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## 2 An improved micronutrient assay system

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## Editorial:

## Nutrition security for all

The 19th International Congress of Nutrition (ICN 2009), which was held in Bangkok, Thailand from October 5–9, 2009, attracted a record number of more than 4000 participants from 107 countries. What made this meeting even more special was the Royal support that it enjoyed. Her Royal Highness Princess Maha Chakri Sirindhorn of Thailand not only presided over the opening ceremony; she also honored the sessions with her presence throughout the week, and actively participated in discussions.

HRH Princess Maha Chakri Sirindhorn is Patron of the Nutrition Association of Thailand. Since 1980, she has led projects throughout the country to alleviate malnutrition among disadvantaged members of the population, contributing to their health and welfare. Her efforts in nutrition have also formed an important foundation for other aspects of development, such as improved education and incomes. The Princess's successful approach has since been extended to neighboring countries, and should serve as a role model for others.

The theme of the congress, Nutrition Security for All, calls attention to the huge numbers of people in the world who are either undernourished or overweight, and the threat this poses for public health and economic development. It was the aim of the organizers to reach agreement on which are the best ways to ensure a safe and healthy food supply, and to deliver the nutrients and services needed for good health and well-being.

The fight against obesity and its associated chronic diseases was addressed in four of the eight plenary lectures, the EV McCollum Lecture, several symposia and numerous posters. WHO statistics show that, globally, more than one billion adults are overweight, and at least 300 million of them are obese. The key causes are excessive consumption of energy-dense foods and inadequate physical activity. Obesity and overweight increase the risk for conditions such as type-2 diabetes, cardiovascular disease, hypertension, stroke and certain forms of cancer.

The problem is growing at an alarming rate in developing as well as developed nations. Finding

a solution promises to be a long and arduous task, involving intensified research, education to improve diets and lifestyle, and regulatory measures to reduce availability and intakes of 'unhealthy' foods. This will require wide-ranging partnerships beyond the public health and nutrition communities.

While the link between obesity and chronic disease is gaining attention around the world, it must not be forgotten that the problem of hunger and micronutrient malnutrition is as important as ever. Various speakers put forward suggestions for improving the production and access to healthy foods, or called for increased efforts to reduce hunger. After all, investing in nutrition pays off with increased productivity, lower healthcare costs and a better quality of life.

In her address to the conference on Monday, October 5, HRH Princess Maha Chakri Sirindhorn expressed her pleasure that Thailand had been chosen to be the forum for sharing, learning and nourishing the collaborative spirit among nutrition professionals working in academic institutions, national and international agencies, private sectors as well as civil societies. "Nutrition is a very compelling and integrated science," she said, "a feature that I have come to realize through my own experiences in the rural areas of Thailand as well as through interacting with national and international nutrition experts. Malnutrition and poor health are global impediments to community, national and international development, as well as the betterment of society and humankind. Since malnutrition's causes and contributing factors are complex, solutions are not easy, but they can be achieved. Solutions to malnutrition and poor health require commitment and collaborative efforts from society and individuals using nutrition indicators as goals for achievements." Before officially opening the conference, she reminded everybody that: "the goal of Nutrition Security for All can only be achieved when our knowledge is put into action for people and by people at all levels of the society, including the disadvantaged people."



*Title photo: Thai students demonstrate the ancient art of food carving at the 19th ICN. Could this be a way to encourage people to eat more fruits and vegetables?*

A. Bowley

## Feature:

## An improved micronutrient assay system

Monitoring and validating micronutrient levels at the production site and in the population is a common problem for producers of fortified foods, food laboratories, food control authorities, NGOs and development organizations, as well as medical institutions. To fulfill the key demands of users in low-resource settings,

micronutrient assays should be inexpensive, accurate, reliable, rugged, and well suited to the medical and social context of the developing world.

To enhance the decentralization of testing and improve global healthcare, BioAnalyt ([www.bioanalyt.com](http://www.bioanalyt.com)), a spin-off of the University of Potsdam in Germany, has

developed a novel and innovative analytical system that is able to measure vitamin A, iron and iodine levels in fortified foods, as well as vitamin A levels in whole blood and human milk. When the company presented the system at the 2nd Micronutrient Forum in Beijing and during the International Congress of Nutrition in Bangkok in cooperation with Sight & Life, it was received with considerable enthusiasm.

