

# PFNDAI Bulletin December 2009

## Editorial

Recently Food Safety & Standards Authority of India decided to overhaul Prevention of Food Adulteration Act along with other ordinances regarding food and food products. They incorporated the various acts and ordinances into the Food Safety & Standards Act (FSSA) 2006 in their November meeting and decided to seek the changes in order to make them all align with each other as well as with the international regulations. This is a very tall order but they have bravely undertaken the task so we may have the new food law this year.

It would have been much better to start with a clean slate and write the new rules and regulations keeping in view the mandate given by the FSSA 2006 of science based standards for safe foods. Since all the earlier laws were based more on purity and quality rather than safety, it would have been better to keep away from them and start using the right track to guide the writing of new regulations. However, our government is known to take its own time to do things, so by the time they started creating the infrastructure including the FSSAI Chairman, members of the Authority, various panels and committee etc. it was taking a long time to start with a clean slate so, they decided to use a shortcut like all of us do. Take the old thing and try to give it a new shape. Although it sounds very simple, it is not so as we know that there are inconsistencies in the existing laws and orders. These have to be streamlined. Also we can't just put the old wine in new bottle and make it work because the Act is very clear about the standards to be science based and must be for making foods safe. So we will have to do a very thorough overhauling of the old standards so there in reason in standard making as well as the standards make the foods safe.

All stakeholders should take interest in this task as what happens now is going to last for a very long time. The next review or overhaul will take many years if not decades. As government is committed to implementing the new food law this year, the only option was to bring in the old law into the new act, make it operative and then try to improve it in order to make rules and regulations science based in order to make the foods safe. As it is affecting everyone and it is a gigantic task, we must all try to work towards making the new law a success. In order to make the standards science based, we must have risk analysis along with the surveys of food intake. We must know what risks can come about through various ingredients and products. We must also know whether these are managed in the food product manufacture and whether they remain at acceptable levels when we consume the food products at the normal levels of consumption even considering higher levels of consumption by certain section of population. We must also give certain exceptions or allowances where vulnerable population has lower tolerance. All this must have documented science base and not just a gut feeling. If an additive is allowed in bread and not in cakes or biscuits, there must be logical safety reason for that. If a particular additive is not allowed, there must be documented safety concern to disallow it. In order to ensure this, there are various scientific panels made consisting of scientists. All these are good ingredients for a set of sensible rules and regulations that will ensure safe foods will be produced.

We welcome a couple of new members into our association namely Tine B.A. and Ensigns HealthCare. We also hope that they and all our members have a very happy, prosperous and healthy New Year.

**Prof. Jagadish S. Pai**  
**Executive Director, PFNDAI**



# Rulemaking Procedures: Science the Basis

**Dr. J. I Lewis**

Chairman, Regulatory Affairs Committee, PFNDAI

As students we've been taught that Parliament makes laws and the Executive implements them. Less widely known though is that before implementing the law – rulemaking must first be done.

Legislatures while enacting the law find it impractical to get into the level of detail or expertise required to establish complete standards. They delegate these powers to agencies; in this case the Food Safety & Standards Authority of India [FSSAI]: it is the regulatory agency that will make the rules.

Because legislative power is so copiously transferred to executive agencies, the bestowal of such statutory authority should be balanced with openness, transparency and public participation. While agency-made law is a reality, it is legitimate only where the agency scrupulously observes procedures specified for issuing legally binding rules. In this case the Food Safety and Standards Act 2006 apart from laying down food policy also provides for rulemaking procedures to be followed. These procedures are founded in the principles of responsible deliberations based on scientific evidence, open notice and public participation. It requires regulators to take a 'hard look' at the facts before making the rules.

Although judicial reviews are instrumental in discouraging poorly supported rules, it is not the main focus of our attention here. *The key point being made is that the rulemaking system should be self correcting. It can be so if all state actors faithfully implement the mandate of the Act with regard to rulemaking.*

## **The Role of Science:**

This article is focused on the principle of science based rulemaking. Put simply – what elements in the rulemaking process should provoke stakeholders and members of various constituted bodies to engage in science based deliberations. *For the system to be self correcting what are those clauses in the Act to be invoked when deliberations and outputs stray from the scientific path.*

The need of science based rulemaking is to minimize the influence of interests, because they introduce biases into decision making. Stakeholder interests frequently distort facts on the ground, ostensibly triggering a public display of action but in reality are unable to show impact on safety and health of the consumer.

Science on the other hand is a deliberate, rational process. Scientists strive to be dispassionate observers to prevent personal values from influencing the decision making process. *They are neutral examiners of scientific evidence – sifting for trends, contradictions ultimately reaching the best possible scientific consensus. This they*

*do because of their scientific training that conditions them to deliberately blank out confounding factors e.g. randomized double blinding of research studies, independent peer review, etc. It is this bent of mind that the Food Authority is depending on when they request inputs from the Scientific Committee/Panels.*

Accordingly, under Section 13(1) the Food Authority has appointed independent scientific experts to the Scientific Committee and Scientific Panels. Members of the Scientific Committee/Panels are expected to fulfill their roles not as stakeholder representatives, but as independent experts whose expertise arises from their stakeholder surroundings.

### **Scientific Committee & Panels: Role and Remit**

The primary role of the Scientific Committee and Scientific Panels is to help collect scientific information and make judgments about it. They review scientific studies and offer independent expert judgment, including where facts are missing or uncertainties exist. Providing scientific input is the first step to assisting or framing of policy or the rule. *The Act defines the role expectation of the Scientific Committee in Section 14(2) where it states ‘ the Scientific Committee shall be responsible for providing the scientific opinions to the Food Authority and shall have powers where necessary of organizing public hearings. It does not have the role to provide rulemaking options – a task that falls within the domain of the Food Authority.*

The role differentiation is further strengthened to remove ambiguous interpretations in Section 14 (3): “ The Scientific Committee shall be responsible for the general co-ordination necessary to ensure consistency of the scientific opinion procedure and in particular with regard to the adoption of working procedures and harmonization of working methods of the Scientific Panels. The functional separation of risk assessment and risk management is mandated in the Act. Members of the different constituted bodies under the Act should be clear about their role and remit while conducting their deliberations.

Scientific Committee or Scientific Panels providing scientific opinions would not undertake the role of framing of the rules. The task of rulemaking is essentially one for the Food Authority and can be thought of as working up practical options for responses to the problem on which scientific advice has been sought, analyzing those options and making decisions on them. This is precisely why Scientific Committee/Scientific Panels are not expected to fulfill their roles as stakeholder representatives, although individual members may have been appointed because of stakeholder associations that provide the expertise that is required. *The point to appreciate is that the Act has mandated a separation of science from policy; thereby segregating facts from interests. This is critical if other clauses in the Act are to be honored namely for rules to be proportionate and not too restrictive to trade and yet provides the appropriate level of protection to the consumer.*

In the previous system under PFA, members of the Sub Committees were often involved with the approval process of the Central Committee on Food Standards [CCFS]. This led to the inappropriate situation whereby CCFS in a sense reviewed its own previous decisions under various subcommittees. Also the Subcommittee and CCFS did not engage in separate deliberations of science or policy – more often in the absence of clear mandates engagements were an arbitrary mixture of both science and policy. This inherently was a lack of clarity in the Act; moreover members were chosen for their stakeholder interests rather than expertise.

### **The Agenda: How to seek Scientific Opinions:**

The role and function of the Scientific Committee and Scientific Panels are set by statute. It is the Food Authority's responsibility to ensure that the Committee/Panels remit is clear and this may be specified by regulations. It is therefore the subsequent responsibility of the Committee/Panels to raise concerns if they believe there are ambiguities particular in the agenda setting. As a general principle, any required clarification required should be done before they begin their work. Under Section 15 (4) (d) the Food Authority shall specify by regulations the procedure for the operation and co-operation of the Scientific Committee/Scientific Panels in particular related to the manner in which tasks and requests for Scientific opinions are assigned to them.

Typically a request outlines what is being asked of the Scientific Committee or Scientific Panels, or any constituted body namely the issue, terms of reference, timeframe etc. A request normally results in the release of an **opinion** about each request, including supporting documents, the latter becoming the database for reference either at the WTO or judicial level as evidence of well supported rulemaking.

Agenda setting must not indicate or suggest a pre-settled position either in the language of the query on safety or the terms of reference. The background matter or data or reference giving rise to the query may be presented in an objective manner for the Committee/Panels to deliberate. This will ensure objectivity and transparency of the process.

### **Delivering the Scientific Opinion:**

A Scientific Opinion is a scientific output in the form of a concise document adopted by the Scientific Committee/Scientific Panel that addresses a risk assessment or an evaluation of a risk on the opinion sought by the Food Authority.

The Scientific Panel shall rely on risk assessment which may among other considerations comprise information on risks identified, organized and analyzed in a systematic way to get a clear, consistent presentation of the data

available for practical decision-making. The results of the risk assessment process shall form the basis for the risk management process.

An important factor for consistency in the scientific opinion procedure [Act 14(2) (3)] is that all Scientific Panels deliver scientific opinions in a predetermined format. This may be in the form of:

- The background and terms of reference as provided by the Food Authority or any other stakeholder.
- A summary opinion (with keywords), informative for the technical and non-technical reader summarizing which questions were addressed, which information was evaluated, the key issues that resulted to the opinion and conclusions based on the assessment.
- The assessment, i.e. the actual risk assessment section, addressing the questions posed, how the information was evaluated and which issues were considered of key-relevance for the opinion
- Conclusions and recommendations.
- A list of the references and documentation on which the opinion is based.

Opinions provided by the Scientific Committee and Scientific Panels are required by the Act to be made public as per Section 16(4)(a) wherein it states ‘ *the Food Authority shall make public without undue delay – the opinions of the Scientific Committee/Scientific Panel immediately after adoption*’.

There are several reasons why the Food Authority would push forward the mandate of the law requiring risk analysis. The most fundamental reason would be to build a reliable structure of scientists and experts that conduct risk assessment in the most expedient fashion thus providing a sound framework from which rules are made.

Secondly rules that emerge from such a framework will provide a high level of consumer health protection. As food innovations take place in the market place, the Food Authority will face the challenge of balancing industry aspirations with the need to reduce the risk of adverse effects. Finding the correct balance for taking transparent and coherent actions requires a structured decisions making process, within the overall framework of risk analysis.

In other words regulations that are founded in science reflects the strong belief of the Food Safety and Standards Authority of India that science based food safety in the decision making process is the underpinning principle of consumer health.



## Report on Conference

# ‘ARE WE READY FOR GLOBAL MARKETS?’

By **Ms. Ummeayman R.**, Nutritionist, PFNDAI

PFNDAI organized its yearly conference on 5th December 2009 at Hotel Kohinoor Continental, Mumbai. Every year there has been an increased participation from the industry delegates in the conferences organized by PFNDAI. With a view that Indian Food Industry is emerging as a Global player we need to focus on our marketing strategies and also come up with innovative products and understand the global requirements. Dr G.M Tewari, Chairman PFNDAI welcomed all to the Conference on ‘ARE WE READY FOR GLOBAL MARKETS’.

