr>
</tbody>
</table>

III. Food Variety and Human Health

6. The most internationally agreed upon dietary guidelines specify the promotion of breastfeeding and the enjoyment of food variety. At the beginning of extra-uterine existence we can depend on one food alone, from one's mother, ideally eating a variety of foods herself, and, thereafter, we explore a widening array of foods, if they are available, and achieve food variety.

7. Simple ways of expressing food variety mathematically (number of biologically distinct foods eaten over a nominated time frame) are now current (18,19,22,23,35,47). Greater food variety in the human diet predicts capacity for survival and reduced morbidity across ethnic groups (21,48). More socially active people are more likely to achieve food variety (20).

8. The combination of social activity, physical activity and food variety is the most likely lifestyle profile to optimize health, reflected in longevity and healthy ageing (49). It is an approach which is also likely to reduce substance abuse. But it is predicated on biodiversity
for food variety and environments in which it is a pleasure to be active, both socially and physical.

### IV. Biodiversity and Human Health

9. There are several ways in which biodiversity confers health:

i. A varied food supply is essential to maintain the health of the omnivorous human species.

ii. A range of diverse food sources is necessary to safeguard against climatic and pestilent disasters which may affect one or more of the food sources.

iii. A diversity of plants and animals may provide a rich source of medicinal material, essential for the extraction of undiscovered therapeutic compounds.

iv. Intact ecosystems of indigenous plants and animals appear to act as a buffer to the spread of invasive plants and animals, and of pathogens and toxins, thus contributing to the health of populations nearby.

v. The 'spiritual' values of exploring the diversity of plants, animals and ecosystems in an area appear to have a beneficial effect on mental health, strengthening the feeling of 'belonging to the landscape'.

10. Seasons and the added diversity they bring also appear to confer vigour. Even where seasons have been regarded as simply 'dry' and 'wet', as in the tropics, the reality is great change through the solar and lunar years.

### V. Food Variety and Biodiversity

11. Food variety is indeed contingent on biodiversity.

12. It is a moot point whether key genetic material for human health can be located in a narrower range of organisms, equivalent to the more biodiverse biomass.

13. One factor determining the required biodiversity, from a food variety point of view, is obviously the extent of required food variety. Available evidence indicates that, with a week as a time frame, at least 20, and probably as many as 30 biologically distinct types of food, with the emphasis on plant food, are required.

14. One of the more intriguing interfaces between biodiversity and food variety is human resistance to infections such as malaria, a parasite that crossed into the human species near its evolution 200,000 years ago, according to the mitochondrial genetic homology studies of Sangkot Marzuki at the Eijkman Institute in Jakarta. A number of genetic changes in red cell metabolism have featured in populations exposed to malaria, notably sickle cell anaemia and various haemoglobinopathies. Glucose 6-phosphate dehydrogenase deficiency limits use of a plant food, broad beans, and is known as favism, but partially protects against malaria. Here a food restriction is required for survival prospects.
VI. Eco-nutrition Case Studies of Basic Food Commodities or Ingredients

15. Some examples of how the food supply may not meet nutritional expectations on account of environmental restraint may be helpful in constructing recommendations about nutritional health and sustainability.

i. Water
One of the most limiting factors in food production and in human habitation is an adequate and safe water supply. In the past, reticulation and separation of water from human and animal waste have played a huge role in human health. Now, whole waterways like the Murray-Darling, the most important river system in Australia, are being damaged by salination, excess fertilizer and pesticide residue run-offs, with algal bloom and their toxins producing unsafe water for stock and human. Adequate water flow is also being compromised by excessive irrigation. In China, 60 million people cannot get enough water for their daily needs, and, in 1996, 50,000 people were affected by water-pollution-related disease. It would appear that China has fewer water reserves for agricultural and industrial expansion than previously thought and that this will restrict China's ability to feed its own population, with considerable consequences for global food security. Thus, water availability and safety is a measure of environmental integrity and of sustainability of the food supply.

