

Limitless Growth Potential

An Interview with G. Allen Andreas, Chairman and Chief Executive Officer,
Archer Daniels Midland Company (ADM), Decatur, Illinois

EDITORS' NOTE *With both a B.A. and J.D. from Valparaiso University in Indiana, Allen Andreas was an attorney in the U.S. Treasury Department from 1969 until he joined ADM's legal staff in 1973. Appointed treasurer of the company in 1986, he relocated to Europe in 1989 as chief financial officer of European operations, then returned to the United States in 1994 as vice president and counsel to the executive committee. He was appointed a member of the chief executive's office in 1996, president and CEO the following year, and to his present posts in 1999. Andreas is also a member of the A. C. Toepfer International Group's supervisory board (Germany) and the board of directors of Gruma, S.A. (Mexico). He is also a member of the Trilateral Commission; the Bretton Woods Committee; the International Policy Council on Agriculture, Food, and Trade; the Emergency Committee for American Trade; the World Economic Forum; the G100; and the Business Roundtable, as well as a trustee of the Economic Club of New York. Andreas also serves as a member of the European Advisory Board of the Carlyle Group, and is a member of the State of Colorado Bar and the American Bar Association.*

COMPANY BRIEF *Founded in 1902 and headquartered in Decatur, Illinois, Archer Daniels Midland Company (www.admworld.com) is one of the world's largest enterprises engaging in the procurement, transportation, storage, processing, and merchandising of agricultural commodities and products, with about two-thirds of its sales coming from soybean, peanut, and other oilseed products, and about one-third of its sales outside the United States. For the fiscal year ended June 2005, the 25,600-employee company (NYSE: ADM) reported total revenues of \$35.9 billion and net income of \$1 billion.*

Would you provide an overview of ADM's business and your outlook for growth when you look to the coming year?



G. Allen Andreas

ADM is a world leader in agricultural processing, serving as one of the world's largest processors of soybeans, corn, wheat, and cocoa. ADM is also a leader in the production of soy meal and oil, ethanol, corn sweeteners, and flour. Our efforts help to ensure the availability of products that consumers around the world depend on every day. We play a vital role in agriculture, which is an essential component of the global economy. We add value to the farmer's harvest by turning his crops into essential ingredients and products, but also by creating markets for nature's bounty in America and around the globe.

Intellectual capital drives our busi-

ness, allowing us to report more than 100 years of uninterrupted profitability, including record results in 2005. This year's financial performance improvements are the result of an increased emphasis on efficiencies and the redeployment of assets into higher-growth or higher-value segments of our business, combined with the discipline to invest wisely. We've increased collaboration with our customers, moving up the value chain and solidifying long-term relationships.

We can meet these customer demands thanks to our global network of origination and processing facilities, distribution hubs, and transportation equipment. This offers great flexibility and



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capacity to meet changing global demand and trade patterns. And the ability to manage these logistics ensures timely delivery and excellent service to our customers.

In existing markets, ADM is emphasizing efficiencies, customer relationships, profitability, and product breadth. Both within and beyond these markets, global trends suggest the potential for fundamental change and significant growth, which we are well positioned to meet.

ADM has been the industry leader for many years. How has the industry changed and evolved over the past century?

Agriculture today would likely be unrecognizable to an early 20th century farmer. The last 100 years have seen explosive market expansion and remarkable innovation in the use of farmers' crops for a wide array of consumer and industrial products. ADM has led the way in both of these arenas and continues to add value by finding and developing more uses for farmers' crops.

Today, ADM is focused on fulfilling vital needs that exist in the modern, global agricultural economy, like helping farmers by offering cutting-edge technology to increase their productivity, and putting advanced technology to work in our own operations for the creation of value-added and innovative uses for farmer's crops, creating and expanding markets for these products around the globe, and transporting crops from where they grow best to where they are needed most.

Similar changes are occurring all over the globe. Many developing economies are growing stronger and improving their standards of living, increasing demand for dietary variety and convenience.

We know that trade liberalization can contribute to this increase in the global standard of living. CAFTA [Central American Free Trade Agreement] is a recent example of this trend toward increasingly free global markets. We'll also see changes as the Doha round of WTO talks continues this December in Hong Kong. Liberalized trade benefits consumers in America and around the globe, lowering prices and

increasing the variety and availability of the products people need and want.

ADM started as a single flax mill. What have been the driving forces and strategies that have influenced ADM's ability to achieve the type of growth and market leadership that it has experienced?

ADM is always focused on helping food manufacturers feed the world, better and more efficiently, today and tomorrow. We are working to improve diets by making foods tastier, healthier, more convenient, and more shelf-stable.

From just a few basic crops, ADM creates hundreds of different ingredients. The ingredients that ADM creates play a key role in providing consumers with the variety of foods available in today's grocery stores. ADM uses its expertise to help manufacturers meet consumer demands for variety, taste, and health.

With an aging population around the world, our work in developing healthy, great-tasting products that allow consumers to get the important vitamins and nutrients they need every day is even more important. The world's population will grow by 33 percent – from six billion to eight billion – in the next 20 years, but food demand will grow by 50 percent over that time, due to higher standards of living and increased demand for protein. ADM is working to help meet the growing global demand for affordable food.

We're also working to find more uses for crops – many of which extend beyond the dinner table. We are a leading producer of animal feeds, crop-based industrial products, and biofuels. We recently partnered with Metabolix to commercialize a new generation of high-performance natural plastics that are eco-friendly and based on sustainable, renewable resources. These PHA polymers can be used for films, fibers, adhesives, coatings, molded goods, and a variety of other applications. These materials are fully biodegradable in aquatic, soil, and composting environments.

How have technological advances affected the way ADM conducts business?

Technology has created an increas-

ingly transparent and interconnected global economy that has changed the way everybody does business. At ADM, this means our employees in China, Brazil, and Germany can communicate quickly with one another, creating a very efficient global network.

The technology used in agriculture has changed our business as well. Our customers and our partners on farms around the globe benefit from advances in hybrid seeds, commercial fertilizers and pesticides, and improved livestock breeds. And the miracles of bioscience are expanding our understanding of the genetics of plants, animals, and people.

We are able to diversify our value stream rapidly to meet changing customer needs. We have an enviable track record of applying new technologies to add value to nature's bounty and of meeting changing consumer demands.

How has farming changed in the last century?

Agriculture has undergone enormous changes in the last century. The business of farming has changed as farming practices have changed. Producers now use computers and satellite technology for forecasting and production, access the Internet for market exchanges and supply-chain management, and hedge commodity exposures on the futures exchanges.

ADM continually adapts its products and services for farmers to meet their evolving needs. We use modern technology to provide this information to farmers by way of tools such as e-ADM, an online service providing basis contracting, cash marketing, deferred pricing, and other important services to support their business operations.

There have been many new products from farmers' crops over the past years. What role has ADM played in this regard, and do you foresee additional new products in the coming year?

Our products are the result of forward-thinking research and development, hard work, and a commitment to providing individually tailored products to meet



ADM also

produces biodiesel – a diesel fuel made from vegetable oil – that burns cleaner than traditional petroleum products.

each customer's unique needs. Working together with our customers, we are able to provide the world with food, feed, breakthrough industrial products, and energy solutions.

On one end of the innovation spectrum, we're helping companies prepare for the U.S. FDA's [Food and Drug Administration] 2006 trans-fat labeling requirement with our line of low- and zero-trans-fat oils. And on the other end of the spectrum, we announced this year a joint venture to build our first U.S. biodiesel plant. Those are just two U.S. examples. We are committed to similar customer- and market-driven innovation around the globe.