In his welcome address, Dr. G. M. Tewari addressed the changing consumer demands. He said that globalization had posed many challenges on the consumer, industrial and regulatory fronts. Consumers the world over, including India, aspire for innovative products with sugar substitutes, fat substitutes and functional ingredients. The changing lifestyles and intermixing of cultures has posed challenge in front of the industry and at the same time is also encouraging industry to come up with innovative products. Many products are entering the market but they are not able to sustain themselves. For a product to be successful it is not only required to be innovative and have the positive nutrients but also needs to be affordable to the masses and it should give importance to quality/safety and taste. Innovative products need to be acceptable to the taste buds of the consumers.

The food and beverage industry needs to continuously explore possibilities of innovations and be cautious about the quality and claims made on new product formulations. With harmonization of Food laws, traceability and international quality standards are essential for success in the foreign markets and domestic markets.

Mr. Saugata Gupta, Inaugurated the conference and the souvenir. In his inaugural address “Health through Foods and Challenges in India”, Mr. Gupta emphasized on the challenges that are faced in Indian Market. Healthy Foods in India context is a food which is tasty and healthy and not the other way. Thus health foods need to take care of taste as it is the primary driver along with considering the diversities of Indian recipes, cooking cultures and Indian health concerns. India has much of diversity than one would have thought of; every 50 Km there is change in eating habits and preparation styles. One can look at India as ‘Several Countries within one Country’ and so blending with current recipes increases chances of success.

Another primary important aspect to be considered for Indian markets is the role of women. Today a lady is multitasked but still she will not give up her role played in Kitchen as this gives her the emotional satisfaction of doing the duty of a wife and a mother. In Indian culture, unlike the culture of parental care in developed countries, the parents act as a gate-keeper to child's nutrition and so you not only need to satisfy the taste buds of the kid but also need to create a strong belief that the product is healthy, can supply basic nutritional elements and additionally provide strong bones and teeth etc. There is a strong feeling among the parents that child's diet is a key to his success in life.

Dr. Prakash, in his Keynote address: The Current Global Market Challenges for Innovative New Food products said, "India has a huge hidden potential. When we can meet the demand of one million populations and provide three time meal, why can't we do it in the global markets too". India has a collection of rich traditional foods, we need to develop this in a convenient way and this would surely be a key to success in the export markets. Dairy sector, he said, is one of the examples of success stories. Consumers today are looking or healthy food which has positive nutritional attributes and is affordable too.

Indian food industries should implement the quality standards compliant to HACCP, ISO & CODEX as this would help in a big way in the domestic markets as well as the international markets.

### **Session 1—chaired by Dr Tewari**

Dr Lewis in his presentation of "Will New Food Laws Enable Industry to Produce Foods of Global?" gave a perspective of what FSSAI is really aiming at. He said that this new regulations would have more of Scientific outlook and Safety is its primary concerns. FSSAI unifies multiple laws and is forming a single unified authority. As we are talking of having a more scientific and research based approvals for the various food ingredients and additives, he said there is need to create this data base. Many scientific studies and data base are currently present but they are on foreign population and not very much applicable to Indian Population and thus Industry should come up and fund for such researches and create a data base and help the government in strengthening our food laws and make it more appropriate for Indians.

There is a step taken by Authorities to make this more scientific evidence based and risk assessment based act. To do this task, several scientific panels and a monitoring scientific committee have been constituted. Earlier, the members of the panel were nominated from the government agencies and the industry. Now the members are selected on their expertise. The members are selected from scientific institutions, government agencies, industry and consumer representatives. The scientific panels are expected to deliver scientific advice of the

highest possible quality, espousing the principle of excellence put to use for consumer safety and health. Dr. Lewis side ‘For any regulation to be adopted, consensus is most important. Regulation is about balancing food diversity and safety.’

Dr. Rhona Applebaum, PhD/VP, Chief scientific & regulatory officer, Coca-Cola, USA, talking on “What are the Global Safety Concerns?” dwelt upon the current situation, what are the expectations and what’s on the horizon. With the recent Food scare headlines, public confidence has become major concern for many companies; also consumers feel it is the responsibility of the companies to ensure safety of the products. Globally there are many safety concerns and microbial toxins, chemical contaminants, food intolerance and technologies are a few of them. She said 99% of the Food Safety incidents were accidental and only 1% intentional. Thus there needs to be high importance on traceability so that the source of these problems could be identified.

Food producers who understand and practice the basics of food safety (HACCP) and Good manufacturing practices (GMPs) contribute to global food safety. She suggested science and research must be the foundation of Food Safety Policies to achieve public health goals. To achieve public confidence the company should follow all the safety policies and also have good communication with the consumers. Today, any reported risk to the safety of food supply can spread quickly and result in a loss of consumer confidence in government, industry and safety of foods.

Safety standards of developed and developing countries both should be equal, unequal standards are not acceptable. She said, “Safe is Safe for all”. Today expectation of ‘good’ has expanded beyond products to ‘good for me, my family, my community & the planet’, thus no double standards are acceptable.

Mr. Shankara Shetty, President, Concept Management Co., USA, in his presentation “Export Packaging: Problems & Solutions,” said the functions of an export package include product protection, easy handling & storage, shipping effectiveness, ease of identification, customer needs and environment responsibility. Today, as product innovations are increasing, there needs to be modernization in the packaging too. Glass bottles have been replaced by plastic bottles and many retort pouches have come into market. This is not only for convenience in handling, storage and transportation but it also looks good and feels good. However the basic concept of why product is packaged should be always considered. Packaging should extend shelf life, maintain quality & safety ensure protection from chemical, biological and physical damage, and retain the beneficial effects of processing like taste and flavour of the product. With an aim of increase the exports, meet the

consumer demands, meet the regulations of the region, and keeping in mind the safety of the product, the company should decide on the packaging material and the form of packages for the product.

## **Session 2 – chaired by Dr Lewis**

Speaking on “Innovation in developing new healthy products,” Dr. Prakash Virkar, divisional manager – Beverages Innovations, Hindustan Unilever, said, “Globally the health and wellness market is on an increase specially the ‘Better-for-you’ category of food products and beverages”. Health and wellness market thus can be exploited for New product innovations. Consumer drive is towards the products that are a healthy food choice. As per a survey report it was found that 36% consumers go for products that can enhance the future health, 28% for enhanced daily health, 30% for products that meet family needs, 4% want products that make them feel good and rest 2% go for products that provide more energy. Large sector of consumer wants to return to ‘Nature’ and seeks reassurance in nature for the safest and best choice.

Dr. Virkar said “Today, our job in India is to provide/offer healthy products as per consumers’ convenience and we need to drive taste and health together. For instance, if a consumer wants chocolate cake then we (processed food manufacturers) have to innovate chocolate cake with less sugar, little obesity ingredients and more nutrition.” According to Dr. Virkar, the key challenges in the developing countries, including the Indian processed foods market, are regulatory issues, supply chain, lack of consumer communication, building trust and credibility.

While speaking on “Innovative products for emerging markets,” Mr. B Prashanth, Head – R&D Foods, Dabur, said there were four major drivers for food & beverage innovations in India –consumer needs and preferences, cost of production and final product, technology capability and material availability. Food Habits and taste preferences of the consumer differs from region to region, some prefer rice based meals and some prefer wheat based, in some region there is more of vegetarian population and some have a high proportion of non-vegetarian. When a product is being introduced in a region, one has to also consider the affordability of the product too. Also with increased globalization products need to look appealing and so packaging of the product is also important. They need to prove for themselves that they are hygienic, safe and convenient along with being affordable.

Mr. Bhupinder Singh, CEO, Vista Foods, in his presentation of the ‘Supply Chain Challenges for food Processing industry said, “Food is the largest consumption category in India and so there is significant scope for development of innovative products”. A wide range of raw material is available in India due to its diverse

agro-climatic condition. We need to increase our trades. Currently India is exporting its products only to the proximate countries that are geographically closer. Stating an example of Chile, he said, we need to learn a lesson from the success story of Chile whose food processing market increased from USD 1.5 billion to USD 58.9 billion in the period 1975-2008.

To boost the Food Processing Industry, there is need to improve the infrastructure, upgrade the technology, Quality control & R&D and HR & Institutional Development. Along with this there needs to be a Supportive Policy. Presently there are many challenges that are faced by the supply chain sector. First is the productivity issue, India's overall productivity is still low due to various natural calamities and scarcity of infrastructural facilities. Next is the need for Human Resource Development. The industry is in a dire need of highly skilled manpower across different levels to handle various operations. With the increasing globalization there is a challenge to adhere to the quality standards for domestic as well as export markets. For any successful supply chain industry there needs to be a defined business relationships based on mutual trust, openness, shared risk and shared rewards that yields a competitive advantage.

Another important topic of the conference was "Nutrition and health Implications of Sugar replacements, and Protein and fiber enrichment in Processed Foods," in which Dr. Rajeev Kumar Thakur, Technical Manager, Roquette India, said there is increased consumption of calories from sugars and fat and a decrease in the calories from proteins. Also there is an increase in the diet related chronic diseases such as obesity, diabetes, cardio vascular heart diseases, cancer and dental diseases. This reflects a relation between our dietary habits and associated diseases. When one looks at the WHO recommendations for dietary intake, it recommends that 55-65 of the energy should come from carbohydrates out of which 10% max. from sugars. 15-30 of the energy should come from fat and 10-15 % from proteins.

Dr. Thakur also informed that one of the richest sources of sugars & fat are – chocolates and confectioneries (25-50 per cent), bakery products (over 50 per cent) and frozen desserts (13-20 per cent). Wheat, pulses, meat, milk and eggs are the best sources of protein. The daily protein requirement for the body is about 1.3gm for per kg of weight. He also urged all leading food processors of the country to increase the use of sugar alternatives. Sugars stay on the tooth enamel and micorflora break down the sugar and liberate acids that decrease the pH of the mouth and increase the erosion of tooth enamel causing plaque, thus sugar alternatives should be used as they do not cause acid production and prevent the cavity formation.

**Session 3- chaired by Dr. Adhikari**

Mr. Pranesh Misra, Chairman and Managing Director, Brandscapes Worldwide, in his presentation of 'Effective Strategies for marketing health foods in India' stated that there is a growing demand for healthy living and the top health concerns are stress, flu, eye health problems and lack of energy . Therefore there is an increase in demand for the products which can provide stamina, can control existing health problem, and enhance to daily health. For an average Indian, eating healthy is staying healthy and so all his efforts are related to food and eating habits. Many brands have already started utilizing this in their products.