ii. Fish
There is growing evidence that a regular intake of fish, principally, but not only, as a source of long chain omega 3 fatty acids is protective against a number of health problems and diseases. These include cardiovascular disease, certain cancers, and mood disturbance. At the same time, world fish stocks are in decline through overfishing and pollution of water ways (www.fao.org). A partial solution may be found in aquaculture. However, aquaculture can itself, through the feeding methods used, significantly damage ecosystems with actual losses of fish stocks. Again, the nutritional value and safety of fish produced depends on what they have been fed, and omega-3 fatty acid levels may be extremely low (fish can chain elongate and desaturate omega-3 fatty acid obtained from lower down the food chain, but not form these fatty acids de novo). It may yet be possible to develop more sustainable ecosystems for aquaculture with, for example, the introduction of genetically modified fish feeds containing omega-3 fatty acids.

iii. Meat
Food obtained higher up the food chain, like meat and dairy products requires a higher overall biomass for its production. But, when it is low in fat, it has high nutrient density (nutrients per unit of energy), a measure of nutritional quality. Thus, such foods can add significantly to the nutritional safety of a cuisine, and do so in small quantities. One reasonable deduction would be that small quantities of meat for most of the world's population would be more environmentally sustainable than the large quantities presently consumed by a few affluent nations. It will be difficult, ultimately, to escape these questions of nutritional equity in relation to sustainability of the food supply.

iv. Soy
Another way to approach some of the nutritional needs met by fish and meat, insofar as omega-3 fatty acids and high quality protein are concerned, is to consume certain plant foods like soy (and in the case of omega-3 fatty acid linseed, purslane and certain sea plants). Soy also has other health protective properties, because of its exceptional phytochemical profile of isoflavones like daidzien and genistein. This may account for its apparent cardioprotective and cancer-protective role in Chinese, Indonesian and Japanese populations.

Combining nutritious plant-derived foods with small quantities of fish (as little as 1 or 2
servings a week) and meat is nutritionally and environmentally attractive. The question is then how to produce and fill the growing need for plant foods like soy. GMF (genetically modified food) could be helpful here, since greater yields can be obtained where soy, for example is pest or pesticide resistant. For such approaches to be environmentally successful, the monocultures will need to be not so extensive as to reduce overall biodiversity. This is a matter of environmental governance and requires the agreement of a number of parties and organizations, locally, nationally and internationally.

v. Fruit
Fruit has an increasingly well substantiated place in human health based not only on its provision of the macronutrients, water and carbohydrate (glycaemic and non-glycaemic), and micronutrients (vitamins and elements), but also protective phytochemicals of which polyphenolic flavonoids, anthocyanins and a wide range of carotenoids are characteristic. Fruits and vegetables are consistently protective against cardiovascular, neoplastic and neoplastic disease. They also contribute to much of the potential variety in the human diet.

Curiously, men more than women have difficulty in eating adequate quantities of fruit, but, if they did, global fruit consumption and production would rise markedly. Fruit is a convenient food, which has its own "packaging", as a skin, keeps usually for days, or even weeks, and can be preserved in many different ways.

The environmental advantages of fruit are that the trees that produce it provide canopy with atmosphere improvement, add to biodiversity, and that it can often be grown locally and eaten without transport or packaging.

The problems in fruit production come with the demands for pesticides, although FAO now has "Integrated Pesticide Management" strategies (www.fao.org) to help minimise residue contamination. As with other horticultural products, safety in fruit produced for human consumption applies through the whole chain, from orchard to mouth. Recent outbreaks of salmonellosis and rotavirus infection in Australia with fruit juice consumption attest to this.

vi. Rice
Rice is one of the world’s oldest crops and staples having probably first grown in Henudu in about 5500 B.C. Higher yielding rice was the hallmark of the "Green Revolution" of the 1970s, controversial for what its net impact on the environment has been, and per caput, given the numbers of people now fed.

Improvements in nutritional quality of rice, notably protein, were also made at a time when protein nutrition in its own right was a focus of nutrition research.

It could be argued that improvements in rice production and quality were spurred by the food-health concepts of the day, located around staples (and monocultures) and selected nutrients. Today we have a bigger picture and a variety of cereals, amongst an even greater variety of foods, is seen to be more scientifically desirable, as long as it is culturally acceptable and implementable.

Moreover, we now know that rice yields have begun to fall with greater pesticide usage (www.fao.org).

