LAUREATE LUNCHEON
October 20, 2006 – 12:00 p.m. – 2:00 p.m.
Silvio Crestana

2006 World Food Prize Laureates:

Edson Lobato
Colin McClung
Alysson Paolinelli

Moderator

Ambassador Kenneth Quinn

I want to say farewell to Minister Roberto Rodrigues. He has to catch a plane –I thought he was going back to Brazil but I think he's going to Paris and Rome and a few other places. But we're so delighted to have had him here, and we've already talked about having him come back next year, because we're going to have our symposium focused on biofuels, biofood and these kind of issues, very exciting. So we'll have a Brazil connection next year as well. Thank you so much for being with us.

Please also if you've enjoyed Mary Foss' beautiful playing here and last night on the stairs at the symposium, please join me in thanking her. I think she's now known as the World Food Prize harpist.

I also want to ask you to join me in thanking Jerry Prout of FMC Corporation for their sponsorship of the lunch. And, Jerry, do you want to stand up? Thank you so much.

Now, I don't know if you've taken a moment to look at the menu card, but I'd like to encourage you if you haven't to do that. And you see that our tradition here is to incorporate the laureates with food. And so we have the Salad Paolinelli and the Chicken Lobato and Coconut Mousse McClung. But there's one item that didn't get on the menu, and I want to call your attention to the bowl on your table with that red sauce, because that's the Sauce Cerrado. And I explained to the laureates, you put it on and it makes everything better, just like the Cerrado does. But it was made here in the hotel, and we designed this menu with Chef Grace and the Marriott staff, and I think they've done a terrific job with the meals all through the symposium and last night as well. So let's have a round of applause for the chef and for the hotel.

I also want to ask you to join me with a special word of thanks. A lot of people have come up to me today and said how great the symposium was, how great the arrangements were,

how great everything was, how it was flawless. And I'm always grateful to receive those words, but the people who really deserve them are people on my staff who are permanent staff, volunteers who come back, some of our former interns who are here. And they are all right over here, and let me ask them all to stand up, and if you would join me in thanking them. They're up every night until two in the morning, working. And Mark Thomson and the people from Thomson Productions who did all the arrangements. Mark, please stand up. Thank you so much for what you did and the wonderful program last night.

A couple of administrative arrangements – at the same time people come up to thank me for how well everything went, they said, "Now, when can we get the speeches? When can we get the presentations?" So we will have on our website, www.worldfoodprize.org, the audio recordings, will be on early next week. And then we will have the printed presentations and the Power Points, which will be on in the next couple of weeks. Is that right, Judith? Yes.

Also some have asked, well, where could we get the words to the wonderful choral debut and premiere, the wonderful choral piece that was presented last night, or where can we get copies of it. So, Ben, where are you? Again, wonderful job last night. Thank you. Ben has those, and he has a paper downstairs on the table outside the symposium, outside the ballroom. You can pick one up. It has the words, and it'll also tell you at the bottom how you can send him some money and he will send you a recording of it.

Now, I have another announcement. Oh, the Under Secretary's presentation is available in printed form. There are about a hundred copies that are down on the table outside the symposium, so you can get that one and take it with you. Just to go back to Ben for a second, we have a wonderful arrangement, and through his generosity, while everyone here who wants to buy one for their personal use has to send him the dough, the music and the arrangements will be available to all Iowa high schools and their choral directors for use at the schools without charge. So this is a very unusual thing. Ben, thank you so much for your willingness to do this. And all of you teachers here, carry the word back, and we will have shortly some way on our website again for you to be able to get that. And I hope we can get every high school in the state to be performing that, the Laureate Call, to become an Iowan tradition.