The marketers need to be more cautious as it has been known through some of the surveys that many consumers do not believe on the claims made on the packs. The marketer should focus on the segment of consumer he is focusing. Successful marketing recognizes that we are in a technology business and that we need to educate to create acceptance and motivation to buy. Also the marketer needs to identify the playfield he is targeting, Technological playfield is motivated by technology and one can look at functional foods in a medical context. This market has a low sale with high price. Another category is Lifestyle category, which is motivated by being first with new benefits, this market has inverse relation between sales and price, as the demand increases the price decreases but in a reasonable range. And last is the mass market which is motivated only when new brand benefit becomes a standard, this market has high sales at a low price of the products. Thus identifying the right playing field would lead to sharper and more effective marketing.

Ms. Rashmi Uppal, Technical Marketing Manager-Foods, DSM Nutritional Products, in her presentation of 'Use of Lipids in Satiety and Improving Bioavailability of B-vitamins in Health Foods ' emphasized on the fact that to deliver the intended nutrients to the consumer , the company should look at the kind of delivery system used. Lipids have found to be a sound delivery system as we also see that many biological membranes contain the lipid bilayers. Lipids can significantly improve the performance of active components in nutritional and pharmaceutical products. Galactolipids improve the bioavailability of incorporated molecules. The potential use of the matrices includes poorly absorbed and chemically sensitive drug and nutritional compounds. Two factors of good delivery system are protection and transportation and the impact on intestinal absorption. One of the examples given was of the increase in bioavailability of Vit B12 due to galactolipid based delivery matrix. These lipids are also effect for weight management. Fat is normally digested in the small intestine, however with the use of galactolipids, the fat remains undigested in the ileum for a long period and so signal of satiety is sent to the brain. The unique aggregation capability of galactolipid is utilized, where in spontaneous formation of liposomes takes place.

With the ideas for innovations and ways of trouble shooting the industry concerns for achieving higher success provided by our eminent speakers who are experts in their respective fields, this conference turned out to be a success.



## **WILD BLUEBERRIES – Nature’s Number One Tastiest Antioxidant Fruit**

**Dr. S. V. Padgaonkar** - Technical Director, Clarico-FPC/ Spica Tech Specialities.

For great taste & the most antioxidant power, there is no better choice than irresistibly delicious wild Blueberries. Simply put, Wild Blueberries are **Nature’s tastiest strong antioxidants.**

One half cup of Blueberries delivers as much antioxidant power as five servings of other fruits and vegetables – such as peas, carrots, apples, squash & broccoli.

### **Antioxidants Fight Aging, Cancer and Heart Disease:**

Every day our cells wage a battle against free radicals – unstable Oxygen molecules associated with Cancer, heart disease and the effects of aging. Antioxidants come to the rescue. These natural substances found in fruits & vegetables, neutralize free radicals and protect against disease and age related health risks. Powerful antioxidants include photochemicals such as anthocyanins, which are **highly concentrated in the deep blue pigments of Wild Blueberries.**

New research shows that Wild Blueberries generally have more anthocyanins than their cultivated cousins. High levels of anthocyanins, a natural antioxidant, make Wild Blueberries powerful allies in the fight against aging, heart disease and cancer.

### **Anti-Aging Research : The New Brain Food**

According to scientists at the Jean Meyer USDA Human Nutrition Research Centre on Aging at Tufts University, a diet of Blueberries may improve motor skills and reverse the short term memory loss that comes with aging. In USDA trials at Tufts, older rats improve their navigational skills, balance, co-ordination & speed after two months of being on a diet of blueberry extract. Although other fruits and vegetables were studied, **only blueberries were effective in improving motor behaviour.** The blueberry has emerged as a very powerful food in the antioxidant battle. Given the possibility that blueberries may reverse short-term memory loss and forestall other effects of aging, **their potential may be very great.**

### **Power of Blue-More Benefits**

**Urinary Tract Health:** At the Rutgers Blueberry Cranberry Research Centre, Scientist Amy Howell showed that blueberries, like Cranberries, contain compounds that prevent the bacteria, responsible for Urinary track infections, from attaching to the bladder wall.

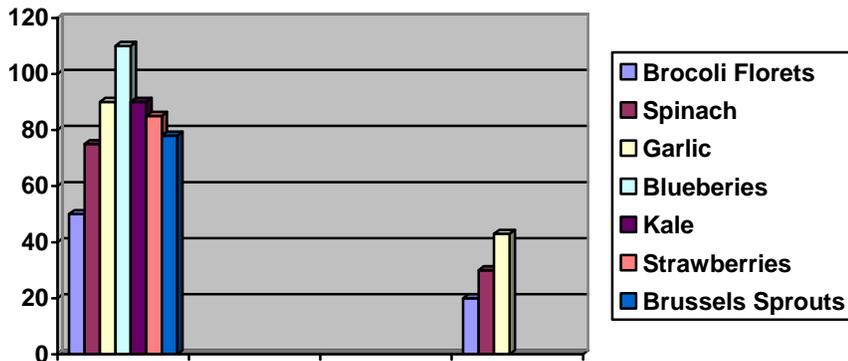
**Cancer Prevention:** New Research, conducted by M.A.I. Smith of the University of Illinois, indicates that compounds in Wild Blueberries are effective inhibitors of both the initiation and promotion stages of cancer.

**Promoting Vision Health:** Research around the world has indicated that blueberries can improve vision and prevent tired eyes.

### **Blueberries are No. 1 in USDA Study\***

Recent USDA Studies show that blueberries deliver a potent antioxidant punch. In research conducted by Dr. Ronald L. Prior of the Jean Meyer USDA Human Nutrition Research Centre on aging at Tufts

University, blueberries were ranked **number one in antioxidant activity**, compared with 40 other commercially available fruits and vegetables as shown below:



That means blueberries, -- fresh, frozen or dried – have more of the antioxidant power, today’s health conscious consumers are looking for.

- J. of Agriculture & Food Chemistry  
44, 701-705; 3426-3431 (1996)  
46, 2686-2693, (1998)

### **The ORAC Leader**

Blueberries emerged as the top antioxidant capacity fruit in a laboratory testing procedure, called “Oxygen Radical Absorbance Capacity” – ORAC – developed by the USDA.

ORAC is recognized as the definitive measurement of antioxidant capacity.

**Consumers Want Their Daily Dose of Blue:** Every day, consumers hear more good news about the remarkable health benefits of Wild Blueberries. Rich in blue antioxidants, Wild Blueberries are **nutraceutical superstars**. Called “**Miracal Berries**” by **Prevention**, “**Super Food**” by Health & “**Fruit of the Year**” by **Eating Well**, little blueberries are making big news as ‘Nature’s Healthy Blue Food’. No wonder, consumers want their “**Daily Dose of Blue**”.

### **The No. 1 Fruit Ingredient Choice.**

Wild blueberries are clearly an ingredient that adds new value and excitement to products of all kinds. In every form – frozen, dried, concentrate, powder or extract – Wild Blueberries deliver both antioxidant power & extraordinary taste. That’s why wild blueberries are predicted to be the hottest ingredient of the new millennium!

**“IF YOU ADD ONE FOOD TO YOUR DIET THIS YEAR, MAKE IT BLUEBERRIES.”**



# Research in Nutrition & Health

## Balancing Protein Intake, Not Cutting Calories, May be Key to Long Life

Getting the correct balance of proteins in our diet may be more important for healthy ageing than reducing calories, new research funded by the Wellcome Trust and Research into Ageing suggests. The research may help explain why 'dietary restriction' (also known as calorie restriction) – reducing food intake whilst maintaining sufficient quantities of vitamins, minerals and other important nutrients – appears to have health benefits. In many organisms, such as the fruit fly (*Drosophila*), mice, rats and the Rhesus monkey, these benefits include living longer. Evidence suggests that dietary restriction can have health benefits for humans, too, though it is unclear whether it can increase longevity.

Dietary restriction can have a potentially negative side effect, however: diminished fertility. For example, the female fruit fly reproduces less frequently on a low calorie diet and its litter size is reduced, though its reproductive span lasts longer. This is believed to be an evolutionary trait: in times of famine, essential nutrients are diverted away from reproduction and towards survival.

To understand whether the health benefits of dietary restriction stem from a reduction in specific nutrients or in calorie intake in general, researchers at the Institute of Healthy Ageing, UCL (University College London), measured the effects of manipulating the diet of female fruit flies. The results of the study are published in the journal *Nature*. The fruit flies were fed a diet of yeast, sugar and water, but with differing amounts of key nutrients, such as vitamins, lipids and amino acids. The researchers found that varying the amount of amino acids in the mixture affected lifespan and fertility; varying the amount of the other nutrients had little or no effect.

In fact, when the researchers studied the effect further, they found that levels of a particular amino acid known as methionine were crucial to maximising lifespan without decreasing fertility. Adding methionine to a low calorie diet boosted fertility without reducing lifespan; likewise, reducing methionine content in a high calorie diet prolonged lifespan. Previous studies have also shown that reducing the intake of methionine in rodents can help extend lifespan. "By carefully manipulating the balance of amino acids in the diet, we have been able to maximise both lifespan and fertility," explains Dr Matthew Piper, one of the study authors. "This indicates that it is possible to extend lifespan without wholesale dietary restriction and without the unfortunate consequence of lowering reproductive capacity."

Amino acids are the building blocks of life as they form the basis of proteins. Methionine is one of the most important amino acids as it is essential to the formation of all proteins. Whilst proteins are formed naturally in the body, we also consume proteins from many different food types, including meat and dairy products, soy-derived food such as tofu, and pulses. The relative abundance of methionine differs depending on the food type in question; it occurs in naturally high levels in foods such as sesame seeds, Brazil nuts, wheat germ, fish and meats.

"In the past, we have tended to think that the amount of protein is what is important to our diet," says Dr Piper. "We've shown here that in flies – and this is likely to be the case for other organisms – the balance of amino acids in the diet can affect health later in life. If this is the case for humans, then the type of protein will be more important. It's not as simple as saying 'eat less nuts' or 'eat more nuts' to live longer – it's about getting the protein balance right, a factor that might be particularly important for high protein diets, such as the Atkins diet or body builders' protein supplements."

Because the effects of dietary restriction on lifespan appears to be evolutionarily conserved – occurring in

organisms from yeast to monkeys – scientists believe that the mechanisms may also be conserved. This opens up the possibility of using these organisms as models to study how dietary restriction works.

Although the human genome has around four times the number of genes as the fruit fly genome, there is a close relationship between many of these genes. Since it is easy to create mutants and carry out experiments on fruit flies, the functions of many fly genes have been established and newly discovered human genes can often be matched against their fly counterparts. Therefore, even though the fruit fly does not on the surface resemble humans, many findings about its basic biology can be interpreted for human biology.

**From: Nutrition Horizon 03 Dec 2009**

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## **Weight Loss Reduces Sleep Problems in Obese Men**

Weight loss reduces obstructive sleep apnoea in obese men, with the greatest effect seen in patients with severe disease, according to new research published on [bmj.com](http://bmj.com). Obstructive sleep apnoea is a common sleep disorder characterised by pauses in breathing during sleep. Each episode (apnoea) lasts for at least 10 seconds and is caused by the collapse of the upper airways during sleep.