**A simple and reliable application**

The system consists of a battery-operated, portable spectrofluorophotometer (iCheck™ T3) and a disposable extraction and measuring vial (iEx™) that safely contains all the necessary reagents. The analysis is performed in three easy steps:

1. The sample is injected into the vial via a septum.
2. The sample and reagents are shaken to mix them.
3. The concentration of the analyte is measured in the photometer.



The method is therefore rapid, simple, inexpensive, accurate and safe, and fulfills all the criteria required for a simple and reliable application in low-resource settings. Vitamin A, iron or iodine can rapidly be extracted and accurately quantified in fortified foods such as flour, sugar, salt, oil and soy sauce. The analysis can usually be performed directly at the sampling site within a few minutes.

The new assay system can also be used to determine vitamin A status in human blood and milk directly. Vitamin A levels can be determined in a range of 0.35 to 3.50 μmol/l using only 400 μL of whole blood or milk. Results correlate well (r=0.97) with standard analytical approaches (Figure 1), and show very little bias (Figure 2). Therefore, the method is superior to the traditional Futterman method [1], not only because of its greater reliability. It needs no complicated and expensive logistic system for storage and transport of blood samples; blood must not be centrifuged to remove red blood cells, and the analysis is not affected by hemolysis.

Because of the system's simplicity, non-laboratory personnel in low-resource settings can easily learn to use it in a short time, not only on the factory floor

or for field studies, but also for the determination of vitamin A status in individuals.

This innovative analytical system simplifies food fortification monitoring and identification of vitamin A deficiency, and promises to contribute significantly to improving global health.

**Reference**

1. Futterman S, Swanson D, Kalina RE. A new rapid fluorometric determination of retinol in serum. *Invest Ophthalmol Vis Sci* 1975; 14: 125–130.

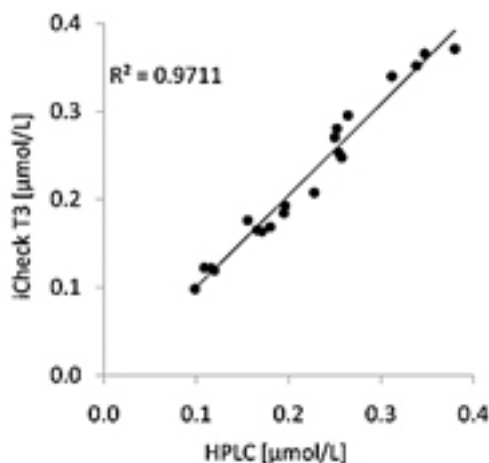


Figure 1: Linear regression analysis shows good correlation between high-pressure liquid chromatography (HPLC) and iCheck™ T3 for retinol in blood

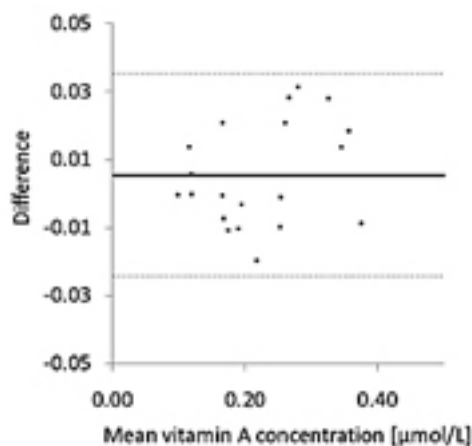


Figure 2: Minimal bias between iCheck™ T3 and HPLC assays (Bland-Altman plot)



Measuring micronutrient content with the iCheck™ T3 spectrofluorophotometer (lower image); the complete kit in its convenient carrying case (upper image)

Simone K. Frey, BioAnalyt GmbH, Teltow, Germany (simone.frey@bioanalyt.com)

Conference report:

Criteria for food fortification success

The symposium that the Micronutrient Unit of the WHO, the International Micronutrient Malnutrition Prevention and Control Program (IMMPaCt) of the CDC, USA, and the A2Z Project of USAID held at

the ICN on Wednesday, October 7, 2009, looked at the different components of a food fortification program that are needed to ensure program effectiveness. Each of the nine speakers presented a specific aspect of

the process that is important to achieve the desired outcome. For a successful program, they agreed, it is essential to:

1. Involve academia, government and industry, as well as consumers.
2. Provide scientific evidence of the intervention's effectiveness and acceptability.
3. Assess food and micronutrient intakes in the target population.
4. Add adequate, yet safe, amounts of deficient micronutrients.
5. Use ingredients from a reliable source.
6. Monitor operational performance at production, sales point and household.
7. Strictly enforce regulations.