You know, I've been mentioning at every meeting or every session about Muhammad Yunus and his winning the Nobel Peace Prize. All of our laureates – we've been in touch with all the laureates who are here, we've been in touch with all the laureates who are living but not here, around the world, and we were able to get in touch with all except for one, whose fax machine is not working. So first I want to say to all of our laureates and Council of Advisors, please check your fax machines when you get home so we can be sure to stay in touch with you. But they have all agreed to send a special message to Muhammad Yunus. We will be making it public today, and I'd just like to read it to you:

Message to Muhammad Yunus 2006 Nobel Peace Prize Laureate:

We, your fellow World Food Prize Laureates, take enormous pride that you have been named the 2006 Nobel Peace Prize Laureate. We greatly admire your accomplishments on behalf of millions and millions of the most poor on our planet. Your achievements have set an example and truly given those mired in poverty great hope for a brighter future.

We also take special note of the fact that the World Food Prize provided the first international recognition of your social and financial innovations in villages throughout Bangladesh. The photo from that 1994 ceremony in Des Moines includes you, Dr. Norman Borlaug, and former President Jimmy Carter. To have three Nobel Peace Prize Laureates now associated with the World Food Prize on this, the 20th anniversary of the founding, brings great attention to the work of all who are struggling to win hunger and lift the most unfortunate out of poverty.

Congratulations from all of the undersigned World Food Prize Laureates.

And it's 21 signatures on it, and this will also be available, copies for you to take, downstairs, outside the symposium. But again please join with me in thanking the laureates for their generous message to Muhammad Yunus. And if I could ask all of our laureates – when you get back home or to your office or on your Blackberry, please send Muhammad Yunus a personal message saying, "You must come to the 2007 World Food Prize Symposium and celebration." It would be wonderful to have him back with us.

Well, I think I've got most of the administrative items out of the way. At the Laureate Luncheon it's traditional that we present the second and third part of the recognition of our laureates. Last night they received the Saul Bass sculpture. We also have a diploma. And we thought, well, we'll give it to them at the ceremony on Thursday night. But you could imagine the poor laureates carrying out in one hand the sculpture and the diploma in the other. We said, oh, we'll save the diploma for Friday and we'll do it at the luncheon. And so we'd like to at this time have our three laureates come up. Maybe we should do it one at a time. But Norman Borlaug and John Ruan, would you come up and you could make this presentation. Why don't you come up here, John and Norm, and we'll take a picture over here. Why don't we have the laureates come over here.

The first diploma presented to Laureate Edson Lobato. And, Norm, slide in and everybody look at the camera. And then there's a small envelope, which is the third part of the presentation. This is the one third of the quarter-million-dollar prize. Oh, that's right, John said he told the three laureates on Tuesday night – "You don't really have the prize until you get the cash."

Colin McClung, the presentation to Colin McClung. I should tell you the diploma reads, "The World Food Prize – Presented to [laureate's name] In recognition of your monumental achievement in ensuring an adequate supply of food for all humanity. Des Moines, Iowa, October 19, 2006," signed by John Ruan, Norman Borlaug and myself.

The final presentation to Alysson Paolinelli… And why don't we have you all come up, and we'll take one group picture here of the three laureates and… One final round of applause for three 2006 World Food Prize Laureates.

The final part of our luncheon and the luncheon is also the beginning of our symposium session on the Cerrado and Brazil. And we will be hearing our luncheon address, and then immediately following this down in the ballroom we'll have a wonderful Laureate's Roundtable. Dr. Ed Schuh will be here and guiding that as well, so it'll be fascinating and a chance for again

a colloquium, a conversation for interaction there. And for those following Africa, the African ambassadors will be having a workshop at 1:30 in the Waterloo Room. So you have a choice of which you may go to.

But at this time I want to introduce our featured speaker, an individual who is perfectly positioned to talk about the Cerrado, all it means, and about agriculture in Brazil because he is the President and the Director of the Brazilian Agricultural Research Corporation, which we all know as EMBRAPA. Dr. Silvio Crestana is a research scientist educated around the world at the University of Triese, the University of Rome, at Cal-Davis, and has served in a variety of scientific and advisory and leadership positions.