Moderate and severe obstructive sleep apnoea (defined as 15 or more apnoeas per hour) carries an excess risk of motor vehicle crashes, heart disease and death. Yet only one study has examined the effects of weight loss on obstructive sleep apnoea. So researchers at the Karolinska Institute in Sweden set out to evaluate whether treatment with a low energy diet reduces moderate and severe obstructive sleep apnoea in obese men.

The study involved 63 obese men (BMI 30-40) aged 30-65 years with moderate to severe obstructive sleep apnoea who were being treated with continuous positive airway pressure (a mask designed to help breathing during sleep). Thirty men received a liquid very low energy diet for seven weeks to promote weight loss, followed by two weeks of gradual introduction of normal food. The remaining men acted as a control group by adhering to their usual diet over the nine weeks. Both groups attended regular clinical examinations throughout the study to measure weight, waist circumference, and body fat, and to test dietary compliance. For the diet group, each visit also included a one hour group session to build group support and provide motivation.

At the start of the study, both groups had a mean apnoea hypopnoea index (AHI) of 37 apnoeas per hour. At week nine, the diet group had a mean AHI of 12 events per hour compared with 35 events per hour in the control group. The diet group also lost an average of 18.7 kg in weight compared with 1.1 kg in the control group over the nine-week period. Twenty-two out of 30 (73%) patients in the diet group were no longer obese at the end of the study, whereas all control patients remained obese. Five out of 30 (17%) patients in the diet group were also disease-free by the end of the study, and half had only mild disease, whereas all patients in the control group except one still had moderate to severe disease.

Treatment with a low energy diet improves obstructive sleep apnoea in obese men, with the greatest effect in patients with severe disease, conclude the authors. Long term treatment studies are needed to validate weight loss as a primary treatment strategy for obstructive sleep apnoea.

This trial shows that it is possible to help patients with this condition lose weight through lifestyle modification, and that doing this has a good chance of reducing the severity of their disease below the level of harm, say two Australian based researchers in an accompanying editorial. Well designed clinical trials are now needed to convince policy makers, patients, and practising clinicians of the long term usefulness of these tailored approaches, they write.



## **Women with Breast Cancer Who Consume Soy Food Have Lower Risk of Cancer Recurrence**

Although there is a concern regarding the safety of soy food consumption among breast cancer survivors, researchers have found that women in China who had breast cancer and a higher intake of soy food had an associated lower risk of death and breast cancer recurrence, according to a study in the December 9 issue of JAMA.

"Soy foods are rich in isoflavones, a major group of phytoestrogens that have been hypothesized to reduce the risk of breast cancer. However, the estrogen-like effect of isoflavones and the potential interaction between isoflavones and tamoxifen have led to concern about soy food consumption among breast cancer patients," the authors write.

Xiao Ou Shu, M.D., Ph.D., of Vanderbilt University Medical Center, Nashville, Tenn., and colleagues examined the association between soy isoflavone intake with breast cancer recurrence and survival. The researchers analyzed data from the Shanghai Breast Cancer Survival Study, a large, population-based study of 5,042 female breast cancer survivors in China. Women ages 20 to 75 years with diagnoses of breast cancer between March 2002 and April 2006 were recruited and followed up through June 2009. Information on cancer diagnosis and treatment, lifestyle exposures after cancer diagnosis, and disease progression was collected at approximately 6 months after cancer diagnosis and was reassessed at three follow-up interviews conducted at 18, 36, and 60 months after diagnosis. A Shanghai Vital Statistics Registry database was used to obtain survival information for participants who were lost to follow-up.

After a median (midpoint) follow-up of 3.9 years, 444 total deaths and 534 recurrences or breast cancer-related deaths were documented among the group of 5,033 surgically-treated breast cancer patients. Soy food intake, as measured by either soy protein or soy isoflavone intake, was inversely associated with mortality and recurrence. Patients in the group with the highest intake of soy protein had a 29 percent lower risk of death during the study period, and a 32 percent lower risk of breast cancer recurrence compared to patients with the lowest intake of soy protein. The adjusted 4-year mortality rates were 10.3 percent and 7.4 percent and the 4-year recurrence rates were 11.2 percent and 8.0 percent, respectively, for women with the lowest and highest groups of soy protein intake.

"The inverse association was evident among women with either estrogen receptor–positive or –negative breast cancer and was present in both users and nonusers of tamoxifen," the researchers write.

"In summary, in this population-based prospective study, we found that soy food intake is safe and was associated with lower mortality and recurrence among breast cancer patients. The association of soy food intake with mortality and recurrence appears to follow a linear dose-response pattern until soy food intake reached 11 grams/day of soy protein; no additional benefits on mortality and recurrence were observed with higher intakes of soy food. This study suggests that moderate soy food intake is safe and potentially beneficial for women with breast cancer."



## **Fatty Food Can Weaken the Immune System**

Fresh evidence that fatty food is bad for our health has come to light: mice fed a lard-based diet over a long period got worse at fighting bacteria in the blood, reveals a thesis from the Sahlgrenska Academy at the University of Gothenburg.

The mice fed the lard-based diet derived 60 per cent of their total calories from fat. They were compared with mice fed a low-fat diet, where no more than ten per cent of their calories came from fat. As expected, the mice on the high-fat diet got fatter. A more surprising result was that their immune system was less active. The white blood cells got worse at dealing with bacteria in the blood, which could have contributed to many dying of sepsis.

"Obesity is usually associated with inflammation that does not result from an infection, which simply means that the immune defences are activated unnecessarily," says doctoral student Louise Strandberg who wrote the thesis. "Ironically, the mice on the high-fat diet seem to have a less active immune system when they really need it."

Fat people are also at a greater risk of acquiring infection, for example in connection with an operation. In mice, the thesis shows that it is fatty food rather than obesity in itself which affects the ability to fight off sepsis caused by bacteria.

Strandberg has also investigated different variants of three genes that are important for the immune system and noted that several of the gene variants that strengthen immunity also result in less obesity. "So there are all kinds of links between the immune system on the one hand and obesity and diet on the other," says Strandberg.

**Source: Nutrition Horizon 09 Dec 2009**

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## **High-fat Low-carb Diets Could Mean Significant Heart Risk**

New scientific research has shown that low-carbohydrate high-fat diets, made popular by the likes of the Atkins diet, do not achieve more weight loss than low-fat high-carbohydrate diets, The Sugar Bureau has noted. Worryingly, the research, lead by Dr Steven Hunter from the Royal Victoria Hospital, Belfast, also shows significantly increased risks of cardiovascular disease for people following low-carbohydrate high-fat diets.

The research shows that the risks of low-carbohydrate high-fat diets far outweigh the potential benefits gained by overweight and obese people through weight loss, including improvements in blood pressure and risk factors for coronary heart disease.

The research results, released hot on the heels of both National Obesity Week and World Diabetes Day, are particularly important for nearly a quarter (24%) of the UK adult population, and 16% of the child population, now classified as obese and at risk of Type 2 Diabetes – 80% of all people diagnosed with Type 2 diabetes are overweight. Type 2 Diabetes is the result of inadequate insulin production and/or insulin resistance, which means that the right levels of glucose (our main source of energy from food) are not maintained naturally by the body. There are 180 million people in the world with diabetes and the World Health Organisation predicts this number will double in the next 20 years.

Dr Hunter, Royal Victoria Hospital, Belfast, said: "The worldwide obesity pandemic is a major public health concern and strongly linked to rises in diabetes and cardiovascular disease. By advocating low-carbohydrate

high-fat diets as a weapon against obesity and diabetes, health professionals could be contributing to a dangerous rise in cardiovascular disease”.

The research study, conducted among a group of obese pre-diabetic adults, compared the results of following a low-fat high-carbohydrate diet (20% fat, 60% carbohydrate) with a high-fat low-carbohydrate diet (60% fat, 20% carbohydrate). It showed that in all areas, other than the risk of cardiovascular disease, the diets have equal health benefits. The same amount of weight is lost; there is no significant difference in the body's glucose uptake or production; and meal tolerance-related insulin secretion is comparable. However, the study revealed a significant difference in overall systemic arterial stiffness and pointed to increased cardiovascular risk factors from high-fat low-carbohydrate diets.

Dr Hunter continued: “High-fat diets have become popular because they seemingly promote more rapid weight loss and because of their palatability. However, we now have proof that they do not help people lose weight any faster than more conventional diets, and the potential negatives of increased cardiovascular risks far outweigh the potential positives of more easily sustained dieting/weight loss, especially when there is a proven and safe alternative in low-fat high-carbohydrate weight loss diets.”

According to Dr Hunter, the challenge now is to find ways to make low-fat high-carbohydrate diets more palatable and easier to maintain, so that a long-term positive outcome is achieved.

The Food Standards Agency says that saturated fat should account for less than 11% of the total diet for a normal person, and Dr. Hunter concludes: “If your New Year's resolution is to lose weight, make sure you do it the right way and don't burden your body with additional unnecessary health risks by falling for the lure of the seemingly easy and fast weight loss offered by high-fat diets. The best approach for your overall health is a low-fat high-carbohydrate diet, coupled with exercise.”

**Source: Nutrition Horizon 10 Dec 2009**

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## **Brown Fat Cells Make 'Spare Tires' Shrink; Promising New Approach to Combat Obesity**

Scientists at the University of Bonn have found a new signaling pathway which stimulates the production and function of so-called brown fat cells. They propose using these cells that serve as a "natural heating system" in order to just 'burn' unwanted excess fat. The results will be published in the journal *Science Signaling* on Dec. 1.

Brown adipose tissue is different from white fat pads. It contains loads of mitochondria, miniature power stations which among other things can 'burn' fat. In doing this, they normally generate a voltage similar to that of a battery, which then provides energy for cellular processes. However, the mitochondria of brown fat cells have a short circuit. They go full steam ahead all the time. The energy released when the fat is broken down is released as heat.

"This is actually what is intended," Professor Alexander Pfeifer from the Bonn PharmaCentre explains. "Brown fat acts like a natural heating system." For example, babies would get cold very quickly without this mechanism. Up to now, it was thought that brown fat only occurred in newborn babies and was lost with age. However, this year different groups were able to show that this is not true: even adults have a deposit of brown fat in the neck area. But with very overweight people this deposit is only moderately active or is completely absent.

## **PKG turns on the heating**

The scientists from Bonn, Heidelberg, Cologne, Martinsried and the Bundesinstitut für Arzneimittel und Medizinprodukte, BfArM, were now able to show which signals prompt the body to produce brown fat cells. A signaling pathway which is controlled by the PKG enzyme takes on a key role in this process. This signaling pathway results in the stem cells of the fatty tissue becoming brown fat cells. For this it switches on the mass production of mitochondria and ensures that UCP is formed, the substance that creates the short circuit. "Furthermore, we were able to show that PKG makes brown fat cells susceptible to insulin," Alexander Pfeifer explains. "Therefore PKG also controls how much fat is burnt in general."