ADM has had a leadership position in the area of renewable fuels. Can you highlight some of the success that ADM has had in the energy sector and your outlook for ADM's business in this area?

The future of American agriculture lies in using the harvest to address some of our most pressing needs. A great example of this is the need for renewable fuels that help extend oil reserves, create new markets for the farmer's crops, and help preserve our environment. ADM is a pioneer in renewable fuels, helping create and expand markets for both ethanol and biodiesel.

Made from corn, ethanol is a cleaner-burning and renewable automobile fuel and gasoline additive that improves air quality as it reduces reliance on shrinking global oil reserves. Ethanol blends are increasingly used across the country. Flexible fuel vehicles, which operate on anything from pure ethanol to pure gasoline, offer the long-term potential to raise demand for renewable fuels. While these vehicles are not yet available in the U.S., there has been significant growth in other areas of the world.

Since the CO₂ in ethanol comes from plants, the CO₂ released by burning ethanol doesn't add additional greenhouse gases to the atmosphere. According to the Renewable Fuels Association, the use of 10-percent ethanol blends reduces greenhouse gas emissions by 12 to 19 percent compared with conventional gaso-

line. In fact, in 2004, ethanol use in the U.S. reduced CO₂-equivalent greenhouse gas emissions by approximately 7.03 million tons, equal to removing the annual emissions of more than one million cars from the road.

ADM also produces biodiesel – a diesel fuel made from vegetable oil – that burns cleaner than traditional petroleum products. As an alternative and renewable fuel, biodiesel can also reduce the overall global dependence on fossil fuels. When made from plant-based feed stocks such as soybeans, biodiesel directly offsets net emissions of CO₂, helping to reduce greenhouse gas emissions. As the market leader in the European biodiesel market, we certainly recognize the potential for success in America. We fully believe in the potential for the American biodiesel market and see the extension of the tax credit as a vital catalyst to develop demand for biodiesel in the United States.

Last year, ADM announced a biodiesel research agreement with Volkswagen AG. Under our joint agreement, we worked together to further the development and use of biodiesel fuel in the automotive industry.

ADM has also found uses for plants beyond fuels. We are developing innovative applications for agricultural crops for use in such products as paints, adhesives, plastics, and solvents.

With some of the legislative changes on the horizon in the U.S. that will impact the industry, has there been an effective working relationship between government and business leaders in addressing the key issues facing the industry?

I think the energy bill and CAFTA are two great examples of consumers and businesses working with Congress and the Bush administration to achieve some real benefits for society. The energy bill first came to Capitol Hill in 2001. This summer, Congress revisited – and eventually passed – this landmark legislation. The ethanol mandate and other biofuels incentives in the energy bill mean that renewable and environmentally preferable fuels will become increasingly available to

America's drivers. This is good for America's energy and economic security, good for our environment, and good for the hard-working men and women on America's farms.

The approval of CAFTA by Congress is a positive development for the people and economies of the United States and Central America. Our business and that of our partners on America's farms will benefit from the opening of new markets for American crops. Liberalization of trade between the United States and Central America will give needed strength to fledgling democracies that promise to make that region a strong and stable trading partner for America and the world.

What are some of the key legislative changes that you envision for the industry in the coming years?

The future of our industry, as well as the future of the globe, will be radically impacted by many of the legislative actions involving the agriculture industry over the coming years. In 2007, we will see the adoption of a new farm bill. This legislation will set the tone for the near-term and long-term future of American agriculture. Priorities set forth in the 2007 farm bill will materially affect the domestic and global agricultural economies. It will be interesting to see how the new farm bill reflects the evolution of the global agricultural marketplace and changes in agricultural production.

Looking further ahead, 2008 holds the promise of open markets for the NAFTA [North American Free Trade Agreement] participants. The continued liberalization of trade across the Americas will drive efficiencies and improve standards of living in these countries. Important efforts to promote the reduction of greenhouse gas emissions will continue in all corners of the world. These initiatives will revolutionize the playing field and create growing opportunities for agriculture, while fulfilling the interest of preserving the planet for future generations.

ADM is a truly global player. What is your outlook for ADM's business in the international markets, and are there specific countries or re-



gions that you are most focused on for new growth?

ADM's history of global market leadership and our value-stream diversity defines our vision in the rapidly expanding global marketplace. ADM led the way in opening up many world markets and applying new technologies to add value to nature's bounty. Today, ADM is driving development in the emerging markets of the world and creating innovations to address the critical issues of the new century.

Agribusiness is one of the few global industries with practically limitless growth potential. No matter who you are or where you live, the need for readily available, high-quality and low-cost food connects us all. It is from this central position as a global leader in the food industry that we have witnessed the importance of diversity within the global marketplace.

Less than a decade ago, ADM did not have a substantial presence in South America. Today, we have a key strategic position there. We believe it to be one of the future breadbaskets of the world. We are now positioned to help transport, store, and process the crops grown in South America to meet the world's growing needs.

In Europe, we entered the biodiesel market more than 10 years ago with our facility in Leer, Germany. And then five years ago, we expanded that capacity by adding a facility in Hamburg. Today, ADM is one of the leading producers in Europe. This investment demonstrates that ADM is resilient, steadfast, and thinks long-term about the importance of reaching diverse markets and customers.

Whether it is being the first company to sell food ingredients into Cuba since the embargo, or our recent sale of long-grain milled rice to Iraq, clearly we have seen the importance of reaching new markets and new customers, as well as the importance of feeding the world.

The scope and breadth of today's ADM holds great promise for our continued growth. In our more than 100-year history, we have seen that diversity leads to new opportunities for growth and market competitiveness. It has a positive impact on the communities in which we live and work. The future will soon reveal the powerful and positive impact of that diversity on our company and our employees. As we watch the world change around us and as new markets open, we will continue to use our resourcefulness to unlock the endless potential of nature in the global marketplace.

Leaders across all industries highlight growth opportunities in China. What is your outlook for ADM's business in China, and how is ADM positioned in China and throughout Southeast Asia to meet the region's changing diet?

More than a decade ago ADM recognized the potential for China to become the fastest-growing protein-meal and oil

market in the world. We took the risk, and today we are one of China's biggest producers of agricultural products. ADM's operations in Mainland China and throughout Southeast Asia are positioned to meet changing diets and overcome the region's limited agricultural capacity relative to its large and growing population. Over the next 10 to 15 years, 300 million people in China will move to a more middle-class lifestyle. This migration up the economic ladder will be accompanied by a physical migration from rural areas to the cities of China. As millions of people in China enjoy higher incomes, their tastes and expectations will change. Demand for variety in their diets will increase. And of course, ADM will be there to meet those changing needs.

What are some of the key challenges that you see for the agriculture sector in South America, and how is ADM involved in this region?

ADM responded to the South American region's growth as an essential producer and exporter by increasing storage and processing capacity and by developing a transportation infrastructure in that region. We are now one of the leaders in the origination and export of soybeans from Brazil, one of the fastest-growing soybean-production regions in the world. Brazil has the potential to double its production of soybeans, and we are committed to expanding our origination capacity to serve our destination processing facilities in Europe and Asia.

ADM is working in the Ukraine to help revive that region's role as an agricultural supplier for Eurasia and the Mediterranean basin. How is this progressing, and what is your outlook for the agriculture industry in this region?

ADM is investing to help revive the Ukraine as a major agricultural supplier. Our network of grain-origination and -processing facilities will play a key role in the return of the Ukraine as a significant producer of food and feed, with sufficient production for export not only to Eurasia, but also to the Mediterranean basin. The future holds great promise for the agriculture industry, as the Ukraine is blessed with abundant natural resources.

There are many challenges in the agriculture sector in Africa. Is this region a major focus for ADM, and what are some of your activities in Africa?