He has a master in basic physics, PhD in science and physics applied to soils, radiation and image theory. And his post-doctoral studies in soil science and environmental sciences were performed at the University of California-Davis. He has authored more than 150 scientific papers and co-authored six patents. My great pleasure to present to you Dr. Silvio Crestana.

EMBRAPA and Tropical Agricultural Development: The Leadership of Brazil

Silvio Crestana
Director-General, EMBRAPA (Brazilian Agricultural Research Corporation)

Good afternoon. It's my pleasure to be here. I hope I don't interrupt the Cerrado's and the Laureates' lunch so much, but I would like to address a few words before I start my presentation.

My idea with the presentation is to give information on what we have done and what we are going to do in the next two years in that part of the world in Brazil, mainly in the Cerrados, or also call it savannas.

First of all, on behalf of the Brazilian Minister of Agriculture, Dr. Guedes, also 8,500 EMBRAPAs, my research institution employees, and on behalf of the Brazilian people, I would like to express from the deepest of my heart my gratitude for Dr. Norman Borlaug, to Ambassador Quinn, to Mr. and Mrs. John Ruan III, also for Mr. Jerry Prout of FMC (I know you have business in Brazil), also to Dr. George Schuh, he is a strong collaborator of Brazil, to the World Food Prize Foundation, and all the partners and collaborators, for recognizing Brazil and the Laureates. Also I would like to thank the Laureates – otherwise I wouldn't be here today. I am proud of that, as we are going to show in a few minutes. Also I would like to acknowledge the presence of the Brazilian leaders, as Mr. Roberto Rodrigues just left us, former Minister of Agriculture, who designated me as president of EMBRAPA. Also to acknowledge the presence of other important Brazilian leaders, private and public sector, here, as Mr. Fernando Cardoso and family, Emiliano Botello Campo, and the former congressman in Brazil, Paulo Hermano, and the Embrapians that are here present: Vania, Carina, Dr. Schaffert, and all other Brazilians present. Also, thanks for the wonderful ceremony and reception of yesterday night and for the very professional video and the very positive mentions of EMBRAPA in that video.

Since a time ago, about 30 years, I was very curious to meet the people of Iowa, very well known as the home of soybean, corn, big hogs, and big companies, and very good universities. I worked with Don Nielsen from 1988 to 1990 at the University of California-Davis and Don Nielsen is a former student of Don Kirkham. Don Kirkham is one of the best soil scientists in the world, who worked for Iowa State University in Ames. And I studied and I learned a lot advanced soil physics in his book. Also I studied in Beltsville at the Agricultural Research Service at George Washington Carver Center in Beltsville for three years, started there in 1998 through 2001. And I learned a lot about Dr. Carver, and I was very curious about him. And I learned, in these days, that he was from Iowa and from here.

Obviously, I was very anxious to meet other Iowans, as Dr. Borlaug here. So I came about 10,000 miles, as some of the Brazilians here, from the south, the developing country like Brazil. But I found here a home of people and leaders who are committed to intelligence, friendship, international cooperation and humanitarian development. I am proud to be here on this very important occasion. Many thanks again for this opportunity. Thank you very much.

So I am going to give some information about the EMBRAPA and tropical agriculture development. This first picture is showing the Cerrados in Brazil. There we have 35 harvest machines working, and we have 17 sowing machines working at the same time, and they're using no-till planting system. You can follow from that picture.

Dr. Norman Borlaug has stated that the development of the Cerrado is one of the great achievements of agricultural science in the 20th century. We have transformed a wasteland into one of the most productive agricultural areas in the world. So I try to give some of those statements Dr. Borlaug just established.

First the building of tropical agriculture. So in the world we have two harvests – one is the temperate harvest, and the thousand years of tradition, of enterprise, of science. But in the last three or four decades we have now a new harvest, what we are calling tropical agriculture.