Mice without PKG have a lower body temperature, as the researchers were able to show with a thermographic camera. Above all, animals in the thermal image lack an 'energy spot' between the shoulder blades, i.e. the place where normally the brown fat is active.

## **Fighting fat with fat**

The researchers suspect that a disorder of the brown fatty tissue can lead to obesity in adults. If it were possible to turn on the 'natural heating system' on again, the problem of unwanted fat would be quickly solved: according to estimates, 50 grams of active brown fatty tissue is sufficient for increasing the basal metabolic rate by 20 per cent.

"With the same nutrition and activity the fat reserves would melt at a rate of five kilos per year," Professor Pfeifer explains. "This makes our results interesting from a therapeutic perspective. By blocking the PKG signaling path in the brown fat we basically want to fight fat with fat."

*Science Daily (Dec. 2, 2009)*

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## **Moderate Weight Loss in Obese People Improves Heart Function**

Obese patients who lost a moderate amount of weight by eating less and exercising more improved their cardiovascular health, says a study at Washington University School of Medicine in St. Louis.

The results of this two-year study, published in the Dec. 15, 2009, issue of the *Journal of the American College of Cardiology*, showed that weight loss led to improvement in four key measures of heart and vascular health. The improvements seen in the study participants included decreased thickness of heart muscle, improved pumping and relaxation functions of the heart and decreased thickness of the carotid artery walls. Heart muscle thickening and impaired pumping and relaxation functions are predictors of heart failure, and increased carotid wall thickness is a predictor of plaque formation.

The researchers studied 60 moderately obese individuals at regular intervals, and 46 people (78 percent) completed the entire two-year follow-up period. The participants ranged in age from 22 to 64 and had BMIs (body mass indexes) of between 30 and 44. During the study, the subjects were instructed to eat low-calorie diets (1,200 to 1,500 calories for women and 1,500 to 1,800 calories for men) and to exercise for about three and a half hours per week, principally walking.

On average, they lost weight for about six months, reaching a maximum loss of nine percent body weight or 22 pounds. Maximum cardiovascular benefit lagged behind weight loss, with the greatest improvement coming six to 12 months after the study began.

Starting at about six months, most participants slowly regained some of their lost weight. At the end of two years, the participants averaged about nine pounds below their initial weight. Even though they regained some weight, after two years they still retained some of the heart and blood vessel benefit they had received.

"Losing 20 or so pounds might seem daunting to some people, but we showed that even a more modest weight loss can yield heart and vascular benefits," says first author Lisa de las Fuentes, M.D., a Washington University heart specialist at Barnes-Jewish Hospital and assistant professor of medicine in the Cardiovascular Division at the School of Medicine. "It's important to realize that you can choose goals that are attainable and work progressively toward them. You don't necessarily need to lose 50 pounds to improve your heart function."

The study participants were randomly assigned to either low-carbohydrate or low-fat diets. Both diet groups experienced similar improvements in heart and vascular measurements. That's reassuring for people who prefer one type of diet over the other, says de las Fuentes.

None of the patients enrolled in the study had clinically evident signs of heart failure, such as shortness of breath, coughing or fluid buildup, and none were taking cholesterol-lowering medications. About a third of them were being treated for high blood pressure.

By using advanced echocardiography and ultrasound imaging to thoroughly characterize cardiovascular health, the researchers were able to show that at the start of the study, the patients had detectable, though modest, heart dysfunction -- their hearts were slightly thickened, the contraction and relaxation abilities of their hearts were somewhat abnormal and the walls of their carotid arteries were mildly thickened. Six to 12 months after dietary intervention began, these indicators of heart and vascular function had become significantly healthier, and participants' cholesterol and triglyceride levels also had improved.

"Over time, obesity leads to abnormal thickening of heart muscle because the heart works harder to pump blood throughout the body," de las Fuentes says. "After a while, the hearts of obese people can lose some of their pumping or relaxation ability, leading to heart failure. But our study suggests that by losing weight, people can turn back the clock and regain more youthful heart function."

De las Fuentes indicates the study is unique because it followed patients for such a long time and because researchers used advanced imaging technology to evaluate heart health. In addition, by following patients over two years, the investigators were able to document what happens as weight is regained, showing that improvements in heart and blood vessel health were gradually lost as patients put weight back on.

The study participants generally were not at a weight eligible for bariatric surgeries such as laparoscopic gastric banding or gastric bypass, so it's important that the study demonstrates a program of diet and exercise to achieve moderate weight loss can improve heart health, de las Fuentes says.

*Science Daily (Dec. 14, 2009)*

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## **Feeding, Fasting Times Control Metabolism**

The time period one eats and fasts each day controls metabolism says new research from the Salk Institute for Biological Studies. The new mouse study, to be published in a forthcoming issue of the *Proceedings of the National Academy of Sciences*, revealed the daily waxing and waning of thousands of genes in the liver—the body's metabolic clearinghouse—is mostly controlled by food intake and not by the body's circadian clock as conventional wisdom had it.

In mammals, the circadian timing system is composed of a central circadian clock in the brain and subsidiary oscillators in most peripheral tissues. The master clock in the brain is set by light and determines the overall diurnal or nocturnal preference of an animal, including sleepwake cycles and feeding behavior. The clocks in peripheral organs are largely insensitive to changes in the light regime. Instead, their phase and amplitude are affected by many factors including feeding time. The clocks themselves keep time through the fall and rise of gene activity on a roughly 24-hour schedule that anticipates environmental changes and adapts many of the body's physiological function to the appropriate time of day.

To investigate how much influence rhythmic food intake exerts over the liver circadian oscillator, graduate student and first author Christopher Vollmers put normal and clockdeficient mice on strictly controlled feeding and fasting schedules while monitoring gene expression across the whole genome. He found putting mice on a strict eight-hour feeding/16-hour fasting schedule restored the circadian transcription pattern of most metabolic genes in the liver of mice without a circadian clock. Conversely, during prolonged fasting, only a small subset of genes continued to be transcribed in a circadian pattern even with a functional circadian clock present.

**From: Food Product Design 11/25/2009**

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## **Spices may halt growth of breast stem cells**

A study published in *Breast Cancer Research and Treatment* shows that compounds derived from the spices turmeric and pepper may help prevent breast cancer by limiting the growth of stem cells, the small number of cells that fuel a tumor's growth. Researchers at the University of Michigan Comprehensive Cancer Center have found that when the dietary compounds curcumin, which is derived from the Indian spice turmeric, and piperine, derived from black peppers, were applied to breast cells in culture, they decreased the number of stem cells while having no effect on normal differentiated cells.

Cancer stem cells are the small number of cells within a tumor that fuel the tumor's growth. Current chemotherapies do not work against these cells, which is why cancer recurs and spreads. Researchers believe that eliminating the cancer stem cells is key to controlling cancer. In addition, decreasing the number of normal stem cells—unspecialized cells that can give rise to any type of cell in that organ—can decrease the risk of cancer.

In this study, a solution of curcumin and piperine was applied to the cell cultures at the equivalent of about 20 times the potency of what could be consumed through diet. The compounds are available at this potency in a capsule form that could be taken by mouth. The researchers note that this work has not been tested in patients, and patients are not encouraged to add curcumin or piperine supplements to their diet at this time. The researchers applied a series of tests to the cells, looking at markers for breast stem cells and the effects of curcumin and piperine, both alone and combined, on the stem cell levels. They found that piperine enhanced the effects of curcumin, and that the compounds interrupted the self-renewal process that is the hallmark of cancer-initiating stem cells. At the same time, the compounds had no effect on cell differentiation, which is the normal process of cell development.

“This shows that these compounds are not toxic to normal breast tissue,” said lead author Madhuri Kakarala. “Women at high risk of breast cancer right now can choose to take the drugs tamoxifen or raloxifene for prevention, but most women won't take these drugs because there is too much toxicity. The concept that dietary compounds can help is attractive, and curcumin and piperine appear to have very low toxicity.”

Curcumin and piperine have been explored by other researchers as a potential cancer treatment. But this study is the first to suggest these dietary compounds could prevent cancer by targeting stem cells. Researchers are

planning an initial Phase I clinical trial to determine what dose of curcumin or piperine can be tolerated in people. The trial is not expected to begin accruing participants until spring 2010.

## **IFT Newsletter December 9, 2009**

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### **Nanoparticle may protect oil in foods from oxidation, spoilage**

Using a nanoparticle from corn, a Purdue University scientist has found a way to lengthen the shelf life of many food products and sustain their health benefits. Yuan Yao, Assistant Professor of Food Science at Purdue University, has successfully modified the phytyglycogen nanoparticle, a starchlike substance that makes up nearly 30% of the dry mass of some sweet corn. The modification allows the nanoparticle to attach to oils and emulsify them while also acting as a barrier to oxidation, which causes food to become rancid. The findings are published in the *Journal of Agricultural and Food Chemistry*.

Oxidation destabilizes oil droplets in emulsified food, degrading and changing the chemical structure of the oil and causing it to go bad. This oxidation happens in a wide range of products, shortening their shelf lives. In fish oils, for example, the lipid oxidation degrades omega-3 fatty acids, which are essential in infant development and are thought to help with chronic inflammatory and heart diseases in adults.

Yao was able to modify the surface of phytyglycogen nanoparticle to make it behave like an emulsifier, creating phytyglycogen octenyl succinate, or PG-OS. PG-OS is thicker and denser than commonly used emulsifiers, creating a better defense from oxygen, free radical, and metal ions, which cause lipid oxidation. The findings also show that  $\epsilon$ -polylysine, a food-grade polypeptide, can be added to the oil droplets to aid in the protection from oxidation. Polylysine is much smaller than the PG-OS nanoparticles, allowing it to fill in the gaps between PG-OS nanoparticles.

According to Yao's study, PG-OS nanoparticles with  $\epsilon$ -polylysine significantly increased the amount of time it took for oxidation to ruin the oil droplets, in some cases doubling the shelf life of the model product. Shelf life was tested by warming the emulsifiers and checking for chemical reactions that signal oxidation has occurred.

## **IFT Newsletter December 9, 2009**

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### **Roasting does more than enhance flavor in peanuts**

Agricultural Research Service (ARS) scientists have shown that increasing roast color intensity steadily ramps up the antioxidant capacities of peanuts, peanut flour, and peanut skins. The study was conducted by Food Technologist Jack Davis and his colleagues in the ARS Market Quality and Handling Research Unit in Raleigh, N.C. The researchers characterized changes in antioxidant levels of roasted peanuts and the corresponding blanched skins across an industrially relevant range of roast treatments. For the study, peanuts were incrementally roasted at 362°F from zero to 77 min. The water- and oil-soluble antioxidant activity levels of the roasted peanut product samples were then determined.