### **Encourage strong partnerships**

Omar Dary (A2Z) showed why a successful food fortification program depends on more than just adding micronutrients to a staple food. Before the government can make any decisions on policy and strategy, or set standards and regulations, scientists must assess population needs, and estimate the potential impact of proposed interventions. As a next step, it is wise to obtain the support of the producers of the food(s) to be fortified. They need to be convinced that fortification will not change the sensorial properties, and is worthwhile, so they fortify the food as required, using quality premixes that are safe and effective. The food industry, under government control, is responsible for ensuring that the fortified food meets quality standards, and is also expected to conduct social marketing to educate the public, who needs to be convinced of the benefit gained. It is then the turn of the scientists again to assess the impact and cost of the program.

Looking at the role of industry in the process, Visith Chavasit (Institute of Nutrition, Mahidol University, Thailand) showed how food fortification could be a win-win situation for all. Taking into consideration that the target populations for fortified foods generally have a low buying power, and are not health conscious, close collaboration between academia, industry and the public sector could result in a nutritious food that is affordable, acceptable and accessible, while also being profitable for the producers, and sustainable in the market.

### **Ensure a scientific basis**

Using zinc fortification as an example, Daniel Lopez de Romaña (Institute of Nutrition and Food Technology, Chile) illustrated what scientists can do to improve the success of a fortification program. It is important to investigate the effects of adding micronutrients on the organoleptic characteristics of the food, and to show that fortification improves micronutrient bioavailability, and positively affects biochemical indicators and functional outcomes. Research, he said, is needed before, during and after program implementation.

Noel Solomons (CeSSIAM, Guatemala) stressed some of the difficulties involved in measuring the effective-

ness of a food fortification program. "A time-dependent improvement in population status following introduction of the intervention is a presumptive indicator (not proof) of effectiveness," he said. However, "the more acute the change and more temporal the response, the more convincing it is," he added.

### **Assess population characteristics**

To design a food fortification program correctly, it is important to know individual food intakes in the target group, and to identify the prevalence of inadequate and excessive intakes of micronutrients. Suzanne Murphy (Cancer Research Center of Hawaii) pointed out that only data collected at the personal level provide sufficient detail to simulate the effect of fortification on all individuals in a population. While this can be challenging, it must be seen as a worthwhile investment.

### **Add adequate amounts of micronutrients**

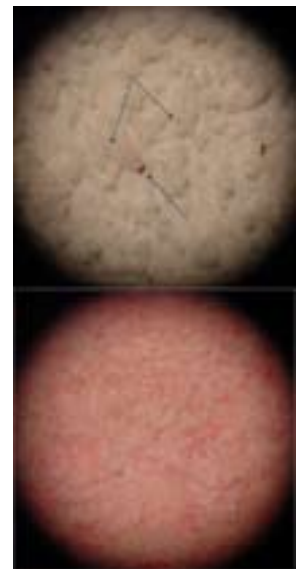
When selecting the level of fortification to be achieved, it is important to take numerous criteria into consideration. For the fortification of flour, for example, the level and type of nutrient to be added depends on the level of flour extraction, the selected form of fortificant, and the amount of flour consumed. Other factors to be considered are the deficiencies identified in the population, sensory effects of fortification, other fortified foods available, supplement use, cost and feasibility.

Rafael Flores (IMMPaCt/CDC, USA) presented the conclusions of the FFI Expert Meeting on wheat and maize flour fortification that was held in Georgia, USA, in April 2008. Before the group formulated its recommendations, specific teams conducted technical reviews for each micronutrient. These recommendations have since been endorsed by WHO, FAO, UNICEF, GAIN and MI.