ADM is a world-premier originator and processor of cocoa beans. Since Africa produces the majority of the world's supply of cocoa beans, ADM has a major investment in Africa. Our global cocoa operation, comprised of facilities on six continents and serving markets in 71 countries, makes us one of the world's largest processors of cocoa beans.

Today, we're moving beyond cocoa to establish a new palm plantation in

Africa. Palm oil is the world's second-most consumed vegetable oil. It has many applications, including use in products from shampoos to frozen foods to cosmetics.

ADM was the first U.S. company to sign a contract to provide food to the people of Cuba since the embargo. What is your outlook for Cuba and what role do you envision ADM playing in this market?

Free and open trade in agricultural commodities can only serve to improve relations between people and nations. ADM was the first U.S. company to sell food ingredients into Cuba after the embargo was lifted for our products as a humanitarian effort to assist the people of Cuba. We led the way into Cuba, and we will continue to be a leader in meeting the needs of its people for nutrition in the coming years.

Human capital is the driving force behind any company's success. Have you been happy with the way ADM has been able to continue to attract and retain top talent? Is the agriculture industry an exciting and attractive business to the young people who will be the future leaders in the industry?

ADM is fortunate to employ a full range of talented people. The agriculture industry offers exciting and challenging careers for just about every interest or expertise. Careers span the spectrum – from the laboratories to the trading floor to a rail yard to a traditional office.

Our employees are frequently offered opportunities for transition between various areas of our business. One typical example is an employee who joined our company in the commodity-trading division, eventually became manager of college relations, and today is a product manager in our specialty feed-ingredients division.

ADM and its people strive to improve the lives of the world's citizens by helping to ensure the availability of the products we must consume every day. Our daily efforts help to make the food we enjoy affordable, and thereby improve the standard of living. And our work helps make foods healthier and more nutritious for consumers.

What do you see as the key challenges or priorities for ADM over the next five years?

Growth in ADM's complex markets depends ultimately on the intellectual capital applied to each opportunity. Whether challenges arise as customer needs, trading opportunities, new technologies, or dynamic global economies, ADM must be there to meet those challenges. In order to accomplish our goals, we must continue to anticipate opportunities and respond with the right strategies at the right moment. As we pursue new technologies and new markets, our intellectual capital will continue to drive our business success. ●

Agriculture and the Evolving Economy of China

An Interview with Frank G. Ning, Chairman,
China National Cereals, Oils & Foodstuffs Corporation, Beijing



Frank G. Ning

EDITORS' NOTE Born in Shandong, China, Frank Ning is currently the chairman of China National Cereals, Oils & Foodstuffs Corp. (COFCO). He obtained his B.A. in economics from Shandong University and his M.B.A. degree from the University of Pittsburgh, specializing in finance. Prior to his current post, Ning was the vice chairman and president of China Resources (Holdings) Co., Ltd. and China Resources National Corporation, as well as the chairman of China Resources Enterprise, Limited.

COMPANY BRIEF A Fortune-Global-500 company since 1994, China National Cereals, Oils & Foodstuff Corp. (www.cofco.com) was founded in 1952, and is mainly engaged in the processing and trading of agricultural commodities, foodstuffs manufacturing, real estate development and hotel management, and financial services, among other endeavors.

Would you provide a brief overview of COFCO's business, and your outlook for growth for the company?

COFCO is among the 53 key socially owned enterprises under the direct auspices of the Chinese central government, taking the lead in China's grains-, oils-, and foodstuffs-processing industry. As one of China's largest import and export

agencies, COFCO serves as a major player in grain trading. Backed by trading and based on food processing, COFCO has developed a complete food industry chain with such products as wine, edible oils, chocolate, flour, malt, and metal caps, which already enjoy leading positions in the domestic market. The leading businesses also help build up a series of well-recognized brands, Great Wall wine, Fortune edible oils, and Le Conté chocolate, to name only a few. In addition to its industrial capital advantage, COFCO has been taking strides into the financial-services business, including insurance.

COFCO aims to evolve into a transnational company with international influence and industry competitiveness. In particular, the forthcoming golden era for China's consumer-products growth will bode well for COFCO's promise as a leader in the industry. Based on China's vast consumer market, COFCO will be well positioned to leverage its experience and advantages to eventually shape the company into an internationally influential industry platform.

As the giant of China's agricultural and foodstuffs industry, how does COFCO achieve its strategic goals?

Currently, COFCO enjoys sound business operations and healthy finances. Most of the industries we are in are full of further growth potential. Meanwhile, the management team is both professional and devoted. All these advantages allow for a successful transition from a government-owned company to a publically held enterprise. Therefore, COFCO has established its guiding principles for reform and development, featuring unified thinking, and clear-cut strategy, growth orientation, and professional management. Our corporate structure, business portfolio, and human resources will be optimized in the growing process, which will in turn contribute to sustained corporate development. COFCO is undergoing a major strategic review, redefining and reassigning its strategic business units. We will pursue limited and related diversification

at the corporate level and specialization at the business-unit level. Additionally, instead of merely being present here and there, COFCO will strive for industry leadership in each of its core businesses, achieving reasonable competitiveness, clout, control, and market share. With continuous readjustment to its business portfolio, the company, as a whole, will become more competitive than ever.

What are the trends in food consumption in China?

Currently, China's food industry has shifted its priorities, from emphasizing quantity to the pursuit of quality, nutrition, safety, diversification, and convenience. The major trends can be summarized as follows.

Firstly, food consumption has been on a steady increase. Since 1996, China's food industry has topped all the other industrial sectors in terms of size. Statistics show China's food-industry revenue jumped to RMB1.6164 trillion in 2004, up from RMB926.1 billion in 2001. Secondly, the consumption pattern has been rationalized. In the past two decades, Chinese consumers' heavy reliance on grain-based staple foods has given way to a dramatic increase in the consumption of oil, meat and poultry, eggs, and dairy products. Greater focus is now on quality rather than quantity, leading to more balanced and nutritious diet and a shift from staple to non-staple food. Thirdly, healthful and snack foods have been in high demand.

Generally speaking, China's food consumption is expected to follow the current growth momentum for a long time to come, and healthful, nutritious, green, snack-type, convenient, organic, functional, and nutraceutical foods will experience the fastest growth.

China's growing integration into the world food economy seems to be reflected by increasing levels of food imports. Is this a trend that you see increasing?

In 2004, China's food imports stood at \$20.1 billion, a year-on-year increase of 41.9 percent. Such rapid development can be partly attributed to China's substantial economic growth, and also to the fact that



China's food industry is speedily integrating into the international market, making itself an integral part of the world food industry chain.

Notably, soybeans and edible oils take up a large part of China's food import mix. The 2004 import volume of soybeans, edible oils, and other grains accounted for over 64 percent of China's total food imports. Such a pattern indicates that bulk agricultural commodities that are heavily reliant on land resources are the major imported food items.

Another sign of China's integration into the world food-industry chain is the stepped-up investments by large multinationals in China, engaged in primary and deep processing of agricultural produce, or in food production. For instance, COFCO is currently a joint-venture partner with ADM in the grain and oil processing business. Foreign food giants are expected to expand their operations into other food-related sectors.

China also has made its due contribution during the integration process. China's food export levels have maintained rapid growth, registering \$20.31 billion in 2004, up 7.7 percent from the previous year. China enjoys comparative advantages and promising potential for further growth in such labor-intensive sectors as vegetables, fruits, livestock, and aquatic products. The foreign-funded companies based in China contribute an impressive 44.6 percent of the total food exports, which is further evidence for the degree of integration between China and the world food industry.

How has China's evolving economy affected consumer prices and choices?

