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STRATEGIC INFORMATION FOR DECISION MAKERS IN THE NUTRITION INDUSTRY

Nutritional Raw Materials & Ingredient Supply IX

Across the board the high cost of transportation and the weakening dollar hit raw material and ingredient supply (RMIS) companies hard.

Suppliers of herbs and botanical ingredients were also impacted by droughts, flooding and other severe weather occurrences across the world. "In 25 plus years in this industry, we have never seen so many 'across the board' price increases from virtually all sectors," one supply company noted in NBJ's recent RMIS survey.

As with challenges, opportunities for RMIS companies were also fairly universal, according to survey responses and interviews.

Functional foods, helping manufacturers meet GMPs and, for many, organic product lines were often cited as areas offering growth. Cosmeceuticals, supplements, branding and scientifically-supported products were also predicted to help growth in the coming year.

High Fuel, Transportation Costs

Increased fuel costs, limited transportation capacity, port congestion and longer trade routes have sent shipping costs skyrocketing.

The Baltic Exchange Dry Index (BDI), which measures shipping costs for bulk commodities, recently passed 10,000 for the first time in its 250 plus year history with freight rates up more than 80% compared with last year, the **Food and Agriculture Organization of the United Nations'** November 2007

U.S. Nutrition Industry Supply Chain: 2006 (\$mil)

Category	Consumer Sales	Manufacturer Wholesale	Raw Material Ingred. Supp.
Vitamins	7,513	4,511	841
Herbs/botanicals	4,591	2,609	417
Sports nutrition	2,355	1,329	255
Minerals	1,849	1,117	207
Meal supplements	2,362	1,551	209
Specialty supplements	3,790	2,178	571
Supplements	22,460	13,296	2,501
Functional Food*	31,400	21,639	660
Nutrition RMIS Subtotal	53,860	34,934	3,161
Natural/Organic Food	23,602	13,207	3,170
NPC	7,490	4,009	581
Total Nutrition Ind.	84,952	52,150	6,912

Source: NBJ, derived from a variety of sources. *Functional food includes only fortification ingredients. Units in \$mil.

Food Outlook reports.

The **Energy Information Administration** states Nov. 6 the global markets will "likely remained stretched, as world oil demand has continued to grow much faster than oil supply outside the Organization of Petroleum Exporting Countries, putting pressure on OPEC to bridge the gap."

The EIA estimates fourth quarter 2007 West Texas Intermediate crude oil prices will average \$87 per barrel.

While oil producers are assumed to increase output, "monthly average prices are expected to exceed \$80 per barrel over the next several months and remain well about \$70 per barrel throughout the forecast period," EIA writes in its Short-Term Energy Outlook release. As of Nov.

26, WTI prices were pushing \$100 per barrel.

Playing into the price of oil is the weak dollar, which is fueling speculation and pushing oil prices upward, according to a Nov. 23 MarketWatch article.

Michael Woolfolk, senior currency strategist at the Bank of New York Mellon, explains in the article: "As the dollar declines in value, so does the price of oil in non-dollar terms. Consequently, foreigners bid up the price of oil and other dollar-dominated commodities. The result is that the price of crude oil and other commodities rise in dollar terms as the dollar falls in value against other currencies."

The **Federal Reserve** reported Nov. 23 the dollar stood \$1.48 against the euro, and media outlets report an upward trend in the dollar is

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A follow-up study at Iowa State is now examining prostate levels as well, specifically BPH; that study is expected to be completed in late 2008.

"There are other researchers who are looking at the benefits of lignans," Pepple added. "*Beneflax* will be the active treatment in both of these studies. They should be complete sometime next year as well."

Until now, lack of clinical studies on lignans has been an obstacle to sales.

But Pepples observed, "It is very encouraging that our customers have been excited that we are at the forefront of the research with *Beneflax*."

"We've had a lot of interest, but most people are waiting to launch new products until the results from the pilot trial have been published," she added.

Currently, *Beneflax* has been launched only in the U.S. and Japanese markets, she added.

ADM emphasizes the importance of differentiating forms in which lignans, a specialty ingredient, may be provided.

"*Beneflax* is derived from flax and is maintained in the complex form," Pepple noted, adding that some products on the market are derived from trees with different lignans as active components, while others have been hydrolyzed, removing some phenolic acids surrounding lignans in flax.

Education remains key to boosting sales of flax lignans, Pepple believes. Instead of marketing benefits of lignans and *Beneflax* to the trades, ADM has opted to work with its customers and potential customers to develop co-marketing plans targeting consumers.