Dark-roasting consistently increased water- and oil-soluble antioxidant capacities for both commercially available peanut flours and blanched peanuts. Peanut skins, currently considered a waste product of industrial peanut processing, had remarkably high antioxidant capacities across all roast conditions. These antioxidant increases upon roasting were attributed to greater concentrations of phenolic compounds and/or "browning" reaction products. The latter result from thousands of complex chemical reactions in which proteins and sugars

interact, ultimately resulting in brown pigmentation. These reactions, collectively termed Maillard browning, are also thought to contribute in part to the characteristic flavor of roasted peanuts.

The researchers also measured vitamin E in the roasted peanuts. Vitamin E degradation was most rapid in oil from lightly roasted peanuts; however, oil from darker roasted peanuts had better vitamin E retention than that of lightly roasted or even raw peanuts. This preservation of vitamin E could be due to the increased concentration of oil-soluble Maillard reaction products, which seem to protect vitamin E from oxidation.

While darker roasted peanuts are inappropriate for some applications due to sensory considerations, these materials are utilized to prepare, for example, darker roasted peanut flours and flavor extracts. The study expands the fundamental knowledge of roasting as it relates to the antioxidant capacity of peanuts and peanut ingredients, according to the authors. The findings are published in *Food Chemistry*.

## **IFT Newsletter December 9, 2009**

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### **Nutritional Drink Improves Alzheimer's**

Rush University Medical Center is leading a nationwide clinical trial of a nutritional drink to determine whether it can improve cognitive performance in people with mild to moderate Alzheimer's. The study follows recently released results from an earlier trial conducted in Europe showing that the drink, called Souvenaid, improved verbal recall in people with mild disease who were followed for three months.

Results of the European study were released recently following publication in the journal *Alzheimer's & Dementia*. In that study, 225 patients with mild Alzheimer's were divided into two groups—some drank Souvenaid and the others sipped a non-medical drink every day for 12 weeks. Researchers found that the patients who drank Souvenaid improved in a delayed verbal recall task.

A total of 500 individuals who are taking medications approved by the U.S. Food and Drug Administration (FDA) for the symptomatic treatment of mild to moderate Alzheimer's disease will be enrolled in the present study at 40 sites across the United States. In the double-blinded study, half of the participants will drink about 4 ounces of Souvenaid once a day for 24 weeks; the other half will drink a control product that is similar in flavor, appearance and composition, but without the Souvenaid nutrients.

Researchers will test whether the participants' cognitive and functional performance—including memory, language, attention/concentration, executive functioning, information processing and recall—shows any greater improvement with Souvenaid than with medication alone.

**From: Food Product Design 01/27/2010**

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### **Soy Fights Colon Cancer**

A new class of therapeutic agents found naturally in soy may prevent and possibly treat colon cancer, according to a new study conducted by Children's Hospital & Research Center Oakland (CHORI).

Led by Julie Saba, MD, PhD, senior scientist and director of the Cancer Center at CHORI, the researchers made the groundbreaking discovery that Sphingadienes (SDs)—natural lipid molecules found in soy—may underlie the benefits of soy products.

Researchers first identified SDs in the fruit fly, an organism that is sometimes used to study the genetics of human diseases. Further investigation indicated that elevated SDs actually induced the death of mutant cells in the fly, revealing SDs to be cytotoxic compounds. Preventative colon cancer strategies often focus on cell death—a normal process the body uses to remove unhealthy or mutant cells, like cancer cells. Coupling this discovery with the finding that soy is a rich source of SDs, researchers made an innovative connection.

“It’s very exciting,” Saba said. “First, we are encouraged to find a natural molecule that could be consumed through soy products as a strategy to help prevent colon cancer. Second, this information is important because we can build on our understanding of the structure and metabolism of SDs in terms of developing new drugs to treat people who already have colon cancer. Uncovering how SDs exert their effects also helps us to find the most likely combinations of drugs that may work synergistically to eliminate cancer cells and mutant cells that could give rise to cancer.”

“I would be comfortable recommending soy products as a change in the diet that could protect against cancer. The more that soy is studied, the more of these protective agents are found, so it’s a very healthy diet choice.”

**From: Food Product Design 11/25/2009**



## **Food Science & Nutrition News**

### **Nanotechnology May Also Facilitate Weight Loss**

Several Finnish universities have joined forces to develop an innovative drug delivery method that utilises silicon to transport drugs in the human body. Among other advances, the project has been able to sustain the effect of peptides controlling appetite, which may facilitate the use of nanotechnology for dieting purposes. The research is being carried out as part of the Academy of Finland’s Research Programme on Nanoscience (FinNano).

Different types of drug molecules can be bound to the porous structure of silicon, thereby making it possible to alter their properties and control their behaviour within the body.

Porous silicon can be produced as both micro- and nanoparticles, which facilitates the introduction of the material through different dosing routes – orally, as injections or subcutaneous applications. Furthermore, biodegradable nanoparticles can be used for drug targeting.

Silicon is more familiar as a raw material used in computer microprocessors. In nanomedicine applications, the wafers are equipped with nano-sized pores instead of processors. The pores are slightly larger than the drug molecules loaded in them. The porous surfaces of the silicon particles, created through a process called electrochemical etching, are modified to be chemically suitable regarding the molecules to be loaded in the pores and the application. The drug is loaded by immersing the particles in a suitable drug solution, whereby sensitive substances, such as peptides and proteins, can also be easily loaded into the pores effectively.

The biopharmaceutical properties of the drug in the pores are different from those of the original drug. The rate of release for pore-bound drugs can be changed in a controlled manner by selecting the proper pore size and surface chemical properties in relation to the size and chemical properties of the drug molecule.

The drug can be rapidly released and dissolved from the pores, in cases where we are looking to improve the solubility properties of specific low-soluble drugs. The release of the drug can also be delayed, if the aim is to sustain the therapeutic effect. Porous particles can be targeted to specific tissues in the body by attaching targeting molecules to their surface, whereby a significant amount of the drug loaded in the pores accompanies the particles to the effect site. This would increase, for example, the effectiveness of cancer treatments and reduce side-effects.

Nanoporous silicon is applicable as an adjuvant component for both traditional drugs and for peptides, proteins and genetic drugs. The development of silicon as an adjuvant material for medicinal products is based on interdisciplinary research in which physicists, pharmacists, physicians, biotechnologists, chemists, and experts in the material sciences work in cooperation within a broad national research network. The network includes groups from the universities of Kuopio, Turku, Helsinki and Oulu as well as from Lappeenranta University of Technology.

**Source: Nutrition Horizon 7 Dec 2009**

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### **Kids Eat Less Junk Food When Middle Schools Stop Providing It**

It seems like a no-brainer, and it is: Take the junk food out of school vending machines and cafeterias, and kids will eat less junk food, according to a new study that took place in Connecticut.

When schools started removing low nutritional value snack foods and soft drinks as options, some claimed there would be a "forbidden fruit phenomenon" and that kids would go home and eat twice as much.

Instead, "we found that when you take soda and high-fat snacks out of schools, students did not compensate at home. Instead, they ate better at school and no worse at home," said lead study author Marlene Schwartz, Ph.D., deputy director at the Rudd Center for Food Policy and Obesity at Yale University.

Schwartz explained that financial pressure from both the food industry, looking to build brand loyalty, and the schools, which get a cut of the profits from vending machines, is the main reason there is opposition to removing soft drinks and junk foods.

The study, published in the December issue of the journal *Health Education & Behavior*, looked at six middle schools over two years. In the three target schools, snacks meeting current nutrition standards in Connecticut (including water, 100 percent fruit juice, baked chips, pretzels, granola bars and canned fruit) replaced items that did not meet the standards (including potato chips, doughnuts, sweetened sports drinks, soda, snack cakes and cookies). The foods at the three comparison schools remained the same.

"Junk food is not something to be taken lightly," said Joel Fuhrman, M.D., a family physician, nutritional researcher and author. He said that soft drinks are addictive and that the Centers for Disease Control and Prevention (CDC) now recognizes that children today are expected to live shorter life spans than their parents are, due at least in part to nutrition-related conditions like heart disease and cancer.

Schwartz and Fuhrman agree that even the replacement foods allowed by the state -- while healthier -- were not necessarily the best options. For example, Fuhrman noted that the American Academy of Pediatrics does not recommend feeding children fruit juice, because of its contribution to obesity and diabetes. "In other words," he said "even the foods that weren't as bad, they weren't health foods."

"We live in a society where it is easy, cheap, and convenient to eat unhealthy foods, and difficult to eat healthy foods," Schwartz said. "It's been this way for so long that many people consider this normal. It's not -- schools need to be a safe haven for children that sell healthy foods children need to eat more of, not the unhealthy foods we tell children to limit."

*Science Daily (Dec. 6, 2009)*

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## **Food Industry Faulted for Pushing High-Calorie, Low-Nutrient Products**

A new study criticizes the nation's food and beverage industry for failing to shift their marketing efforts aimed at children. The report said television advertising continues to contribute to epidemic levels of obesity, despite industry promises of reform. Children Now, a California-based public policy group that advocates for children, commissioned the study, conducted by Dale Kunkel, a professor of communication at the University of Arizona, and UA graduate students Christopher McKinley and Paul Wright. The study can be seen on the Children Now Web site.

The study -- "The Impact of Industry Self-Regulation on the Nutritional Quality of Foods Advertised on Television to Children" -- analyzes the impact of the 2007 Children's Food and Beverage Advertising Initiative. It is the first ever independent, comprehensive evaluation of industry self-regulation on advertising food to children. Kunkel also will present his findings on December 15 at a Federal Trade Commission hearing in Washington.

The industry initiative was launched three years ago by the U.S. Council of Better Business Bureaus as a voluntary, self-regulatory program designed to shift the mix of advertising messages targeting children. The goal of the initiative is to significantly improve the nutritional quality of food and drink advertised to children. More than a dozen of the nation's largest food and beverage companies signed on. Together they represent about two-thirds of that industry's advertising budget.

However, Kunkel's study concludes that the industry has failed to meet the principal recommendations from a 2006 Institute of Medicine report to shift marketing away from foods low in nutritional quality and to emphasize advertising strategies promoting healthier food, beverage and meal options.

"My colleague, Dr. Dale Kunkel, and his collaborators at the University of Arizona have demonstrated that advertising of low-nutrient high-density foods continues to be a significant preventable variable in the childhood obesity epidemic," said former U.S. Surgeon General Dr. Richard Carmona, now the distinguished professor of public health at the UA Mel and Enid Zuckerman College of Public Health. "This new scientific information should be a renewed 'wake up' call to all elected officials, teachers and parents to take appropriate action to prevent childhood obesity and in doing so improve the quality of life and reduce the cost of care for our children," Carmona said. Kunkel, who has researched children and media issues for 25 years, served on the Institute of Medicine/National Academy of Sciences committee that issued the report concluding that food marketing is a significant contributor to childhood obesity.