China's evolving economy comes as the chief driving force for the consumer industry. Firstly, the growth of per-capita disposable income constitutes the basic factor driving consumption. Secondly, population growth and urbanization act as accelerators for consumption growth, with urbanization at an annual average of 2 to 2.8 percent, creating additional consumption demand of approximately RMB100 billion. Thirdly, income growth triggers lifestyle changes, and as a result, has fostered the growth of the tourism and catering industries, as well. Fourthly, the rapid growth of modern commercial-chain retailing, including supermarkets and convenience stores, has made shopping increasingly convenient and fast, thus contributing to the expansion of the food industry in a big way.

The ongoing change in China's economic landscape has put market competition in the consumer goods industry in relief. At the moment, most of China's consumer-goods sectors are experiencing a period of low market concentration, which has directly led to fierce competition in the majority of these sectors. Unprecedented over-supply adding con-

tinually to the pressure on prices, and consumers have proved to be the largest beneficiary of that situation. At the same time, consumers enjoy more choices, enabling them to make purchasing decisions based on both prices and brands, instead of on prices alone. With the seller's market completely giving way to today's buyer's market, the market position of the buyer is fundamentally changed, and has thus become the dominant market-shaping force.

How has China's position on liberalizing trade impacted agricultural importing and exporting?

Since the introduction of China's reform and opening-up policy in the late '70s, and particularly following its accession to the WTO, China has been liberalizing its agricultural products trade. This has expanded the opportunities for agricultural-products trading between China and many other parts of the world, and has helped promote the prosperous development of the international agricultural trade. Products that have grown faster in import-and-export volume include vegetables, fruits, meat, poultry, and some other agricultural sideline products. On the bulk-commodities front, since 2002 and according to China's WTO accession protocol, China has been increasing – year after year – the importable quantity under state trading and the proportion under non-state-trading of such items as wheat, maize, rice, edible oil, and sugar, providing ever greater opportunities for the world's major agricultural producers.

The liberalization of the sector has brought severe challenges for the domestic production. Given its poor natural conditions, relatively low level of production technology, and underdeveloped industrialization of the sector, China finds itself at the higher end in terms of grain-production cost, and at a disadvantage in relation to many other grain-producing countries in such varieties as wheat, maize, soybeans, and sugar. Therefore, the country has an unfavorable position for international competition. Furthermore, most developed countries provide much higher subsidies to their agriculture, putting China, whose agriculture is under-subsidized, at an additional disadvantage.

In the ensuing years following its WTO accession, China luckily happened to see domestic grain supply exceed demand, while the international grain prices went up across the board, and therefore, the country basically escaped from the impact of dramatic imports. However, the international market supply and demand trends tell us that the global grain production and trade have, since 2004, walked out of the cycle of price fluctuations. This means that tight supply will be giving way to easy supply, and the import pressure coming from the interna-

tional market will be felt in China.

What do you see as the key challenges facing the agriculture in industry in China?

Agriculture remains the base of the national economy. The Chinese government has always attached great importance to so-called agriculture-related issues – farming, rural development, and farmers' income. The sector is expected to face quite a number of challenges in the future. The first is the continued restraint of the small-hold farming practice on the further development of the industry. The second is insufficient overall input in production and underdeveloped market-intelligence and -logistics systems in the country, all of which bear negatively on the productivity and profitability of agricultural production. The third challenge is the continued shrinking of resources for agricultural production. As a result, alternatives must be sought to address the mounting pressure for expanding grain production.

How do you evaluate the importance of COFCO's branding in the current stage of its development?

At present, COFCO not only faces its business transformation, but also change in its mode of growth. We need to rely on branding, marketing, and better management to drive the company's organic growth. Therefore, it is a crucial part of COFCO's strategy to build up a strong brand or a cluster of strong brands. This will help us enhance our marketing capability, research and development capabilities, and our ability to control other critical resources, and will also help win capital market recognition, and earn brand and asset premiums. That strategy is indispensable for shaping a professional and highly effective sales-and-distribution network, and for ultimately providing the platform for the company's consumer business development. We believe consumer- and food-brand building fits perfectly with COFCO's overall strategy, and is a course that must be taken to achieve complete transformation, and that carries far-reaching significance for the long term and sustainable development of the company.

COFCO has nurtured a number of influential food brands as industry leaders. These brands enjoy a relatively high degree of consumer recognition and a significant buying rate among a large base of loyal customers. With Chinese consumers becoming increasingly health-conscious, and the high authority that COFCO commands from its customers, COFCO's brand name can serve as a mark of reliability. Our branding strategy is expected to work very effectively for us. The company's wine, edible-oil, and chocolate businesses possess ample space for brand operations and continued growth, and they will be among the top priorities for our future strategic input. ●

China's Growth

As a big agricultural country, China has a vast territory with rich agricultural resources. With the development of China's socialist market economy and the nationwide regional planning for producing competitive agricultural products, some great changes have taken place in the agricultural structure, and the quality of product has been much improved. Since China's accession to WTO, it has opened its agricultural market wider to the world. Thanks to the better trading environment, China's farm trade has increased at a high speed of 30 percent average during the past three years. In the total farm trade, exports have increased by a yearly average of 14 percent and imports by 35 percent. Now China has become the world's fourth largest importer and fifth exporter of agricultural products.



– *Niu Dun, Vice Minister of Agriculture of China
on the Briefing for the 3rd China AG Trade Fair*

CHINA AGRICULTURAL AND ECONOMIC DATA Food and Live Animals Used for Food *In Millions of U.S. Dollars*

YEAR	IMPORT	EXPORT
2004	9,160	18,870
2003	5,960	17,530
2002	5,240	14,620
2001	4,976	12,779
2000	4,758	12,282
1999	3,619	10,458
1998	3,788	10,513
1997	4,304	11,075
1996	5,672	10,231
1995	6,132	9,954
1994	3,137	10,015

*Source: Economic Research Service
United States Department of Agriculture*

Renewable Energy from Agriculture Products

An Interview with The Honorable
James M. Talent, Senator, United States Senate



The Hon. James M. Talent at a news conference following the Senate passage of the latest Energy bill

EDITORS' NOTE The recipient of a B.A. from Washington University and a J.D. from the University of Chicago School of Law, James Talent served as a member of the United States House of Representatives (Republican, Missouri) from January 1993 to January 2001, and was elected to the United States Senate in 2002.

How does the U.S. government support the use of renewable fuels, like ethanol and biodiesel?

For the past four years, Americans have seen the cost of delaying a national energy policy. We've experienced record-high utility costs, a major blackout, and high prices at the pump. We need reliable and affordable energy to sustain economic growth. We produced a comprehensive energy plan that will protect the environment through the production of cleaner energy, while creating jobs, reducing our dependence on foreign oil, and improving our energy infrastructure.

There is no single answer to our nation's energy crisis. We can neither conserve nor drill our way to energy independence. The energy bill U.S. President George W. Bush signed strikes a good balance between improving the economy and protecting the environment.

What is the significance of

the Renewable Fuels Standard?

The standard creates a requirement to phase in renewable fuel over seven years, beginning with four billion gallons by 2006 and ending at 7.5 billion gallons in 2012. This can help lower prices at the pump over the long term, since the cost of ethanol is well below today's gasoline prices. The new standard will reduce oil consumption by 80,000 barrels of oil a day by 2012. To encourage production, we have provided tax incentives for as much as \$6 billion in new investment for renewable-fuel-production facilities.

How do renewable-fuel options impact dependence on foreign oil?

Ethanol and biodiesel directly reduce our dependence on foreign oil. Most vehicles can run on ethanol-blended fuel, some on a fuel containing as much as 85-percent ethanol. So, for every 100 gallons of gasoline, we would only have to import enough crude oil for 15 gallons of gasoline, when blended with ethanol or biodiesel.