More attention could be given to growing rice whose environmental impact is least, by international agreement and with trade benefits. For example, more with natural rainfall and less where water supply is marginal.

vii. Herbs
Herbs and spices have been a major feature of world food trade since its beginnings. Ten percent of the value of food imports into Australia are herbs and spices. They have, for herbs especially, been accorded a place in the health promoting properties of food and, for spices,
regarded principally for their flavour enhancement of food and the pleasure so-derived. But, for both, the new wave of food phytochemical science and the explanation of health effects of these food components is giving renewed importance to them in the human diet (Ref. Book on herbs and spices chemistry)\textsuperscript{8,12,13}. Many phytochemicals are multifunction compounds covering biological attributes like being anti-oxidant, anti-inflammatory, anti-microbial, immuno-modulator, anti-mutagenic, anti-angiogenic, anti-neoplastic, oestrogenic, anti-oestrogenic, hypolipidaemic, carminative, laxative, analgesic and mood-altering\textsuperscript{38,39,51}.

In the past, the spice trade has stimulated local cash economies, sometimes with environmental detriment, and adverse colonial arrangements. However, since small quantities of a range of herbs and spices have commercial value and health benefit, it is possible to grow them in a way that supports biodiversity. For example, they may be grown amongst other crops or by subsistence agriculturalists, or in greenhouse conditions. Another potential benefit of these crops is that they have the potential to restore contaminated environments. This is because they respond to environmental stressors by producing many of the compounds that characterize them\textsuperscript{38,39}.

The microbiological safety of herb and spices is more guaranteed where they are treated by irradiation. This has been a prototype for the introduction of this technology into a major area of world food trade.

The production, trade and consumption of herbs and spices can be expected to grow in response to food cultural diversification and perceived health need. It can do so with environmental benefit.

\section*{VII. Food Production Practice}

16. It will be evident from the consideration of water and food supply relationships and from the growing appreciation of the range of foods required to optimize health that they must be produced together as far as possible. Methods for successfully doing this are being described as \textit{permaculture}\textsuperscript{30,31} and \textit{eco-agriculture}\textsuperscript{6}.

17. The Australian wine industry has profited in this way following the initial work at Botobolar vineyard in Mudgee, New South Wales with ecological control through and inter-vine cultivation of other plants with their insect population and birds that feed on them\textsuperscript{44}.

18. \textit{Post-harvest waste} is a major environmental threat because it puts unnecessary strain on food production. It occurs through mishandling and poor management, holding facilities not secure against pests and rodents, unsatisfactory climate control with spoilage and moulds, and inappropriate preservation techniques, and limited transport from site of harvest to food processor. In South-East Asia, as much as 30\% of fish harvested is lost to human consumption in this way, and some of the remainder which is eaten is unsafe\textsuperscript{1}.

19. Many areas where food has been produced in the past are now desolate because of desertification, salivation or pollution by accumulated heavy metals from fertilizers (eg. cadmium) or pesticide residues. Prevention of these problems would have been preferred, chief amongst them would have been retention of environmentally intact locales and of trees. But methods of \textit{eco-restoration} are becoming available. Their support by nutrition and health scientists with a long-term view of their own role in health is crucial. Nutritious food in the
short term, at any long-term cost, is not sustainable. Fortunately biodiversity, food variety and health intersect favourably.

VIII. Role of Trade in Health Advancement through Food

20. Various nutrition policies have placed emphasis on local food production for food security and health\textsuperscript{34}. The rationale for this is that, in times of food trade difficulty, there continues to be a local food supply; that knowledge about food and skill in its production are not lost; that local food culture, with its beliefs, habits and checks and balances on intake continues to play a role, even in the evolution towards a more contemporary food culture. Hopefully, food cultural change can be informed by science, health and environmental considerations.

21. Such emphasis on local foods and cuisine is not exclusive of food trade, which, in any case, can be complementary to the local food supply. And, even though humans have migrated far from their original roots, in or around the Rift Valley in Africa, to successfully occupy various environmental niches, many communities and nations are now dependent, to a lesser or greater extent, for their food security on trade. This is especially so where local population size has outstripped local food production capacity and/or water supply, sometimes because food imports have been affordable.