The study's key finding is that, despite industry self-regulation, nearly three out of four, 72.5 percent, of the foods advertised on television to children are for products in the poorest nutritional category. Known as "Whoa" foods, these products should be consumed only on special occasions, such as birthdays, according to the U.S. Department of Health and Human Services.

Advertising for truly healthy foods such as vegetables and fruits, known as "Go" foods, is virtually invisible. Commercials for these foods account for only one percent of all food advertising to children. Kunkel said that in 2005, before the initiative began, 84 percent of ads were for products with the poorest nutrition, based on

criteria from the Department of Health and Human Services Go-Slow-Whoa food rating system. "Four years later, under self-regulation, they have only moved the bar to 72.5 percent," Kunkel said. "We cannot win the battle against childhood obesity as long as we continue to allow industry to bombard children with ads for foods that they really shouldn't eat very often."

Kunkel said it would require watching 10 hours of children's programs to find one healthy food ad. That same amount of viewing time would contain 55 ads for "Whoa" foods, and 20 for "Slow" foods.

The study also criticizes the use of familiar, "licensed" characters to influence children's decisions. While the food industry claims that licensed characters are only used to promote healthy foods to children, Kunkel's research has found that nearly half, 49 percent, of all food ads with licensed characters, such as Spongebob Squarepants, promote foods in the poorest nutritional category. Because of the failure of industry self-regulation, the report recommends that Congress should step in to regulate advertising to children, a step also advocated by the Institute of Medicine.

*Science Daily (Dec. 14, 2009)*

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## **Breakthrough for Edible Cottonseed May Yield Commercial Protein Within 10 Years**

A researcher has found a way to reduce toxin in cottonseed to make it edible for humans, and the newly engineered seed could show up in protein bars, shakes, breads, cookies and other foods within about 10 years. Until now cottonseed could only be eaten by cattle, whose multiple stomachs gradually digested the poisonous substance called gossypol. The amount of cotton already grown worldwide contains enough protein to feed 500 million people per year, researchers said.

"There are a lot of poor people that cannot afford diets that contain a reasonable amount of protein," said Keerti S. Rathore, the Texas A&M University researcher who made the breakthrough. "It will be nice to be able to utilize this source." The new seeds can be eaten by pigs, chickens and fish as well as humans.

Gossypol drops blood potassium to dangerous levels in humans and can harm the heart and liver in people and animals. Chickens eating only cottonseed die within a week. Researchers have worked for decades to neutralize the substance and achieved partial success in the 1950s when scientists produced a gossypol-free plant by shutting off the gene that produces the toxin throughout the plant. But without gossypol, insects and diseases ravaged the cotton.

Rathore found a way to shut off gossypol production only in the seeds, leaving stems, leaves, flowers and tissue protected. Cotton raised in field trials earlier this year at A&M had both stable growth and safe levels of gossypol in the seeds. More tests involving a variety of cotton strains lie ahead as well as regulatory hurdles, but researchers are optimistic about the technique's potential. "We're trying to proceed cautiously, but we're optimistic," said Jodi Scheffler, a research geneticist in the U.S. Department of Agriculture's Crop Genetics and Production Research Unit. "So, so far, so good."

Rathore said there could be less resistance to eating the genetically altered cottonseed because his technique involves shutting down a chemical process within the seed, not adding something to it. The method also has potential with crops such as the Indian pea, a legume that grows in Asia and Africa. Farmers grow the pea as an emergency crop because it's high in protein and hardy in drought, but it contains a neurotoxin that paralyzes the lower body when eaten in large amounts.

Rathore's cottonseed meets World Health Organization and U.S. Food and Drug Administration standards for

food consumption, but he needs approval from the USDA, FDA and possibly other agencies to make it commercially available. If approved, the seed could be as valuable as the cotton fiber used to make blue jeans, T-shirts and other garments, said Tom Wedegaertner, director of cottonseed research and marketing at Cotton Inc., an industry promotion group. "It's huge," Wedegaertner said.

Cottonseed now is worth about 10 cents a pound; the fiber is worth about 70 cents a pound. At about 22 percent protein, cottonseed could improve the diets of malnourished people in developing nations worldwide, researchers said. The kernel has a nutty flavor and can be roasted and salted. And unlike the protein in soybeans, Rathore's cottonseeds produce no flatulence when eaten. "It's not quite like peanuts," said Scheffler, the geneticist. "I've tasted worse. They do taste better than the roasted soybeans."

Oil pressed from cottonseed has long been used in such things as mayonnaise and salad dressing. Without the threat of gossypol, the leftover kernel could be ground into meal and combined with wheat or corn flours to enrich them with protein. In tests, the meal has been used to make pancakes, cereals, caramel popcorn and tortillas. "There are all kinds of uses for this thing," Rathore said. "Our hope is that our cotton farmers will get more value for their crop."

Plains cotton farmer Rickey Bearden said the extra income could help offset higher prices for diesel fuel, fertilizer and electricity to run irrigation systems. "It's going to make a viable market that we've never had," Bearden said. "Who knows what the possibilities are?"

**Author: BETSY BLANEY, Associated Press Writer**

**From: Soya Tech e-News November 30, 2009**

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## **Food Scarcity Fears in China Fall as GM Rice Gets Nod**

China has approved its first strain of genetically modified rice for commercial production, two scientists involved in the approval process have revealed, potentially easing the way for other major producers to adopt the controversial technology. The approval of the locally-developed rice, as well as China's first GMO corn, shifts the global balance of power in food trade and could prompt other countries to follow suit, experts said. India and Iran were also developing GM rice and the Philippines could approve Vitamin A-enriched GM Golden Rice by late 2011 or early 2012. The advent of commercial GMO production in China could affect global prices for rice, which rocketed in early 2008, sparking fears that the bedrock of Arabic and Asian cuisine might be in short supply.

"This news signals that there will be no fear of food shortage as we can produce as much as we want and China itself will not have to import any more," said Kiattisak Kanlayasrivat of Thailand's Novel Agritrade Co Ltd. "Prices of white rice would get back to \$200-\$300 per tonne again and supply should rise significantly," he said.

Benchmark 100 per cent B grade white rice in Thailand, the world's top exporter and supplier of almost all of China's imports, was quoted at \$565 per tonne this week. The move will also enable China, the world's top producer and consumer of rice, to grow more of its staple food amid shrinking land and water resources. The Chinese Ministry of Agriculture's Biosafety Committee has issued biosafety certificates to pest-resistant Bt rice and large-scale production is set to start in two to three years.

But Greenpeace called the move a 'dangerous genetic experiment'. China, which wants to raise grain production eight per cent to 540 million tonnes a year by 2020, has splashed out on GMO research, with \$3.5 billion going on rice, corn and wheat. The phytase corn was also locally developed by China's Academy of Agricultural Science and Nasdaq-listed Origin Agritech Ltd, which has seen its share price double since shareholders were notified of the approval on Saturday. Phytase corn will help pigs digest more phosphorus, enhancing growth and

reducing pollution from animal waste and fertiliser runoff. The rice and corn strains are China's first GMO grains approved for commercial production, although it already permits GMO papaya, cotton and tomatoes. The strains still need to undergo registration and production trials before commercial production can begin in restricted areas, which may take a couple of years, the scientists said.

**From: Soya Tech e-News December 5, 2009**

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## **Industry expects 44 pc increase in sugar output by 2010**

India's sugar output is expected to rise by 44 per cent to 23 million tonnes in the crop year that starts from October 2010, as higher prices are likely to support cane cultivation. The output in 2010-11 would be substantially higher than the expected 16 million tonnes during 2009-10, according to Vinay Kumar, managing director, National Cooperative Federation of Sugar Factories Ltd. Further, India's annual sugar demand is pegged at 23mt.

Bumper planting was going on in Uttar Pradesh because of higher prices. Millers in the state have agreed to pay Rs 190-195 per quintal, compared to Rs 140-145 last year.

After being a net importer for two straight years, India may become self-sufficient in 2010-11, says Narendra Murkumbi, managing director, Shree Renuka Sugars Ltd, the country's biggest refiner. India turned into a net importer last year, after exporting a record 5mt of sugar in 2007-08, as lower cane output triggered by a glut in the previous two years hit sugar production. In 2007-08, India produced 26 mt, followed by 14mt in 2008-09.

Meanwhile, refiners would get more time to comply with export obligations as the priority now was to meet domestic demand. Under the Advance Licensing Scheme, sugar mills were allowed to import 21.4 lakh tonnes of raw sugar in 2004-05 season and were automatically obligated to export an equal quantity by December 31,2009.

**from: ImagesFood.com December 29, 2009**

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## **Let It Be: Paul McCartney Promotes 'Meat-Free Mondays' to EU**

Paul McCartney took his "Meat-Free Mondays" campaign to the European Parliament on Thursday, saying the power to halt global warming lies as much with individuals as with their governments. McCartney met in Brussels with Rajendra K. Pachauri, head of the U.N.'s global climate change panel, and praised the virtue of skipping meat one day a week for the sake of the environment. "I grew up as a kid not eating meat on Fridays," McCartney told reporters. "It was part of the rules of the school I went to.

At a time of concerns over global warming, McCartney added, there are "even more crucial reason" to skip meat. The former Beatle and well-known vegetarian said the production of food - from farm to fork - accounts for 20 to 30 per cent of global green house gas emissions. Livestock production is responsible for around half of these emissions.

Still, he admitted that his flight from London to Brussels - and on to Berlin for a concert later Thursday - had contributed to global warming. "They haven't invented microphones that work on candle power," he said. "I do everything I can. If I go for a car, I go for hybrid. I recycle."

Pachauri lauded McCartney's initiative, saying it "certainly makes the tasks of governments so much easier." Earlier, Pachauri met with European Commission President Jose Manuel Barroso, who said even if the global climate conference opening in Copenhagen next week does not yield a final accord it must "light the pathway to

a legal agreement" on reducing greenhouse gas emissions. Barroso said he was heartened that "around 90" government leaders are coming to Copenhagen for the Dec. 7-18 U.N. climate meeting.

**Author: ROBERT WIELAARD The Canadian Press**

**From: Soya Tech e-News December 4, 2009**

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## **Moms Influence What Children Eat Most**

Healthy eating habits and nutritional knowledge of mothers have the most bearing on what their children eat, according to a new report from market researcher The NPD Group. Recent NPD research finds that in households with kids, when the adult female has a good Healthy Eating Index (HEI), a measure of diet quality similar to federal dietary guidance, the majority of kids in the household are eating just as well. Although moms' healthy eating behaviors impact how their children eat, attitudes about nutritional eating do not necessarily align with actual behavior, according to the NPD report, titled, "What's on the Minds of Moms and How Are They Coping." Three-fourths of new moms and 65% of experienced moms said they actively seek out foods with nutrition benefits. However, the study finds that fewer moms actually eat foods with nutritional benefits. Moms also give themselves high marks when it comes to nutritional knowledge. The NPD study reports that 67% of moms feel they are extremely or very knowledgeable about nutrition and eating, and 81% feel they are the primary source for nutritional education for their children. Yet when asked to assess their children's level of nutritional knowledge, few moms ranked their children extremely or very knowledgeable; a little more than half of children 6- to 17-years old were considered somewhat knowledgeable. One-fourth of moms considered their children 6- to 12-years old not very knowledgeable.