### **Use ingredients from a reliable source**

Hector Cori (DSM) called for an increased dialogue on ingredient quality. Although international standards and guidelines exist (e.g. PAHO Code of Practice, 2005; see *Nutriview 2007/3*), knowledge still needs to be translated into action that drives quality into fortification programs through adequate regulatory frameworks. Choosing vitamin B12 as an example, he showed how poor ingredient quality is detrimental to the efficacy of the fortified food. Because only very small amounts are required in the premix, he said, adding a simple form of this vitamin produces a heterogeneous mixture in the food. The result is that some samples will contain excessively high levels, while others might have none at all. This can be avoided by using an appropriately diluted form of the vitamin. Although this might cost more, it ensures that every meal prepared with the fortified food contains the correct amount.

The success of a fortification program not only depends on using high-quality raw materials, however. It is also affected by the quality of the machines,



*When a simple form of vitamin B12 is used for food fortification, the ingredient is distributed irregularly (red spots in upper image); with appropriate technology, its distribution can be improved significantly (lower image at same magnification).*

instruments and processes used for production and quality control, packaging, storage conditions, hygiene, and traceability.

### Monitor program performance

To ensure that fortification has the desired impact, the operational performance (or implementation efficiency) of the program must be monitored. This is best accomplished with a system of continuous data collection at key delivery points. The framework model proposed by WHO distinguishes two main categories of monitoring: 1) regulatory monitoring and 2) household/individual monitoring. Regulatory monitoring encompasses all monitoring activities conducted at the production level (i.e. at factories and packers), as well as at customs warehouses and retail stores by appropriate regulatory authorities as well as by producers themselves as part of self-regulation programs.

Summarizing the different monitoring steps, Wilma Freire (University of San Francisco, Quito, Ecuador) divided the necessary actions into internal monitoring (by premix producers and fortification facilities), external monitoring (inspection of factories and retail stores by government control bodies) and household/individual monitoring (epidemiological research).

Soekirman (Indonesian Coalition for Fortification) described the system for monitoring flour fortification in

Indonesia. It involves internal monitoring of the premix, the production process, and the finished product by the producer, external monitoring by the Ministry of Industry and Trade (compliance to national standard), and external monitoring by the Food and Drug Control authority (nutrient levels in final product, availability of fortified flour in the market). He also drew attention to the importance of monitoring coverage and impact systematically, providing adequate analytical capacity and a mechanism to collate results, and enforcing mandatory fortification among all players.

### Enforce regulations

For the success of a fortification program, realistic regulations must be formulated (and periodically reformulated) and enforced. This can imply penalization of those who do not comply.

### A multifactorial process

The general conclusion of this symposium was that food fortification done correctly offers a cost-effective and sustainable approach to reduce micronutrient malnutrition. However, careful attention to all of the factors described above is critical for success. The extent of this success is only as good as the weakest of the variables involved.

A. Bowley

## Conference report:

# INF honors its founder

During the ICN 2009, the International Nutrition Foundation (INF), a nonprofit organization based in Boston, Massachusetts, USA, announced that, as of October 2009, it would be renamed as the 'Nevin Scrimshaw International Nutrition Foundation' in recognition of founder Nevin Scrimshaw's tireless contribution to international nutrition research, programming and capacity building. His revolutionary accomplishments have made a substantial improvement in the lives of millions of people around the globe.

For nearly seven decades, Nevin Scrimshaw has been one of the world's foremost leaders in international nutrition, and was awarded the World Food Prize in 1991. He founded the INF in 1982 to meet the critical need for researchers and professionals in developing countries to access and implement the latest nutrition research. The INF accomplishes its mission by supporting active research and training programs in developing countries through the INF Fellowship Program, disseminating cutting-edge nutrition research and policy through its publications, and implementing research projects in collaboration with active research institutions in developing countries.

Over the past three decades, the INF has supported hundreds of new scientists and their institutions, and has disseminated state-of-the-art nutrition research



*HRH Princess Maha Chakri Sirindhorn joins with Nevin Scrimshaw and some of his colleagues in Bangkok to celebrate the renaming of the INF (From left to right: Lindsay Allen, Takuzo Kitamura, Kraisid Tontisirin, Nevin Scrimshaw, HRH, Irwin Rosenberg, Ricardo Uauy, Maria Teresa Uauy)*

to thousands of health professionals, researchers and policy makers throughout the world. Since 1978, the

INF has published the Food and Nutrition Bulletin in association with the United Nations University. Articles include policy analyses, state-of-the-art methodology, and original papers about efforts to alleviate hunger and malnutrition. The journal is distributed to researchers throughout the world; eligible scientists and institutions in developing countries may apply for a free subscription.