How are American crops meeting U.S. energy needs?

We need an energy policy that is pro-growth, pro-jobs, pro-environment, and pro-energy independence. Growing our own fuel helps us to accomplish these goals. Ethanol and biodiesel are derived from crops that American farmers grow in abundance, and can be mixed with gasoline or diesel to produce a clean, efficient fuel that, in varying concentrations, can be used in any vehicle. Ethanol and biodiesel help communities meet clean-air standards, help farmers find new markets for their products, and help America replace foreign crude oil with renewable resources.

The Farm Bureau estimates that the ethanol provisions in the energy bill will reduce crude-oil imports by two billion barrels and reduce the outflow of dollars largely to foreign oil producers by \$64 billion. Moreover, they will create 234,840 new jobs in the U.S., while increasing household income by \$43 billion and adding \$200 billion to the gross domestic product between 2005 and 2012.

Has the relationship between government and business leaders

been effective in addressing the key issues facing the energy industry?

Yes. There will always be some disagreement as to the best course of action. However, the energy bill was praised for its inclusiveness and its bipartisanship. I also found a high degree of cooperation and understanding with business leaders who see the value in the domestic production of cleaner, more efficient energy sources, along with the development of technology to help us make better use of the energy we produce.

You serve as chairman of the Subcommittee on Marketing, Inspection, and Product Promotion in the Senate Agriculture, Nutrition, and Forestry Committee. What key issues will that subcommittee address?

This subcommittee's broad jurisdiction covers everything from food aid to animal health to agriculture trade. It has been very active in the debate on the mandatory country-of-origin labeling law that was included in the 2002 farm bill. This bill is riddled with regulatory complications for the entire food chain.

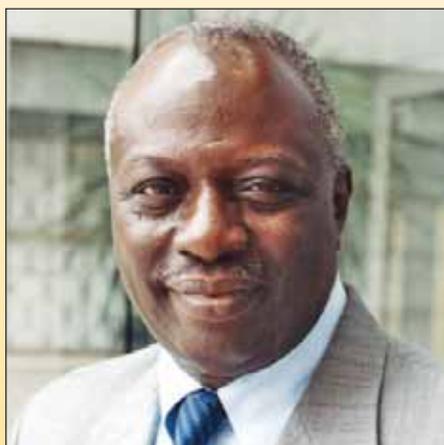
The mandatory country-of-origin labeling law places a huge burden on producers, processors, and grocery stores to maintain a great deal of paperwork for every pork chop or grape that goes through their stores. My subcommittee is working towards a solution that won't increase the cost of your groceries, or decrease the bottom line of farmers and ranchers.

What key challenges will the agriculture industry face in the future?

Farmers and ranchers across the nation produce the safest, most abundant, and most affordable food supply in the world. They can compete with farmers around the globe if they have a level playing field. As the U.S. enters more free trade agreements, our trading partners are using sanitary and phytosanitary regulations to create barriers to trade. This unfair practice shuts American food and fiber out of export markets. I am committed to working with the Bush administration to ensure that our agriculture industry doesn't fall victim to these unjust trade regulations. ●

The Global Agricultural Evolution

An Interview with Jacques Diouf, Director-General,
Food and Agriculture Organization of the United Nations (FAO), Rome



Jacques Diouf

EDITORS' NOTE A highly decorated member of the public sector Jacques Diouf holds a B.S. in agriculture, an M.S. in tropical agronomy, and a Ph.D. in social sciences of the rural sector. Prior to assuming his current post in January 1994, Diouf served as the Senegalese ambassador to the United Nations (1991 to 1993), a special adviser to the governor (1985 to 1990) and secretary-general (1985 to 1990) of the Central Bank for West African States, an adviser to the president and regional director of the International Development Research Center (1984 to 1985), a member of the Senegalese Parliament (1983 to 1984), and as Senegal's secretary of state for science and technology (1978 to 1983), among other notable posts.

INSTITUTION BRIEF Founded in 1945, the Food and Agriculture Organization of the United Nations (www.fao.org) leads international efforts to defeat hunger. Serving both developed and developing countries, FAO acts as a neutral forum where all nations meet as equals to negotiate agreements and debate policy. FAO is also a source of knowledge and information for developing countries and countries in transition as they endeavor to modernize and improve agriculture, forestry, and fisheries, and ensure good nutrition for all.

What are FAO's key priorities for the coming year?

FAO's mission is to help build a world without hunger. The organization estimates that 852 million people worldwide were undernourished in 2000 to 2002. The fact that one child dies every five seconds as a result of hunger should prove that we cannot afford to leave the scourge of hunger unchecked.

FAO's key priorities for the coming years converge toward achieving food security for all. Its Anti-Hunger Program helps to bring global hunger-reduction efforts back on track toward meeting the 1996 World Food Summit goal. The summit vowed to cut the number of undernourished people in half by 2015. The program will benefit from, and contribute to, existing major FAO programs, in particular the Special Program for Food Security. It will also build on measures taken to achieve the Millennium Development Goals.

FAO is urging its 188 members to adopt national programs along the broad lines suggested in its Anti-Hunger Program, which advocates a twin-track approach that combines measures to increase agricultural productivity with safety nets for hungry people without access to food or the means to produce it. FAO also invites countries to form national alliances, enlisting the strengths of nongovernmental and civil society organizations, university and research institutions, food producers and agribusinesses, concerned individuals, government entities, and others in the fight against hunger. Such an alliance already exists in the United States.

What are FAO's primary areas of activity?

FAO puts information within reach. We use the expertise of our staff – agronomists, foresters, fisheries and livestock specialists, nutritionists, social scientists, economists, statisticians, and other professionals – to collect, analyze, and disseminate data that aid development. A million times a month, someone visits the FAO Web site to consult a technical document or read about our work with farmers. We also publish hundreds of newsletters, reports, and books; distribute several

magazines; create numerous CD-ROMS; and host dozens of electronic forums.

FAO provides a neutral forum where rich and poor nations can come together to build a common understanding. On any given day, dozens of policymakers and experts from around the globe convene at FAO headquarters or in our field offices to forge agreements on major food and agriculture issues, such as food-safety and -quality standards, pesticide use, responsible fishing, and forest fires.

The Special Program for Food Security [SPFS] is FAO's flagship initiative to cut the number of hungry people in the world in half by 2015. With projects in more than 100 countries worldwide, the SPFS promotes effective, tangible solutions to the elimination of hunger, undernourishment, and poverty. To maximize the impact of its work, the SPFS strongly promotes national ownership and local empowerment in the countries in which it operates. Since 1995, \$770 million from donors and national governments have been invested in FAO-designed food-security programs.

FAO is also a source of policy and technical advice in food and agriculture, including the fisheries and forestry sectors, for developing countries and countries in transition. For instance, it provides them with the necessary information, knowledge, and expertise to participate effectively in multilateral trade negotiations, and helps them to build their own capacity to deal with sanitary and phytosanitary issues.

In addition, during emergencies in the aftermath of natural or man-made disasters, FAO works side by side with the World Food Program, NGOs, and various humanitarian agencies to help farmers and their families rebuild their lives.

FAO has gone through a restructuring over the past 10 years. Has it worked effectively?

Since 1994, FAO has undergone a significant restructuring, resulting in cost savings of \$60 million a year. The reforms helped the organization become more effective in its core areas of work and led to several new programs, including the Special Program for Food Security and the



Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases [EMPRES]. The reforms also led to a 70-percent increase in the number of professional positions in decentralized offices, where they were most needed, while reducing overall staff by almost 30 percent. The effort to streamline administrative procedures will continue, bringing with it the potential for increased efficiency and further reform.