In that picture I am trying to show some of the Brazilian major contributions to the world production in 2005, so you can see grains, beef, poultry, sugar cane, ethanol. And I am not plotting there citrus fruits, coffee, tobacco, tropical foods and so on. So for Brazil, agriculture is not just for food but it's for fiber, wood and energy.

So today which are the most important economic and social impacts? First, the development, what we call inland development. If you look at those cities and the rural area, inland Brazil, you'll find the increase of the Human Development Index, higher income, education, health and jobs, showing that the rural development is the solution, the real solution for a developing country. It's the base, as stated here several times during the presentations.

We have also today a stable food supply. We have been able to lower the base food price and we increased agricultural exports. If you'll look at the numbers and the figures I am now showing here, but we were able to pay the international banks through agriculture.

Let's go back to the past before seventies, so very quickly how was the agriculture at that time? By that time the Laureates, Mr. Paolinelli, Lobato and McClung, started their jobs in

Brazil, before seventies, fifties to seventies. The situation was like that – low agricultural production, just a few items; low productivity, yield shortages, food supply crisis, expensive food, inflation, poverty, inadequate agriculture public policies, lack of specific knowledge about tropical agriculture, institutional void, mainly agricultural research, education, markets, media, and governmental agencies.

So we could talk now about the lessons we learned. And we have examples of other cases also in China, India and other countries. But that's the Brazilian case. So the task was to move to agriculture applied to the tropics. So because the ecosystem, we couldn't just transfer technology from temperate to the tropics. So the task here is to move to agriculture applied to the tropics, to tropical agriculture.

So what has been done, lessons learned? I will list three items: The needed public policy, the needed tropical knowledge, and the needed institutional building. We don't believe that we can have the development without at least those three policies.

Public policy. First, agricultural credit – how to work the land, apply technology, seed fertilizers, agrochemicals, machinery, equipment, irrigation. Agriculture market – minimum agricultural price, food regulatory stocks, agricultural risk insurance, agricultural research and education and extension, infrastructure.

For us, we are very proud of that picture. That's the EMBRAPA example. And Mr. Alysson Paolinelli mainly was key on that progress. It's the building of research capability. The red dots represent PhDs. So at the beginning of EMBRAPA in 1974 there were practically zero PhDs in Brazil, and a few masters and some bachelors. What happened? Bachelor went down; we increased the number of masters, but we sustained the constant increase of the PhDs, and today the masters are going down also. So most of the scientists in EMBRAPA today, almost 1,500, more than 60% of our scientists have a PhD, earn a PhD degree. And they got the PhD at the best universities worldwide. Most of them in the United States, Europe, Australia and other developed countries. So we understand that this knowledge base of the economy was already planted 30 years, 35 years ago in Brazil.

Let's talk a little bit about the tropical knowledge needed. Plants and animals, for example soybeans. Soybeans are typically temperate or sub-tropical, and so the photoperiod is a big restriction, a constraint, so we had to be able to develop a tropical soybean. And tropical and adapted-temperate fruits, the zebu (cattle), poultry and so on. Fibers and foods, mainly cotton and eucalyptus. Nitrogen fixation – economy of thousands of millions of dollars, using the bacteria *Rhizobium*. Biological controls, no-tillage practices, sugar cane and ethanol. Brazil today is very efficient at producing ethanol, and we have an industry associated to bring ethanol to the agriculture in flex-cars, called flex-cars, more than three million flex-cars already running on hybrid fuel. And the Cerrado agriculture.

And we are here because of the Cerrado. This slide is showing some of the accomplishments in the Cerrado and the importance of the Cerrado contribution to the Brazilian production, very typical, and you'll see coffee, cotton, sorghum, corn, soybeans and some 50, 60, 70 percent. So Cerrados today is the most important part of Brazil for Brazilian agricultural production, so we did really a revolution in the last thirty years in the Cerrados.