At the end of 2009, after 27 years as the driving force behind the INF, Dr Scrimshaw will step down

as its President. His successor is Ricardo Uauy, who trained as a PhD under Nevin's mentorship nearly 30 years ago, and has been deeply committed to the INF ever since. During this period, he has worked on nutrition capacity building, and has served as a Board Member, Co-Chair of the INF Fellowship Program, and Vice President for Capacity Building. Under its new leadership, the INF continues to strive towards Nevin Scrimshaw's vision of a healthier world through better nutrition.

Source: INF documentation

## Conference report:

# Outstanding efforts acknowledged

Various organizations regularly use the ICN to honor outstanding efforts to improve nutrition. At the ICN 2009 in Bangkok, awardees were Barry Popkin (EV McCollum International Lectureship in Nutrition), Michael Holick and Heike Bischoff-Ferrari (DSM Nutrition Award), and Johan Auwerx (Danone International Prize for Nutrition). For the first time in ICN history, the IUNS awarded the title of 'Living Legend in Nutrition' to 29 prominent, over-eighty-year-old nutrition scientists (from Australia, Austria, Brazil, China, Egypt, Hungary, India, Japan, Korea, Philippines, Poland, Sri Lanka, Taiwan, Thailand, USA and Viet Nam) who have made significant contributions to the field of nutrition. Also during the ICN, the regional Nutrition Leadership Programs ENLP, SEANLP and ANLP presented, for the first time, a joint Young Scientist Award to recognize the potential of young scientists to become global leaders in nutrition. The 2009 winner, chosen from 24 candidates, was Reginald Annan. Originally from Ghana, he completed his PhD at the University of Southampton, UK.

### Award for nutrition transition conceptualization

The EV McCollum International Lectureship in Nutrition provides a means to encourage sound advancements in nutritional science and their application for improving the health and well-being of people worldwide. It was established in 1979 to commemorate the 100th birthday of Elmar Verner McCollum (1879–1967) and his contribution to micronutrient research (vitamins A, B and D) in the early twentieth century.

The 2009/2010 EV McCollum International Lectureship in Nutrition was awarded to Barry M. Popkin (Carla Smith Chamblee Distinguished Professor of Global Nutrition, Dept of Nutrition, Gillings School of Global Public Health, University of North Carolina, and Director, Interdisciplinary Obesity Center, University of North Carolina) for his academic achievements, and for his unflagging energy and enthusiasm for training scholars to continue to advance nutritional science as an interdisciplinary field that solves problems for improving human lives.

On October 5th, Barry Popkin, who has a PhD in economics, spoke about the challenges facing the world today as a result of the growing prevalence of obesity, and the associated nutrition-related non-communicable diseases. He showed how shifts in eating, drinking and movement habits clash with human biology, and concluded that widespread obesity is less an effect of poor individual choices than the consequence of a high-tech, interconnected world in which a new array of regulations and government efforts are needed to help create a better balance between what we eat and drink and our related energy expenditures. Barry Popkin's recent book 'The World Is Fat: The Fads, Trends, Policies and Products that are Fattening the Human Race' [Penguin 2009; ISBN 9781583333136] is being printed in English and twelve other languages.



Barry Popkin

### Recognition for vitamin D research

The DSM Nutrition Award is granted every two years, and alternates between the fields of human and animal



DSM Nutrition Award (from left to right): Mauricio Adade (President, Human Nutrition and Health, DSM Nutritional Products), Michael Holick, Heike Bischoff-Ferrari, Manfred Eggersdorfer (Senior Vice President, Research and Development, DSM Nutritional Products, and Chairman of the international judging committee)

nutrition. The DSM Nutrition Award for Human Nutrition is granted in recognition of excellence in innovative research related to essential nutrients as well as to other naturally occurring bioactive compounds in the field of human nutrition. This year, it was granted jointly to Michael F. Holick (Professor of Molecular Medicine at the Boston University School of Medicine, USA) and Heike A. Bischoff-Ferrari (Professor, the Swiss National Science Foundation, and Director of the Centre on Aging and Mobility at the Department of Rheumatology and the Institute of Physical Medicine, University of Zurich, Switzerland) in recognition of their seminal contributions to research on vitamin D and its role in human nutrition and health.