How will FAO's role change as the global economy evolves?

FAO's role naturally will change as the importance of the private sector versus the public sector continues to evolve. I expect that FAO will collaborate even more with the private sector in the future than in the past.

For example, we see the increasing vertical integration of agricultural markets caused by the process of globalization, in which supermarkets are subcontracting with fewer and larger farmers. This may result in a need for FAO to identify increased income opportunities for the many smaller farmers who are unable to break into the new vertically integrated markets.

Globalization is already leading FAO to focus more on markets than on production. This includes the organization's emphasis on food-quality and -safety standards and their harmonization, as well as governance.

The organization is responding to increasing public concerns about the fairness of the world trading system by providing analysis and building capacity in developing countries to help level the playing field of international agricultural trade. In addition, technological changes are presenting FAO with new issues to address, like biotechnology, integrated pest management, and the economics of alternative production systems.

Greater concern with environmental matters is opening up areas of work on production and trade in organic products. Trade and environment policy issues, such as the impact of climate change, will become increasingly important. However, a core element of FAO's work sadly remains unchanged – food and agricultural emergencies.

How has liberalized trade affected the economies of developing nations?

Globalization and increasing trade liberalization have forced the economies of developing countries to operate in an increasingly competitive environment. For example, the least developed countries continue to export a narrow range of primary commodities that are highly vulnerable to demand instability and deteriorating terms of trade. In addition, external assistance to their agriculture has declined over the last 20 years. Their inability to compete not only in world markets, but also in their home markets is

reflected in their rising food-import bills.

Reversing this decline and integrating developing countries into the world economy represent an enormous challenge. FAO is helping developing nations, particularly through several capacity-building projects, to overcome marginalization from global markets, to adapt to technological changes, and to cope with a new institutional environment.

The current economic environment will encourage developing countries to maintain sound and stable macroeconomic and trade policies, while strengthening human capital in rural areas. Developing countries need to establish a strong institutional environment that improves access to markets. They also need to upgrade their marketing, transport, and communication infrastructure, and safeguard their natural resources.

What is the role of business in furthering the goals of FAO?

Understanding and working with agribusiness is critical to achieving the goals of FAO. In nearly all countries, it is agribusiness that provides technical advice, input, and financial services to farmers, as well as purchasing what the farm produces and organizing the handling and distribution of products from farm to consumer. Retail and processing firms are particularly important since they have direct contact with consumers, as well as a lot of potential to create new demand for farm commodities. Medium-to large-scale firms with strong vertical coordination have shown tremendous capacity to mobilize investment resources and improve efficiency.

Policies and services to support agro-industry can be critical to improving and maintaining competitive ability in the world's increasingly globalized food systems. On a cautionary note, we must exercise care to ensure that the growth of the agro-industry does not marginalize small farmers and other disadvantaged groups. FAO can help in this by assisting industry and governments to establish and enforce food standards and fair-trade arrangements, increasing the human capacity to trade, perform research, and manage agribusiness and product innovation.

By working constructively with agribusiness and agro-industry, FAO can achieve its goals of increasing the sustainable supply and availability of food and other agricultural products, while contributing to the eradication of hunger and rural poverty.

Is there a close relationship between FAO and business leaders?

FAO collaborates with many private sector entities through a wide range of activities and has regular communication with many business leaders in the agro-food sector. In FAO's work, the "private sector" is taken to relate to all aspects of the agricultural system, from production to consumption, and to all sizes of enter-

prises, from the family farm to the global company, as well as related trade-oriented technological, financial, and other service organizations. Within this group, the international business community plays a particularly important role, largely because of its economic power and through their business activities that create direct and indirect global and local impacts.

How do you define your role within FAO?

My role is to be the team leader who mobilizes the considerable talents of FAO's high-quality staff to respond to the demands and expectations of our member countries, which have different needs because they are at different levels of development. As the team leader, I need to show leadership, in particular in addressing the challenges posed by a changing environment. I have to build the alliances needed to reduce hunger and poverty by fighting its root causes and not just its consequences. In this way we can meet the goal set by the 1996 World Food Summit and the first Millennium Development goal, namely to reduce hunger and poverty by half by 2015.

In addition to that goal, what are FAO's priorities for the coming years?

The organization faces additional challenges such as developing strategies and policies that mitigate the impact of climate change. Strengthening the capacities of developing countries to deal with the growing number of pests and plant and animal diseases will always remain a key priority for FAO, as will food-quality and -safety issues in relation to trade and consumer protection.

Other FAO priorities include advising governments to invest in agriculture, an industry that employs 70 percent of the poor and hungry in developing countries. Agriculture allows the rural poor to increase their incomes and to improve their livelihoods so they will be able to participate in the development of their countries.

The organization will continue to face the challenge of convincing developed countries of the need to level the playing field when it comes to agricultural trade between developed and developing countries, particularly the least developed countries. Another ongoing challenge is to encourage developed countries to fulfill their commitment to allocate 0.7 percent of their GDP to Official Development Assistance [ODA] with a primary focus on rural infrastructure, such as small-scale irrigation.

I think these, in general, are the challenges we face today and in the future. Going forward, FAO will, of course, continue to create the proper forums in which to negotiate and implement international agreements for the sustainable use of our natural resources, in particular in fisheries, forestry, and genetic resources. FAO also will provide an ethical framework for the progressive realization of the right to adequate food in the context of national food security. ●

Agriculture and the EU

An Interview with Mariann Fischer Boel, European Commissioner for Agriculture and Rural Development, European Commission (EC), Brussels



Mariann Fischer Boel

EDITORS' NOTE A native of Denmark, Mariann Boel enjoyed an esteemed career in local Danish politics before her election as a member of parliament in 1990. During her tenure in the Danish parliament, she chaired the food, agriculture, and fisheries committee (1994 to 1998), the trade and industry committee (1998 to 1999), and the fiscal affairs committee (1999 to 2001). From November 2001 to August 2004, Boel served as the Danish minister of food, agriculture, and fisheries, and has held her current post since November 2004.

How have local European agricultural economies evolved since the inception and realization of the EC?

Since the beginnings of the Common Agricultural Policy [CAP] in the early '60s, the EU has been growing, and EU agriculture has been constantly shrinking in the EU economy. The most striking change has been in the size of the farming population. In 1970, the agriculture of the nine member states employed over nine million people, representing some 11 percent of the total working population. Now the farming population is only 5 percent of the total, which now includes 25 member states.

The second major shift has been in the contribution of agriculture to the EU economy. In 1970, farming made up 4.7

percent of GDP, and today that contribution is 1.6 percent. In contrast, agricultural land use has remained more stable. Rural areas still represent 90 percent of the EU territory. So we have far fewer farmers working in a more productive farming sector, which, though its weight in the total economy has fallen, still carries the biggest land-use responsibility.

How would you characterize the current EU agricultural economy?

After the '60s and '70s, Europe's high prices and increasing overproduction brought us face to face with the need to boost our competitiveness. Ever since the major reform in 1992, the EU has sought to produce at lower prices or gradually open its frontiers to imported raw materials. Thus, the current EU agricultural economy is the world's biggest net importer. EU agriculture finds its competitive advantage in the production of higher-value and processed products, which goes hand-in-hand with the emphasis on food quality, food safety, and product differentiation through quality specification and labeling.

Lastly, the importance of the territorial role of EU agriculture, reflected in the EU's environmental policies, has become embedded in the EU agricultural economy through agri-environmental programs and an appreciation of the amenity value of enhanced landscapes.

What have been the challenges in integrating diverse agricultural economies?