"We have a very good understanding of science behind our products and they have a very good understanding of how to talk to consumers," Pepple concluded.

"By combining our individual expertise, together we can develop a very effective marketing campaign." 

The New World of CoQ10

By Scott Steinfeld and Sid Shastri

When NBJ first published an article on CoQ10 in April 1999; it was titled "Lifting the Veil on CoQ10". Little did anyone know the veil would be so rich with layers of uncertainty that to this day have hidden elements associated with the ingredient?

That article began by naming the CoQ10 segment as "perhaps the most secretive in the nutrition industry". The article quoted an unidentified source "This product is basically run by a cartel of Japanese businessmen... You're touching a sensitive nerve here... They don't want to say a lot. You really don't know who is selling to whom, or what method they are using."

NBJ stated CoQ10 to be one of the most costly ingredients with wholesale prices ranging from \$1,600 to \$1,800 per kilo with approximately 55,000 kilos entering the North American market. Listed manufacturers were **Nissin**, **Kaneka** and **Asahi**.

Fast forward to 2003 and the picture changes somewhat but fears of "the cartel" remained as prices had declined but supplies were quickly tightening. The July 2003 NBJ article entitled "New Studies, Consumer Awareness Fuel Demand for CoQ10" foreshadowed what would become one of the longest and most dynamic supply/demand ingredient situations to have developed over the course of the nutrition industry. From 2003 to 2006 the market for CoQ10 remained tight and suppliers typically took advantage of the situation.

NBJ stated demand for CoQ10 had been rising at a rate of 14% for the past 5 years with volume sales, according to **IRI** data, increasing 27% over the first 5 months of 2003.

The wholesale price was listed at \$1,000 per kilo and the total global retail market was listed at approximately \$320MM. Suppliers were all still confirmed to be Japanese controlled with the previously named suppliers of Kaneka, Nissin and Asahi but **Mitsubishi**

Gas Chemical had entered the foray by this time.

While positive CoQ10 studies relating to Parkinson's Disease and Huntington's Disease were being released other factors were influencing the demand as well. Dr. Julian M. Whitaker had filed a petition with the FDA to request all statin prescriptions recommend the supplementation of 100 to 150 milligrams of CoQ10 daily. Additionally, the Japanese FOSHU approved CoQ10 as a supplement whereas it had previously been relegated to the status of pharmaceutical and used primarily on a therapeutic basis for Heart Disease.

All of these factors combined to rapidly drive demand to where it is today but prices became tremendously erratic from 2004 through today.

The Market Today

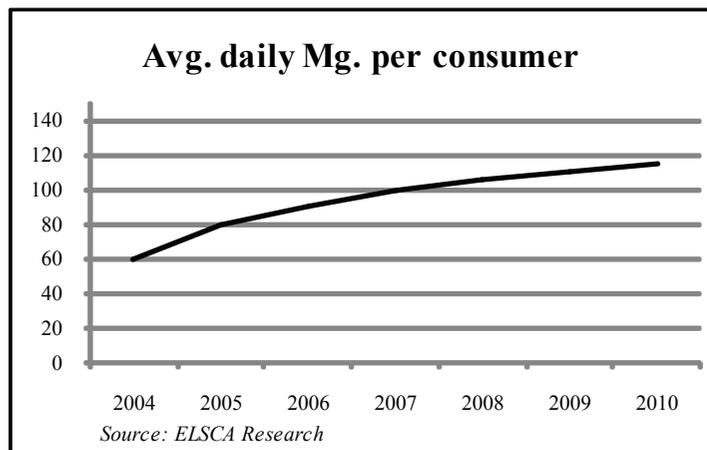
The market for CoQ10 is still vibrant but the dynamic aspects of the supply and pricing have stabilized as supply has finally exceeded demand as more international manufacturers have entered the marketplace.

It is clear that any further discussion about a supposed Japanese "cartel" surrounding this product is passé.

USA Trade Online, which tracks US imports by ingredient and country, has indicated China is now supplying 30-40% of the North American CoQ10 market which was estimated to be approximately 150,000 kilos in 2006.

Whereas bulk raw material CoQ10 prices initiated over \$2,000 per kilogram before 2000, dropped to under \$1,000 per kilogram in 2002, and then steadily rose through the shortage to reportedly over \$5,000 per kilogram by 2006, CoQ10 is now routinely below \$500 per kilogram from almost all suppliers; most experts today agree it is doubtful the average price of bulk CoQ10 will rise above \$500 per kilogram by 2010.