Michael Holick is widely renowned for his lifelong contribution to the basic understanding of the formation of vitamin D in the skin, the regulation of vitamin D absorption in the gut, and the metabolism and activation of vitamin D by liver and kidney. He also established evidence that most human populations have a limited capacity to form vitamin D by sun exposure, thus resulting in a critical need for an adequate supply of vitamin D by diet and dietary supplements.

Heike Bischoff-Ferrari is recognized for her significant contributions on the effects of vitamin D in the field of population health, and her demonstration of widespread vitamin D deficiency, particularly among the elderly. She has demonstrated the critical role of vitamin D in assuring muscle strength and bone health to prevent falls and fractures, thus redefining the contribution of vitamin D and calcium to this growing segment of the population.

Both scientists agree that current dietary intakes of vitamin D are much too low; they support proposals to urgently reassess dietary recommendations, and to introduce measures to improve vitamin D status, and so reduce the functional decline and morbidity associated with insufficiency.

#### Prize for molecular nutrition researcher

The International Danone Institute (set up by Danone in 1991 to promote public health by developing and sharing



*Danone International Prize for Nutrition (from left to right): Manuel Serrano Rios (President, Danone Institute International), Johan Auwerx, Zuzana Derflerova (Jury President), Franck Riboud (CEO, Danone)*

knowledge concerning nutrition, diet and health) has awarded the Danone International Prize for Nutrition every two years since 1997 to a research scientist or research team conducting outstanding studies in human nutrition. The prize for 2009 was awarded to Belgian research scientist Johan Auwerx (Federal Polytechnic School of Lausanne, Switzerland) for his discovery that some foods, like hormones, communicate with the body's cells, giving orders, for example, to shed fat from adipose tissue. This finding opens the way for new preventive and therapeutic strategies to combat obesity-related non-communicable diseases.

For several years, Johan Auwerx has studied the mechanisms by which cells react to the nutrients present in the cellular environment. His studies show that the effects of these nutrients may, in certain cases, be more potent than those of hormones, completely changing our understanding of nutrition. It highlights the degree to which our body cells are able to adapt to the environment according to what we eat.

A. Bowley

## News in brief:

### More West African nations begin fortification

Currently, countries in Africa with regulations for fortification of at least one type of flour are Cote d'Ivoire, Ghana, Guinea, Nigeria and South Africa. Now, the introduction of food fortification is imminent in other countries in West Africa [1]. The neighboring countries of Togo and Benin were set to launch fortification of flour and cooking oil officially in November 2009. Flour will be fortified with iron, zinc, folic acid and other B vitamins; vitamin A will be added to cooking oil. Burkina Faso had plans to start fortifying in December 2009, while Senegal has passed a decree for fortification, but has not made the document official yet.

Togo signed the official declaration to create a national alliance for food fortification on July 30, 2009. In August, the program was announced at a ceremony attended by the Minister of Health and Minister of Trade. During the event, 4.8 metric tons of micronutrient premix for flour and 500 kilograms of vitamin A premix for cooking oil were presented to industry leaders in the country. Food fortification "represents the most viable long-term approach to combating micronutrient deficiencies," noted the country's Minister of State/Minister of Health, Komlan Mally. Health leaders in Togo are also promoting dietary diversification,

### Second FANUS meeting, September 12–15, 2010, Abuja, Nigeria

Theme of the 2011 Conference of the Federation of African Nutrition Societies (FANUS) is: Accelerating nutrition actions for Africa's development. Contact: National Secretariat, Nutrition Society of Nigeria, Federal Ministry of Health Building, Yaba, Lagos State, Nigeria. Email: nutrisocng@yahoo.com

exclusive breastfeeding during the first six months of life and micronutrient supplementation.