22. Examples of heavy dependence on food trade for survival are island states, desert economies, remote mountainous and icy regions. In the past, communities in these areas were small and seafaring, or nomadic, with highly developed hunting and gathering skills, complemented by subsistence agriculture or animal herding. Indigenous peoples, until recent times, managed their food affairs this way. Trade capability has, in a sense, changed much of that and respectful and consultative review of the situation of such peoples, their food and ecosystems is required.

23. In the case of Pacific Island communities, generally small and far-flung, at the end or on the course of long trading routes, local foods tend to be limited and imported foods expensive. The traditional cuisine which included plentiful seafood, along with coconut, greens and root vegetables, with some birds and their eggs, served remarkably well until early this century. It gives some guidance as to the lower limits of food diversity and the food commodities required at the level of variety. Learning to live healthfully with a rapidly changing imported food supply and its impact on locally produced foods has not been easy. The rises in prevalence of obesity, Non-insulin dependent diabetes (NIDDM) and cardiovascular disease have been dramatic\textsuperscript{42,43,58,59}. Part of the problem has been an associated decline in energy expenditure associated with food gathering in the past.

24. In the case of Singapore on the other island, an island city state, urbanization has brought similar risk. The policy has been to virtually entirely import food, and use food production resources like land to excel technologically and economically. The problems of physical inactivity and obesity have been addressed by political leadership and international policies in schools, the defense forces and the community-at-large. Even then, NIDDM and cardiovascular disease prevalences equal or exceed their earlier industrialized counterpart. These experiences underscore the need for broad health policies to accompany new trade initiatives.

25. There are some geographical locations where there are endemic nutrient deficits, like iodine and selenium, because of soil deficits\textsuperscript{17}, or away from safe water so that nutrients like
omega-3 fatty acids are hard to come by\textsuperscript{40,41}, or where certain plants grow with difficulty and their components are not available. Clearly, imported food helps resolve these problems without recourse to food fortification or supplementation, generally a less satisfactory option as it oversimplifies the basic food inadequacy as a nutrient or food component inadequacy.

26. There is also a special situation for large continental nations where a wide range of food can be produced in different climates and food exported in quantity. Such nations have a great international responsibility for sustainable food supplies.

27. Food trade is often stimulated as \textit{people migrate with their food cultures}. This is particularly evident in culturally pluralistic advanced economies like those of North America and Australasia. There is good circumstantial evidence that the injection of new foods into these locations has contributed to health advancement. Greater emphases on food trade might have spared some of the new precarious ecosystems in these locations - like the rice growing areas of Australia.

28. The \textit{limits to food trade from an environmental point of view} will be:

   i) the import of food export on the ecology of the locale from which food is exported

   ii) the non-renewable resource costs of food transport

   iii) the impact of food import on local eco-agriculture - in some parts of the world new and sustainable ecosystem have developed around old agricultural practice, with Europe, Africa, Meso- and South America, the Far East and South East Asia all providing such examples. Classically, the bird and insect life changes in relation to crop production.

\textbf{IX. Food Safety Issues in the Food Chain}

29. At each step in the food chain, food safety issues can arise. They may be microbiological, physical (filth), chemical (contaminants, naturally occurring toxicants) or nutritional (changes in food components, or the expectation which a food will serve in a cuisine, be it old, emergent or composite).

30. Risk analysis, management and communication are now required at a greater level of sophistication as environments for food production, food trade increases, new food technologies including biotechnologies emerge, and food cultures evolve.

31. A traditional horticulturalist may use animal manure or human waste as fertilizer, and process the fruit in a way that solves the intrinsic microbiological risks. One who sends his or her fruit to a juice manufacturer may not. There are many such examples, which ecological, food and nutrition literacy may partially address, but for which safety protocols and management will increasingly be required.

\textbf{X. Food Based Dietary Guidelines (FBDGs)}

32. The FAO and WHO have formulated and promulgated FBDGs, following a Cyprus resolution in 1995\textsuperscript{56}. 
33. These guidelines take account of the least available food, nutrition and health science and offer an approach whereby communities can take account of and evolve these local food culture and cuisine with this knowledge. They recognize that there is not only one way by which food intake can serve health for a species which is omnivorous. One of the underlying principles which will consistently be applied, however, is that of the value of food variety for humans, with one staple being less satisfactory from health and food security points of view.