In the CAP's early years, the challenges in agricultural policy came from the difference between the agricultural systems of "northern" and "southern" member states, and the disparity between "large" and "small" agricultural holdings. The balance between the mixed arable-livestock agricultural system of the northern member states and that of the arable-horticulture-livestock system of the south was further challenged in the '70s, with the integration of major livestock-producing member states – the U.K., Ireland, and Denmark – and in the '80s, through the accession of three Mediterranean countries – Greece, Spain, and Portugal. The latest enlargement has posed a test of the CAP's

ability to encourage the uptake of EU standards through the development of the new member states' agri-food sectors, while adapting them to the needs of a market economy. The SAPARD programs have been instrumental in this development.

How has the EU leveraged its agricultural size and diversity in trading with other nations?

Despite its size, the EU is a net importer of agricultural products, importing more farm products from developing countries than the U.S., Japan, and Canada combined as the consequence of our numerous preferential trade agreements with developing countries. Via the "Everything But Arms" initiative, the EU grants free access to all products exported by the 50 least-developed countries.

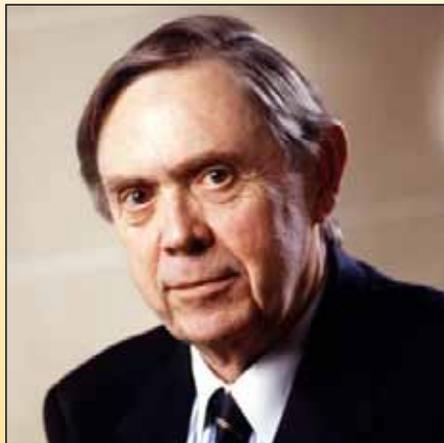
The composition of EU agri-food trade is also very diverse, reflecting the diversity of European agriculture. In the EU, there is a growing specialization toward exports with a higher value-added component, such as food preparations, drinks, and high-quality labeled cheese, which have enabled the EU to improve its agri-food trade balance with partners like the U.S. or Japan. This fact demonstrates that trade developments are not only determined by agricultural and trade policies, but also by economics and the consumer's demand for quantity and quality.

What key challenges does the agriculture industry face in the coming years?

First, we must manage the convergence of the enlarged EU-25, shortly to be the EU-27. Secondly, that convergence will take place within the context of the major reforms, which we are now applying to the remaining sectors of our agriculture, most notably the sugar sector. The decoupling of support from production, introduced by the 2003 CAP reform, will keep the focus on competitiveness, but will go one step further by bringing market orientation and the achievement of quality and environmental standards into the heart of the CAP. Furthermore, through our rural-development policy, we must ensure in the coming years that agriculture also makes its contribution to the growth and competitiveness of the EU economy as a whole. ●

A Forum for Solutions

An Interview with the Honorable Donald J. Johnston, Secretary General,
Organisation for Economic Co-operation and Development (OECD), Paris



The Hon. Donald J. Johnston

EDITORS' NOTE Prior to assuming his current office in June 1996, Donald Johnston had a prominent career in Canadian politics, serving as president of the Liberal Party of Canada (1990 to 1994) and a member of the Canadian Parliament (1978 to 1988), in addition to holding several cabinet ministerial positions. Johnston has also served as legal counsel to the Canadian law firm Heenan Blaikie, of which he is also a founder.

ORGANIZATION BRIEF The Organisation for Economic Co-operation and Development (OECD) is an intergovernmental organization with 30 member countries, including the United States, Canada, Mexico, various European nations, Japan, Korea, Australia, and New Zealand. The OECD's objectives in its founding convention are to ensure stable economic growth, both in its member countries and in the broader world economy, and to help governments achieve sustainable economic growth, employment, and rising standards of living, while maintaining financial stability, and thus contribute to the development of the world economy.

What is the OECD's work?

The OECD is best known for its policy recommendations and guidelines, economic reports, and statistics, but the OECD is more than just a numbers shop. Its main

value to governments is as a forum within which they can seek and find solutions to the challenges of global economic interdependence. Senior policy makers from almost all government ministries use OECD to address the priority issues in their respective policy fields. Our work covers a range of economic and social issues, from labor and environmental policy to education, health, and development.

How have OECD's members worked together to better understand agricultural policy reform?

OECD member countries have many common policy interests, such as ensuring the sustainable use of available land and water resources and improving the well-being of rural and remote communities. There is also shared interest in opening global markets and improving trade opportunities, though wide differences clearly remain concerning how, and how quickly, to do so. These policy issues are at the focus of OECD's economic and policy analysis in the area of agriculture. Increasingly, our focus also encompasses the policy interests of large, emerging economies.

How are policy priorities for the agri-food sector changing?

In recent years, objectives related to environmental sustainability, rural development, and food safety have moved to the forefront. However, despite changing objectives, the policies in place continue to rely heavily on broad instruments, such as price support and production-based payments, without any apparent link to the objectives at the center of much of today's public-policy debate. The role of civil society has grown and seems to suggest a shift towards consumer-driven, rather than producer-driven, policy priorities.

Has there been enough emphasis placed on reducing agriculture's harmful impacts on the environment?

Extensive regulations are in place to restrict environmentally harmful farm practices. However, only about 4 percent of overall farm support directly targets environmental issues. Price- and production-linked support remains widespread, encouraging greater use of environmentally damaging chemicals and practices, and

expansion into environmentally fragile lands.

This is a recipe for a wasteful use of taxpayers' and consumers' money. More can be done to limit the harmful effects of some existing policies, and to target support to clearly defined environmental interests. Moreover, there are few incentives to explore farmer-based co-operative approaches, find local solutions for local problems, and develop markets for environmental services where few exist at present.

What effect does trade liberalization have?

Growth in world trade routinely outpaces growth in world output, resulting in an integration of the world economy that benefits both developed and developing countries by raising living standards. Although there are benefits from improved access to other countries' markets, countries benefit most from liberalizing their own markets, which enables them to develop competitive advantages in the production of goods. At the same time, consumers benefit from the improved access to competitively priced goods. Globally, the potential welfare gains of further trade liberalization are huge. Recent OECD studies show that full removal of tariffs in agriculture and manufacturing would increase global welfare annually by about \$90 billion.

What key challenges face the agriculture industry?

Agriculture needs to become a sector guided by market signals, sustainable use of our natural resources, healthy rural communities, a safe food supply, and so on. Doing so will cost much less than current policies, and at the same time need not disrupt world markets nor limit development opportunities in those countries with a much higher reliance on agriculture for employment and economic growth.

Even though unilateral agricultural policy reform makes economic sense, multilateral reform offers greater benefits. On-going negotiations at the WTO offer the opportunity for substantial, multilateral policy reform, and it is essential that this opportunity be seized at an early date. The case for doing so is overwhelming. ●

The Interdependency of Transportation, Energy, and Agriculture in Brazil

An Interview with The Honorable Roberto Rodrigues,
Minister of Agriculture, Livestock, and Food Supply, Brazil



The Hon. Roberto Rodrigues

EDITORS' NOTE *The recipient of an undergraduate degree in agronomy from São Paulo State University, where he is also a professor on leave, and several post-graduation degrees in rural management, Roberto Rodrigues has served as the president of the Brazilian Agribusiness Association, the secretary of agriculture and supply of the State of São Paulo, president of the Brazilian Cooperatives Organization, vice president of the Americas Cooperatives Organization, chairman of the International Organization of Agricultural Cooperatives of the International Co-Operative Alliance, president of the Continental Council of the ICA for the Americas, and president of the ICA.*

What role has an improving transportation infrastructure played in the advancement of Brazil's growth as a producer of agricultural products?