**From: Nutraceuticals World December 1, 2009**

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## **The First Rice-Based, Soy-Free Meat Alternative Introduced**

Morini Brands is proud to announce the creation of RISOFU (R) (pronounced rhee ZOE fu), the world's first rice-based meat alternative which is cholesterol, gluten, and trans fatty acid free and more.

Unlike all other meat alternatives which are soy-based and can trigger a wide range of allergens, Risofu(R) is all natural and is completely FREE of the world's top 8 allergens; soy, wheat, egg, dairy, tree nuts, peanuts, fish and shell fish. Uniquely formulated and processed to deliver a real meat-like texture and wonderfully diverse cooking characteristics, Risofu(R) is the key ingredient in the new Bahama(R) Rice Burger and was the perfect food choice to introduce the new BAHAMA (R) RICE BURGER -Morini Brands' initial offering of rice-based products.

The Bahama(R) Rice Burger was successfully launched last year, claiming the AVA's (American Vegetarian Association) coveted "Most Innovative Product Award" of 2008 for great taste, quality and more. The New Bahama(R) Rice Burger can be found in the freezer case at most Whole Foods, and many other natural food stores across the U.S. including its most recent distribution into Publix Corporate, Lakeland, FL.

Feedback has been positive. Packed with the finest all-natural and minimally processed ingredients, the Bahama(R) Rice Burger is rich in fiber, (t grams per serving) and Omega 3s (over 1000 grams per serving) and is certified Vegan. The Bahama(R) Rice Burger is gaining frozen shelf space daily and comes in four mouthwatering flavors; Original, Pineapple Mango, Jerkin'Spice and Mediterranean. Other delicious Morini Brands' offerings are on the way, including rice-based meatballs, sausage and a 5 oz. BBQ-Peppadew burger. Also look for the Bahama(R) Rice Burger to be available to the Food Service industry making its way into schools, hospitals and restaurants. Risofu(R) will be available in bulk as an ingredient and available under license.

**From: Soya Tech e-News December 9, 2009**

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## Regulatory News

### EU Approves Syngenta's GMO Maize

The European Commission (EC) gave a green light to the genetically modified (GMO) maize type MIR604 developed by Swiss agricultural company Syngenta AG (VTX: SYNN). The maize type can be used for food and feeding, as well as for import and processing within the next ten years. Any products of this breed will be subject to the EU's labelling and traceability rules. The MIR604 maize was assessed as safe by the European Food Safety Authority (EFSA). This is the fourth GMO maize type approved by the EU in the last month.

**From: Soya Tech e-News December 3, 2009**

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### FDA Scrutinizes Front of Food Labels

FDA intends to address potentially false and misleading nutrition labeling by developing standardized, science-based criteria for the food industry. It is essential that both the criteria and symbols used in front-of-package (FOP) and shelf-labeling systems be nutritionally sound and well-designed to help consumers make informed and healthy food choices, according to the agency. FDA is currently analyzing FOP labels that appear to be misleading and is looking for symbols that either express or imply nutrient content claims.

“We are assessing the criteria established by food manufacturers for such symbols and comparing them to our regulatory criteria,” said Barbara Schneeman, PhD, director, Office of Nutrition, Labeling and Dietary Supplements within FDA’s Center for Food Safety and Applied Nutrition (FSAN), in a “Guidance for Industry” letter posted on FDA’s website in October. The agency said it intends to work with food retailers and manufacturers, nutrition and design experts, as well as the Institute of Medicine to develop an optimal, common approach to nutrition-related FOP and shelf labeling that all Americans can trust.

Following this announcement, the Smart Choices Program, a labeling system utilized by several leading food manufacturers, postponed its active operations. “We welcome the FDA’s interest in developing uniform front-of-package and shelf-labeling criteria,” said Mike Hughes, chair, Smart Choices Program and vice president for science and public policy at the Keystone Center. “The Smart Choices Program shares that exact goal, and was designed to provide a voluntary front-of-package labeling program that could promote informed food choices and help consumers construct healthier diets. We continue to believe the Smart Choices Program is an important step in the right direction.” The Smart Choices Program will also continue to work with those who have an interest in front-of-package labeling, such as Connecticut Attorney General Richard Blumenthal, who has asked for information about the development of the program, which the group is providing.

The Smart Choices Program was developed, in part, to respond to earlier governmental calls for a more uniform, voluntary, front-of-package labeling program. According to Mr. Hughes, the Smart Choices Program was developed during an open and lengthy collaborative process by a diverse coalition of scientists, nutritionists, public health and public interest organizations and food industry leaders. The program’s nutritional criteria are based on the U.S. government’s Dietary Guidelines for Americans and the labels comply with all U.S. laws and regulations. “Our nutrition criteria are based on sound, consensus science,” said Mr. Hughes. “But with the FDA’s announcement that they will be addressing both on front-of-package and on-shelf systems, and that uniform criteria may follow, it is more appropriate to postpone active operations and channel our information and learnings to the agency to support their initiative.”

**Nutraceuticals World December 1, 2009**

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## **FDA issues draft guidance concerning liquid dietary supplements versus beverages**

The Food and Drug Administration (FDA) has issued a draft guidance entitled “Factors that Distinguish Liquid Dietary Supplements from Beverages, Considerations Regarding Novel Ingredients, and Labeling for Beverages and Other Conventional Foods.” While comments on guidance documents may be submitted at any time, to ensure agency consideration in development of its final guidance, comments should be submitted to FDA by Feb. 2, 2010. The draft guidance is in response to two trends observed by the FDA in the marketing of beverages: (1) the marketing of beverages as dietary supplements, despite the products being represented as conventional foods (e.g., labeled as a “beverage,” “drink,” “water,” or “juice”), and (2) the marketing of beverages that contain novel ingredients (e.g., added botanicals or their extracts) that may be unapproved food additives.

Based on these marketing trends, FDA’s draft guidance advises the following:

1. Beverages represented as conventional foods may not be marketed as dietary supplements. A dietary supplement may be marketed in liquid form; however, the Federal Food, Drug, and Cosmetic Act (FD&C Act) prohibits dietary supplements from being “represented for use as a conventional food or as a sole item of a meal or the diet.”
2. Beverages are conventional foods whose added ingredients must be approved food additives or generally recognized as safe (GRAS). Any substance added to a beverage that is an unapproved food additive (e.g., not GRAS for its intended use) causes the beverage to be adulterated.
3. Beverages may not bear unauthorized labeling claims and must bear mandatory labeling applicable to conventional foods. The draft guidance also reviews the FD&C Act’s general prohibition on false or misleading labeling, as well as the conditions under which beverage labeling may include health claims, nutrient content claims, and structure/function claims. In particular, the draft guidance explains that a structure/function claim that promotes a conventional food (e.g., beverage) for a use other than providing taste, aroma, or nutritive value (e.g., used for blocking the absorption of carbohydrates in the gut) may cause the product to be misbranded, because the labeling claim changes the product’s primary use from that of a food to that of a drug.

**From: IFT Newsletter December 9, 2009**

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### **New laws to check milk: Maharashtra State**

The Maharashtra government plans to introduce a Bill in the Budget Session of the state legislature to ensure strict action against those who adulterate milk and milk products. Minister for water resources and energy, Ajit Pawar told the Legislative Council that the decision to table a Bill had been taken after members in the House raised concerns on serious health consequences to the masses due to adulterated milk. The members also spoke of lenient punishment to be inflicted on the guilty under the existing legal provisions.

Pawar said the government was equally concerned about the matter. Before the Bill is introduced in the Budget Session, the government might promulgate an ordinance, he said. The issue came up for discussion in the House after a starred question raised by Rajan Teli of the Congress and others regarding milk adulteration in Nagpur district. It may be recalled that the police last week arrested twelve people at Ghatkopar in Mumbai for selling adulterated milk. Empty plastic sachets of well-known milk brands like Aarey, Amul, Mahanand and Mother Dairy were also seized from them.

— **ImagesFood.com Bureau 29 Dec 2009**

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## **Menu labels spur diners to trim calories**

Restaurant menus that include calorie information do seem to encourage diners to exercise some restraint, a new study suggests. What's more, researchers found, menus that give added information -- namely, the number of calories the average adult should get in a day -- could prove even more effective at curbing appetites. The findings, reported in the *American Journal of Public Health*, give some weight to the growing movement to require restaurant chains to place calorie information on their menus and menu boards.

In 2008, New York City became the first U.S. city to mandate such changes at fast-food and coffee chains. That law became a model for California and other U.S. states and cities that have since implemented or are considering similar measures. And soon the federal government may be stepping in; provisions for menu labeling are part of the healthcare reform legislation currently before Congress. The intention is to help combat the nation's obesity problem by raising consumer awareness of just how many calories lurk in their burgers, sandwiches, fries and desserts. But questions have been raised about the effectiveness of menu labeling.

In October, an independent study of New York's law concluded that menu labeling had done nothing to change consumer habits in the city's low-income neighborhoods. Shortly thereafter, the city's health department released preliminary data from a larger study suggesting that New Yorkers had, in fact, started buying fewer calories at 9 of 13 fast-food and coffee chains included in the research.

For the current study, Yale University researchers tested the effects of menus that provide not only calorie content, but also a line stating that the average adult should get about 2,000 calories a day. The researchers randomly assigned 303 adults to order from one of three menus: one with no calorie labeling; one with calorie information; and one with calorie content, plus a label with the 2,000-calorie recommendation.

Overall, the study found, diners in the two calorie-label groups ate 14 percent fewer calories at the meal than those who had ordered from the label-free menus. And when study participants later reported on their food intake for the remainder of the day, the researchers found that those who had seen the 2,000-calorie recommendation downed fewer calories -- an average of 250 fewer than those in the other two groups.

The setting was experimental, and not "real world," but that allowed the researchers to show cause-and-effect, noted Christina Roberto, a doctoral candidate at Yale who led the study. "We can say that is the menu labeling having the effects" on calorie intake, she told Reuters Health.

Moreover, Roberto said, the findings highlight the potential impact of a simple line stating the number of calories a person should get each day. "That turned out to be really important," said Roberto, noting that the information helps people put their single meal in the context of a whole day. "By putting that 'anchor' in," she said, "you can maximize the effectiveness of menu labeling." Roberto noted that the current healthcare reform bills would have restaurants include the daily-calorie recommendation on menus.

***By Amy Norton Amy Norton Dec 30, 2009 Yahoo News***

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