The needed institutional building. In the past thirty years we have been able to organize the Ag Graduation Network, the Ag Research Network. The organization of agricultural production chains, the modern tropical agroindustry. Thirty years ago, there was no agroindustry practically in Brazil. And the new ways of marketing.

That's the EMBRAPA research centers, what we call the institutional beauty. We have six research centers in the Amazon, seven research centers in the northeast part of Brazil, nine in the midwest, ten in the southeast, and seven in the south of Brazil – so a total of 39 research centers. And we have two labs abroad, one in the United States and the other in Europe in France and the Netherlands. And now we are starting technology transfer overseas in Accra, Ghana, to work with the African countries.

But there is no progress without people. So the tropical agriculture for us is a fine case of international scientific cooperation. We couldn't talk about the revolution of the Cerrados, the transformation of the Cerrados in Brazil, without talking about our heroes. And some of the heroes are here, Dr. Colin McClung, Dr. Edson Lobato, and their ways are in deep cooperation, technology transfer, and public policies. Dr. Alysson Paolinelli, agricultural education, public policy, agricultural laws, business leadership and consulting. And Dr. Norman Borlaug, still part of the action, very strong and mainly for the Green Revolution in Brazil.

So let's talk here about the challenge for the future. And Dr. Calestous Juma from Harvard, pointed out in his presentation that in the knowledge economy, the developing countries need a strategy for making the transition from raw-material society to knowledge-based economy driven by innovation. But if you look at that map that Jeff Sachs has, you see the innovation in the Northern Hemisphere, with some adoption of innovation in the south, and the technological gap is there.

That map was a picture designed to take into account the industrial partnership in the countries. But if you look at that, there are no ways for development without knowledge, and the gap, the technological gap, is there. So we have a new map of the world today. It's not just geographical, the nation's borders, but the technological gap. So that's a big challenge for all of us in this knowledge society.

Here is a place, I learned very quickly, here is a place that's another surprise. So Dr. Alan MacDiarmid, Nobel Prize in Chemistry in 2000, pointed out ten major challenges for mankind in the coming fifty years. Population 2003, population 2050, and the left side you can see energy, water, food, environment and poverty. The right, education, democracy, population, diseases, terrorism and war. So the challenge is there, and do we understand the left side can be overcome, through agriculture principally. And that's what Dr. Norman Borlaug used to state.

Let's just look at the future in soybeans and corn, and we can see easily the responsibility to feed the world – not alone, but Brazil has an important role to play. The world, if you look at the next coming ten years, will need the difference of 168 million tons, which means about 2% of increase of proteins from soybeans and corn. And to look at the world and see the areas of productivity and so on, Brazil is close to contribute with about 85 million tons of soybeans and corn, which means about 7 percent increase. I'm not taking into account the energy, the biofuels and the transformation of corn and soybeans into ethanol, biodiesel and so on.

The challenge for the future environmental degradation. Globally, 40% of cultivation areas are already degraded 20-30% forest are already cut down, 40% of fish reserves already spoiled. I learn at the beginning of my life that the salvation would be the sea, but you see 40% of the fish reserves already spoiled. And it's important to recognize that 70% of the water is used in irrigation.

Climate change – the best projections can see 2020, 2050 and 80s, and you see the colors. And clearly temperatures will increase and will affect tropical agriculture.

So I tried to list some of the five things I think is important in tropical agriculture. One is sustainable utilization of altered areas. We have already several millions of hectares altered, so we need to learn how to work better with those areas. The sustainable use of the humid forests. Biotic and abiotic stresses, and we need the drought- and disease-tolerant varieties, for instance.

Crop-pasture-forest integration. I think Dr. Alysson Paolinelli shows some of these accomplishments we are doing in Brazil. Public and private partnerships – we need to work a lot on that and change what we have today.