Work on food fortification in Togo is conducted as part of the regional Fortify West Africa initiative, under the leadership of the country's ministers, and in collaboration with Helen Keller International (HKI) and UNICEF. Several financial and technical partners have contributed toward purchasing equipment and supplies to begin fortification. These include the US Agency for International Development (USAID), the Michael and Susan Dell Foundation, the Global Alliance for Improved Nutrition (GAIN), the Micronutrient Initiative (MI), the West African Health Organization (WAHO), UNICEF, West African Economic and Monetary Union (UEMOA), the Professional Association of Cooking Oil Industries (AIFO-UEMOA), as well as the Professional Association of Milling Industries (AIM-UEMOA) and the Government of Togo. Universities in Togo and the milling and oil industries have also been key partners in the process.

Recent surveys in Togo have shown that 76–90% of children age 6–36 months, and more than 40% of women of reproductive age are anemic, and about 35% of children younger than 6 years are deficient in vitamin A.

1. [http://www.fortaf.org/a\\_sndmsg/news\\_view.asp?PG=235&I=103943](http://www.fortaf.org/a_sndmsg/news_view.asp?PG=235&I=103943)

#### Renewed commitment to end hunger

The three-day World Summit on Food Security held in Rome (November 16–18, 2009), and attended by 60 Heads of State and Government, and 191 Ministers from 182 countries and the European Community, committed the international community to investing more in agriculture and to eradicating hunger at the earliest date [1]. FAO Director-General Jacques Diouf, who hosted the event, said that this marked an important step towards a world free from hunger. However, he also regretted that the official declaration adopted by

the Summit contains neither measurable targets nor specific deadlines that would make it easier to monitor implementation. In particular, it does not commit to ending hunger by 2025 or to providing the \$44 billion every year for the aid needed to meet this aim.

The Summit produced four important commitments:

1. A firm pledge to renew efforts to achieve the First Millennium Development Goal of halving hunger by 2015, and eradicating hunger from the world at the earliest date.
2. A pledge to improve international coordination and the governance of food security through a profound reform of FAO's Committee on World Food Security (CFS) which would become a central component of the Global Partnership for Agriculture, Food Security and Nutrition. Broadened to include stakeholders from both the public and private sector and non-governmental organizations, and elevated to ministerial level, the CFS would coordinate international efforts against hunger as well as take rapid and informed decisions on global food issues. It will be assisted in that task by an international high-level panel of experts.
3. A promise to reverse the downward trend in domestic and international funding for agriculture, food security and rural development in developing countries and significantly increase their share in public development aid.
4. A decision to promote new investments in agricultural production and productivity in developing countries in order to reduce poverty and achieve food security for all.

"I am convinced that together we can eradicate hunger from our planet," Diouf declared, "but we must move from words to actions".

1. <http://www.fao.org/news/story/en/item/37465/icode/>

Events:

#### Second World Congress of Public Health Nutrition; September 23–25, 2010, Porto, Portugal

The II World Congress of Public Health Nutrition (I Latin-American Congress of Community Nutrition) will present the most recent advances in human nutrition, and discuss their intimate relationships to global health and wellbeing. The scientific program (theme: 'Moving towards a healthy and sustainable nutrition for all') is being prepared by the world's leading specialists in public health nutrition. Each session will be organized to capture the viewpoints in food and nutrition from both global and local perspectives. Topics will include (among others): Climatic changes and public health nutrition, nutrition and aging, public health and nutrigenomics, dietary guidelines and nutrition education, and international cooperation. Deadline for early registration and abstract submission: April 30, 2010. For further information please contact Skyros-Congressos, Av. Dr Antunes Guimarães 554, 4100-074 Porto, Portugal; tel: +351-226165450; email: nutrition2010@skyros-congressos.com

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Scientific advisers: Dr Ricardo Uauy, Professor of Human Nutrition, Institute of Nutrition and Food Technology, University of Chile, Casilla 138-11, Santiago; Dr Noel W Solomons, Director, Center for Studies of Sensory Impairment, Aging and Metabolism (CeSSIAM), Guatemala City; Dr Omar Dary, Food Fortification Specialist, USAID Micronutrient and Child Blindness Project A2Z, Washington DC.

Coordinator: Hector Cori, Scientific and Technical Director, Nutrition Improvement Program, DSM Nutritional Products Ltd, Switzerland.

Internet: <http://www.nutritionimprovement.com/nutriview.html>