The improvement of infrastructure is fundamental for Brazil to keep growing in agribusiness. Currently, Brazil has 62 million hectares of planted area and 200 million hectares used as pastures, of which 30 million will be used for agricultural production in the next 15 years. Agricultural expansion in Brazil does not threaten environmentally important areas, such as the Amazon or the Cerrado region. Brazil has 106 million non-explored hectares, still available for agriculture, but the lack of adequate

infrastructure to support expansion is a challenge for Brazilian agribusiness. Two important decisions were made last year to guarantee the proper transportation of agricultural production: 7,500 kilometers of highways were renovated and \$27 million will be invested to improve Brazilian ports.

What role do renewable fuels play in Brazil's agricultural revolution?

Brazil stands out in the production of liquid vegetal fuel and it has a great potential to meet world demand. Currently, Brazilian production of sugarcane amounts to 411 million tons. Studies point to the increase in internal demand for alcohol due to the increase of bio-fuel vehicle sales. To increase alcohol production by 10.8 billion liters per year, the sector will need to expand its planted area by 1.8 million hectares. In Brazil, \$5 billion is invested in 40 sugar mill projects. Humankind cannot be dependent on a finite fossil fuel; the era of oil is gradually ending. While scientists research new sources of energy, liquid vegetal fuel, which is renewable and environmentally friendly, can create the necessary bridge between oil – the old source – and new sources like solar power and hydrogen.

How does the use of sugarcane syrup in the production of ethanol benefit both the environment and Brazil as a domestic energy source?

Our production facilities are capable of producing both sugar and ethanol. Production volumes are dictated by their respective sale prices and rent-ability. The great advantage of using ethanol as a substitute for gasoline is the lower emission of carbon dioxide (CO₂) in the atmosphere. Burning ethanol emits a smaller volume of CO₂, and oil emits CO₂ when it is brought up from underground. So not burning oil and keeping it where it is spares the planet. In Brazil, ethanol mixed with gasoline or used by itself in ethanol-powered cars represents approximately 40 percent of the total fuel used by Otto Cycle vehicles. Besides its low cost and excellent performance as fuel, ethanol is also a powerful antidote against the Greenhouse Effect that has threatened life on our planet.

How did Brazil foster the pro-

duction and adoption of biofuel-powered cars?

The automotive industry saw a marketing opportunity in offering a product with a strong environmental and economic appeal. Because of rising oil prices, automotive industries started offering consumers vehicles powered with renewable fuel, which is more environmentally friendly and surely less expensive, and they, in turn, received support from the Brazilian government.

What drove the success of the flex fuel program?

Besides the appeal of the choice between alcohol and gasoline has for consumers, the main driver of flex fuel's success is Brazil's agricultural potential. The country currently has 750,000 flex fuel cars, and in the last four months, their sales surpassed the sales of gasoline-powered cars. In 2013, it is projected there will be a total of 8 million biofuel-powered cars in Brazil, creating a production demand for an additional 11 billion liters of alcohol per year.

What are the greatest challenges facing Brazil's agriculture industry?

The ministry of agriculture is committed to strengthening sanitary and phytosanitary controls to combat and prevent diseases and pests; to developing technologies for agribusiness; to increasing product quality; to achieving sustainable development; and to participating effectively in international negotiations, pursuing trade remedies when necessary. One of my main pursuits is to strengthen agribusiness production chains. The ministry of agriculture has established 23 sector chambers, or forums for discussion between government and business-sector representatives, in which proposed solutions for current production-chain problems can be presented. Insurance is another challenge. The agricultural insurance act is in the process of being approved, and the national treasury has already been authorized to grant economic funds for it, and the technical and operational details for the implementation of rural insurance are being worked on. Rural credit is a central problem and will be essential in stabilizing the income of agricultural producers. ●

The Future of Farming

An Interview with Gerald C. Nelson, Ph.D., Professor, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, Urbana, Illinois



Gerald C. Nelson

EDITORS' NOTE Gerald Nelson is the recipient of a B.A. and an M.A. in economics from Stanford University, and a Ph.D. from that university's Food Research Institute. With consulting experience with such organizations as the World Bank, the Asian Development Bank, and the Food and Agriculture Organization, he has served on the University of Urbana-Champaign's faculty since 1986. In addition, Nelson has published numerous books, chapters, and journal articles on agriculture, international trade, and land use in developing countries.

INSTITUTION BRIEF Located in Urbana, Illinois, the University of Illinois at Urbana-Champaign's College of Agricultural, Consumer, and Environmental Sciences offers course work in agricultural and biological engineering, agricultural and consumer economics, animal sciences, crop sciences, food science and human nutrition, human and community development, nutritional sciences, and natural resources and environmental sciences.

What is the future of GM (genetically modified) crops?

I expect that GM crops will continue to gain acceptance in the market. GM corn, soybeans, and cotton are widely accepted in the U.S., and adoption growth continues

around the world. Second- and third-generation GM crops, including papaya, rice, and others, will add to the variety of available GM crops. Of course, there will continue to be conflicts between people who believe that GM crops are not appropriate for a variety of reasons, and those who believe that they will play an important role in farm profitability and the maintenance of environmental sustainability.

Those whose opposition is based in part on a lack of understanding will decline as GM benefits become more known. We haven't yet found any serious environmental or food-health problems with the current GM crops, and our regulatory systems are getting better so that we can track any potential problems and demonstrate that we're actually monitoring them in the early development process. That will ease people's minds.

What are the agricultural challenges facing developing countries?

The world is an uncertain place, but I think we know some things with a fair amount of certainty. Barring a world war or a major disease outbreak, world population will continue to grow through 2050 at least. Climate change will begin to have a significant impact by the middle of the 21st century – earlier than that in some places – and that is likely to impact agriculture. The IT revolution will continue and the gene revolution – as in biotechnology – will accelerate.

A big uncertainty is whether global income growth will continue and whether it will be concentrated in a few places or more widely spread. Will oceans, fresh water, the atmosphere, and biodiversity be managed in a sustainable way, or will we destroy them through neglect or fighting over them? Climate shocks and pandemics could also cause global economic and agricultural downturns.

Much of the developing world's resources are still in the agricultural sector, and the success of their agricultural sectors depend on productivity growth, including GM technology; the reform of policies that tax agriculture; and a level playing field in international markets. On that level playing field, we must examine the detrimental

effects of agricultural policies in the developed world.

Developed countries spend a vast amount of money on their agricultural sectors and have an incredibly complex web of agricultural policies. OECD (Organisation for Economy Cooperation and Development) country policies encourage agricultural production at home, so we end up with more output than a pure market economy would produce, meaning that developing countries are forced to accept lower prices and incomes. Second, developed countries have in place a variety of regulations that tend to restrict trade from developing countries. Some are appropriate but too many merely protect domestic agricultural interests.

What effect does technology have on agriculture?

Modern agriculture wouldn't exist without science and technology. In the next 50 years, with a combination of global positioning systems, precision agriculture, automated farm implements, and vastly improved data-collection technology, a farmer in central Illinois may very well be able to grow 30 or 40 different crops – instead of just two or three – that mature at different times and require different applications and seasons. These changes are also likely to reduce the detrimental environmental effects of modern agriculture and increase its long-term viability.

Has enough been done to bridge the gap between those who have enough to eat and those who do not?

I think the glass is half full. While there are still over 800 million people who go to bed hungry every night, that number is one of the lowest we've seen in 50 years. So we've made big strides in feeding the hungry. However, it is unacceptable to have 800 million hungry people in the world. More food aid is not the solution. Don't give a man a fish; teach him to fish, and then, most importantly, teach him how to sell his fish in the marketplace and don't bar him from selling the fish to you.

I think we're moving in the right direction, so it's a matter of continued implementation of globally minded programs and policies in the future. ●