It was once hoped U.S. pharmaceutical manufacturers might endorse CoQ10 as an adjunct to statin therapy. However, even leading industry insiders are questioning that now.



"The pharmaceutical industry is not going to make a combination product because then they would be admitting there was something wrong with their product. We are too far down the path for that to ever occur ... If you can't synthesize it they don't want to hear about it." - Tom Schrier, US national sales manager at leading co-Q10 supplier, **Kaneka**. (FFI Nov 2007)

Sander Krupski, National Sales Manager for **ZMC-USA**, China's largest supplier of vitamins and supplements to the North American market, stated "it is evident the impact international competition had on CoQ10 as an ingredient. Quality among all CoQ10 suppliers has remained consistent whereas prices have recently favored the consumer".

Retail statistics support this fact as IRI data currently estimates total CoQ10 supplement users in excess of 6MM with an average per milligram cost around \$.003 for single entity CoQ10 and slightly more for formulations. In 2004, the estimated number of consumers was approximately 4MM paying an average of \$.006 per milligram for the same product. (IRI, March 2007)

The New Q

While the stabilization of supply remains critical to the long term success of the ingredient CoQ10, new advances in application and technology have continued to enter the marketplace.

DSM, ZMC, Solgar, Kaneka, Jarrow, Life Extensions, Blue California, Soft Gel Technologies, Tishcon and others

have all introduced products promising increased bioavailability.

Founder of **Shas-triTech**, Sid Shastri commented, "Peer-reviewed research has elucidated the inherently poor bioavailability of ubiquinone (ergo, the high-absorption CoQ10 commercial

products". These new products promising improved technology are expected to continue to drive consumer interest in this ingredient. CoQ10 is also quickly emerging into the food and beverage industry.

At a recent IFT gathering Tom Schrier, National Sales Manager for Kaneka Nutrients was quoted "previously, the potential uses for Coenzyme Q10 in food and beverage products was somewhat limited, given that it was only available in oil-soluble version".

It Gets Even Better

In November of 2007, the leading CoQ10 scientists converged for their biennial symposium of the International Coenzyme Q10 association and to celebrate the 50th anniversary of Dr. Crane's discovery of CoQ10.

At this symposium, new research was displayed on both ubiquinone and ubiquinol. One particularly interesting discovery from scientists at the University of Kiel in Germany showed that CoQ10 protects against an in-vitro model of inflammation. Furthermore, through proteomics, these researchers showed a wide area of impact of CoQ10, such as affecting

genes that are involved in metabolism of lipids, heme metabolism, and the synthesis of bone tissue.

Another study of interest, originating from Osaka University in Japan, examined the effects of physical performance on CoQ10 levels in the blood. Their kinetic analysis revealed that plasma ubiquinol levels dropped significantly (while ubiquinone levels rose) when stressed to fatigue.

These new studies and ongoing work are all part of the rapidly expanding universe of CoQ10.

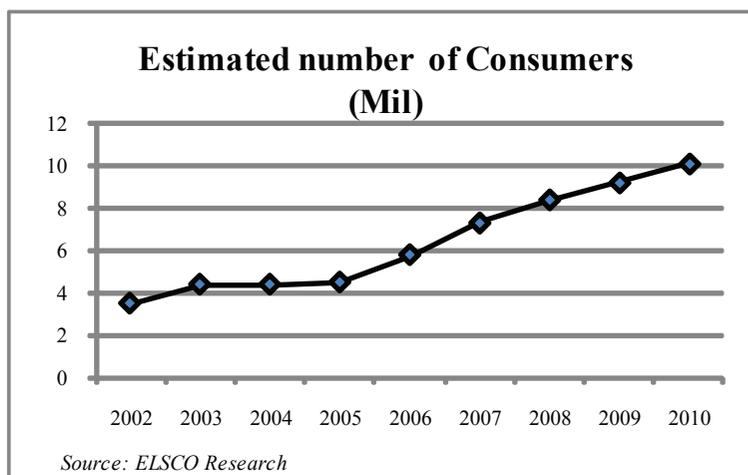
CoQ10 Future

More research is underway which indicates the interest in the ingredient is not waning. The website www.clinicaltrials.gov indicates 12 studies are currently underway researching the effects of CoQ10 relating to issues including ALS, Mitochondrial Disease, Preeclampsia and others. CoQ10, while no longer veiled in supplier secrecy, remains a dynamic ingredient with a promising future.