34. FBDGs can, therefore, support sustainable approaches to food and human health.

**XI. Future Foods and Future Health**

- Technological innovation - Biotechnology
- Designer foods
- Changing demography
- Changing health patterns

35. Human health patterns are changing in a major way, especially with the advent of lifestyle related diseases (so-called chronic non-communicable diseases, or CNCD) and will continue to change.57

36. What has been surprising is that there may be communicable elements of so-called CNCD - like H. pylori in upper gastrointestinal disease29 and chlamydia in atherosclerotic vascular disease. The nexus between nutrition, and immune function and infection is pervasive. Also undernutrition, even in pregnancy, and early life may contribute to CNCD2,3,4,5,33. Thus food available throughout life and the role it plays in family health remains important.

37. Changing demography, especially towards ageing population, also affect eco-nutrition thinking. At once, there is an enduring repository of food and health knowledge amongst the aged, whilst they, in their frailty, have special nutritional needs25,54. But the biological potential of older individual is greater than heretofore thought25 as life expectancy increases and compression of morbidity to the end of life becomes more evident. Older people can still engage in the food chain! Population projections are that the world population will stabilized in numbers, with about 20% over the age 60s by the year 2020. With such large numbers of older individuals, any sustainable food and health strategy must carefully factor them in.

38. As we seek to finesse human health we look to food to help. Food technological innovation matched with progressive nutrition science will develop new food for this purpose.

39. Yet there will be unexpected new health problems and questions about the role of food and the environment - mood and cognitive disorders, new infections. This is where eco-nutrition will need to be more pro-active.

**XII. Recommendations**

- That ecologically sound food production and its health consequences be assessed in a scientific and evidenced-based fashion.
- That there be a cohesive approach between international agencies, the corporate sector, NGOs and communities to sustainability of the world food supply.
That prominence be given to good governance in managing local food production, food trade, food processing and design, and public health nutrition.
That due regard be paid to changing demography and health patterns in environmental policy.


43. Swinburn BA, Boyce VL. High-fat diet causes deterioration in glucose tolerance, insulin secretion and insulin action. Diabetes 1989; 38 Suppl 1:376A.


Econutrition – Implementation Models from the Millennium Villages ...
• Worldchanging: Bright Green: The Eco-Nutrition Label

- [ Diese Seite übersetzen ]
Two labels have started to approach an eco-nutrition label like this. One is Timberland's footprint label, the other is the EPA's ...

www.worldchanging.com/archives/007256.html - 49k - Im Cache - Ähnliche Seiten

• econutrition

- [ Diese Seite übersetzen ]
Dateiformat: PDF/Adobe Acrobat - HTML-Version
econutrition. For further information contact: Sanitarium Nutrition Education Service ...
“Econutrition” is the buzz word that describes the most sustain- ...

www.sueradd.com/files/foodcolumn02_1.pdf - Ähnliche Seiten

• Eco Nutrition

- [ Diese Seite übersetzen ]
The only independent monthly magazine for nutrition and dietetics in the UK with news, interviews, columns, features and jobs. Subscribe now to receive a ...

www.hotfroguk.co.uk/Companies/Eco-Nutrition - 17k - Im Cache - Ähnliche Seiten

• eco-nutrition

- [ Diese Seite übersetzen ]
You're currently on: Home; /; eco-nutrition. Search Site. Shop by. Shopping Options ... eco-nutrition. Subscribe to RSS Feed. Items 1 to 8 of 77 total ...

eco-eclectic.com/shop/eco-nutrition - 47k - Im Cache - Ähnliche Seiten

• Eco-nutrition

- [ Diese Seite übersetzen ]
Eco-nutrition. Alice Waters - food revolutionist. March 26th, 2009 · No Comments. “When it comes to food, Alice Waters is a legend. ...

www.mbwellnessgroup.com/category/eco-nutrition/- 26k - Im Cache - Ähnliche Seiten