Two examples so you understand that we will be able to do public/private partnerships. One is bioenergy: ethanol, biodiesel. And that's why we are creating a new research center in Brazil at EMBRAPA. It's called the EMBRAPA Agrienergy. Seventeen years after the last unit. So we didn't create any other research units in seventeen years, back to seventeen years. And we are creating, because we are recognize the importance of that issue.

And the other one is the north/south/south dialog. And we are creating a technology transfer in Ghana – in Accra – to collaborate on that.

This is what we consider a wonderful example of the degraded lands in the Cerrados, recuperated through the system that we call crop and livestock forest integration. In the picture can see the eucalyptus, grass, cattle, and we started from crops – soybeans, rice, corn, doesn't matter. So we recuperated the area, and it's important to tell that for each hectare of recuperated pasture, it means 1.8 hectare of forest preserved. So that's the way you understand we can preserve the forest, recuperating the degraded lands, mainly the degraded pasture in the tropics.

Just to be on time, I am going to just show a few more slides, but I couldn't remember Norman Borlaug's challenge to all of us: "Eventually, the Cerrado technology, or one similar to it, will move into the *llanos* in Colombia and Venezuela, and hopefully – hopefully – into central and southern African where similar soil problems are found. And the picture is very nice because we have the three laureates, we have the Brazilian Cerrados, and we have Iowa. So I'm very glad for this picture, and congratulations to the drawer of the painting, the author of that picture.

"But this will bring tens of millions of previously marginal acres into high-yield agriculture. Hundreds of millions of people will been of their work". So, Dr. Norman Borlaug, we understand you are giving us a responsibility, and that's why I'd like to see again this advice from Einstein: "Life, or science is about 5% inspiration, 95% transformation." So it's time to translate the rhetoric into action.

Taking into consideration, Einstein's advice and also Dr. Norman Borlaug's recommendation, that picture is showing the inflow and outflow of knowledge, because we understand it mainly in the green area that we can make a difference through agriculture. We can exchange north and south, but we can do a lot in Africa and Asia, Latin America, and also in Brazil.

So we have a tremendous advantage because we have tropical knowledge, and we understand that it's a big challenge but also a big opportunity. And that's why we have the lab for exchange to the north in Europe and in the United States, and we are going to have an office for technology transfer in Ghana, in Accra, to attend the demands of mainly the sub-Saharan countries. We understand that's the way we could start to pay what you have done for us, what the developed countries did for us through our training programs and also in recognition of Brazil at this opportunity.

This picture I like because we can see it's a picture by satellite – we can see the lights, but when we see the lights, we can see also the distribution, and we see the difference illuminated countries and countries not illuminated yet. And if you think that we could illuminate all the countries the same way, for sure we are going to have an environmental problem because the natural resources – water, energy, and so on – are not enough. So we have a big challenge.

On the other hand, it makes no sense to have countries very well illuminated, not just by lights, by lamps, but also by knowledge, and other countries not illuminated yet.

So I think it's time to build a more equitable world society based on sustainable development, democracy, and peace. The examples are here, and the heroes too. Thank you.

Ambassador Kenneth Quinn

That's wonderful, perfect, thank you, Dr. Crestana.

The Laureates are honored individually, but through them we also honor three institutions who have contributed to what's been done in the Cerrado. Dr. McClung, international cooperation, the two-way flow; and Mr. Paolinelli, the work of the government; and Edson Lobato, the work of EMBRAPA. It's hard to believe and imagine that at the beginning of the 1970s, EMBRAPA didn't exist, and today it is one of the leading agricultural research institutions – and I didn't say only "tropical" – leading agricultural research institutions in the world.

You honored us with your presence, Dr. Crestana. Thank you so much for this wonderful presentation. It's the perfect way to start our afternoon's session. So our meeting is concluded. I encourage everyone to the ballroom. Or if you're going with our African ambassadors to their session, but let's thank Dr. Crestana again as we leave. Thank you.