While CoQ10 is currently considered one of the most clinically studied ingredients on the market, the reality of new studies indicates the likelihood of more positive news and support of CoQ10.

Focus group surveys have indicated the primary consumer complaint associated with CoQ10 therapy has been cost. The second most stated concern was the support from the medical and pharmaceutical communities.

One of the most recommended uses for



CoQ10 in the physician community involves the interactive effects all statins have on CoQ10 production in the human body.

The Archives of Neurology (2004;61:889-892) stated “Statin therapy using atorvastatin causes a marked decrease in blood coenzyme Q10 concentration as reported by Rundek and colleagues. Widespread inhibition of coenzyme Q10 synthesis could explain the most commonly reported adverse effects of statins, especially exercise intolerance, myalgia, and myoglobinuria.”

The report went on to indicate atorvastatin was not alone in these findings, “this is the first unequivocal demonstration that atorvastatin, like pravastatin and simvastatin, also reduces blood levels of CoQ10, and to about the same extent (see chart below).

Susan S Tomlinson and Kathleen K Mangione in the Journal PHYS THER Vol. 85, No. 5, May 2005, pp. 459-465 stated an approximation of the potential number of consumers who could benefit from this ingredient based upon this information. Furthermore, Thompson et al indicated that less serious side effects of muscle pain and weakness, as opposed to rhabdomyolysis, are underreported and may be 1% to 5%.

It has even been suggested that as many as 25% of statin users who participate in vigorous physical exercise could experience muscle aches and cramping that potentially could be dismissed by the patient and the physician. If a conservative 5% rate is calculated for the 76 million people taking statins, there could be

3.8 million people experiencing muscle pain or weakness due to the medication.”

Regarding the future of CoQ10, Barry Eby, President of **Healthy Origins**, stated “We have long recognized the consumer value of CoQ10 and it remains one of the mainstays of our product line. We are committed to the education of our consumers regarding this important ingredient. We believe the CoQ10 price has stabilized at current levels and the consumer can only benefit from the new studies, economies and technologies currently developing in the CoQ10 market.”

The world of CoQ10 has advanced exponentially since first discussed in these pages over 8 years ago. Since then the CoQ10 market has experienced unprecedented dynamics and evolution. But, the fact remains CoQ10 will continue to draw interest from the consumer and the industry. It is clear this ingredient has become a much needed staple to the industry that will likely continue to benefit the nutritional marketplace. 

Scott Steinfeld is President of ZMC-USA, a full line vitamin supplier including CoQ10. Steinfeld has also served as Vice President of Sales for Embria Health Sciences, Director of Sales for Kaneka Nutrients and National Sales Manager for Eisai USA.

Sid Shastri is the founder of ShastriTech LLC, the maker of Lifamin brand products. In the past, Shastri has worked and consulted for nationally recognized companies and has written for various industry publications. .

Interview with BI Nutraceuticals’ Pontiakos

BI Nutraceuticals President and CEO George Pontiakos on future growth, sourcing, demand for organics, functional foods

NBJ: What opportunities for growth do you see for BI Nutraceuticals in 2008?

George Pontiakos: “Well we’re growing our organic product line exponentially. And organics is a big, big, big growth vehicle for us. We have an organic sterilization process, we source organics, organic products from both North America and Asia. It’s just a very big opportunity for us as well as functional foods continues to grow and sport, nutrition, energy continues to grow. Vitality. Health and wellness. Big market there.”

NBJ: For organics, what is prompting BI to focus more attention and energy on the category?

GP: “Our customers are demanding it. Our customers are demanding it and the marketplace is really driving it. The growth in organics, I mean, if you just take a look at the O brand, for instance in the cereal section. Everybody’s talking organics now. And the real challenge is just because it’s organic doesn’t mean it’s clean. So you really have to have a supplier who has the infrastructure in place to sterilize the product, whether it’s organic or not. And BI is one of the few companies that has that infrastructure in place.”

NBJ: Do you foresee growth from a certain ingredient?

GP: “ECGC is now being marketed as a competitive differentiator to the end user, which it never was before. So I think green tea is going to grow, certainly the tea category is going to grow. People view it as healthier than coffee. The U.S. is one of the few countries that isn’t a big tea, I mean we used to use Lipton’s right? And now all of a sudden you’re getting a much different, sophisticated consumer out there that wants to have flavored teas, and I think they just view it as healthier. Particularly the green tea.”