• Mostly Eating: Econutrition Archives

- [ Diese Seite übersetzen ]
Econutrition. Seasonal Fruit and Vegetable Guide - Spring · What to eat now - a Mediterranean or Nordic style diet? ...

www.mostlyeating.com/econutrition/ - 21k - Im Cache - Ähnliche Seiten

• Eco Nutrition - Be Happy Be Healthy
Eco-nutrition is something we haven't really considered in this country. Traditionally abroad, eco-nutrition has applied more to animal welfare and...

www.behappybehealthy.co.uk/Eco-Nutrition - 16k - Im Cache - Ähnliche Seiten

**BiomedExperts: The study of eco-nutrition applied to...**

'The study of eco-nutrition applied to postoperative patients with colorectal diseases' on BiomedExperts. Find the right expert or researcher in 1.5...

www.biomedexperts.com/.../The_study_of_eco-nutrition_applied_to_postoperative_patients_with_colorectal... - 16k - Im Cache - Ähnliche Seiten

**[PDF]**

_Econutrition Econutrition: Models from Africa and: Models from_...

Dateiformat: PDF/Adobe Acrobat - HTML-Version

_Econutrition? Ecology – the interrelationship of organisms_... _Econutrition._ • Human nutrition. • Ecological and environmental control. • Agriculture...

cpmcnet.columbia.edu/dept/ihn/symposia/documents/Narrativemedeconutrtalk21307.pdf - Ähnliche Seiten

von RJ Deckelbaum

**econutrition (econutrition) on Twitter**

Twitter is a free social messaging utility for staying connected in real-time.

twitter.com/econutrition - 13k - Im Cache - Ähnliche Seiten

**Articles & Fact sheets - econutrition, organic foods**

"The Secure and Sustainable Food Systems for Victoria" report commissioned by the State Government said food supply problems were so severe that consumers'...

www.healthyeatingclub.org/info/articles/econutrition/FoodPrices.htm - 55k - Im Cache - Ähnliche Seiten

1: Food Nutr Bull. 2006 Dec;27(4):335-42. Links

Econutrition: implementation models from the Millennium Villages Project in Africa.

Deckelbaum RJ, Palm C, Mutuo P, DeClerck F.
Econutrition integrates environmental health and human health, with a particular focus on the interactions among the fields of agriculture, ecology, and human nutrition. Soil loss and degradation and human undernutrition are major barriers to economic development in Africa. A primary aim of the Millennium Villages Project in Africa is to meet the Millennium Development Goals by integrated multisectoral interventions in health and nutrition, agriculture, and environmental sustainability in hunger and poverty hot spots in Africa. Econutrition is only one example of how interdisciplinary approaches are not only critical to alleviating extreme poverty but also fundamental to linking basic science understanding in multiple areas. Human health and agricultural productivity gain, and the costs of the gains are lowered, when we take the opportunity to apply different disciplines through cross-sectoral, thematically linked interventions.

- [PDF]

**Econutrition: Integrating food based human nutrition with ecology ...**

- [ Diese Seite übersetzen ]
Dateiformat: PDF/Adobe Acrobat - HTML-Version
Under the auspices of the *IUNS* an *ecounutrition* working group has been established with regular meetings (by conference call) since July 2007. ...

- [PDF]

**Requirements for Healthy Nutrition: Integrating Food ...**

- [ Diese Seite übersetzen ]
Dateiformat: PDF/Adobe Acrobat - HTML-Version
The *IUNS* has an Eco-Nutrition Task Force to support this coalition. It is recognized that the "double burden of nutritionally-related disease", which ...
www.iuns.org/features/requirement_for_healthy_nutrition.pdf - Ähnliche Seiten
von ML Wahlqvist - Ähnliche Artikel - Alle 8 Versionen

- **Task Forces**

- [ Diese Seite übersetzen ]
During the March 2002 *IUNS* Council meeting in Osaka, Japan, ... To take account of the work of other *IUNS* task forces, notably those to do with Nutrition in ...

Karte von 630 W 168th St, New York, NY 10032, USA einblenden
www.iuns.org/taskforces.htm - 55k - Im Cache - Ähnliche Seiten