

2006 Norman E. Borlaug/World Food Prize International Symposium
The Green Revolution Redux:
Can We Replicate the Single Greatest Period of Food Production in All Human History?
October 19-20, 2006 - Des Moines, Iowa

BREAKFAST ADDRESS: Food and Security in the 21st Century

October 20, 2006 - 7:45 – 9:00 a.m.

Dr. Robert Gates – Texas A&M University

Ambassador Kenneth Quinn

President - World Food Prize Foundation

Introduction of Robert Gates by Ambassador Quinn

This is a special privilege for me to introduce our speaker this morning. I met Bob Gates for the first time in 1974 in the old Executive Office Building in Washington, DC. And the old executive office building is that big gray, unusual-looking building right next to the White House, and it's where the staff of the National Security Council and many other parts of the White House are located. And you see he and I are about the same age. He's a career CIA officer. I was a career State Department officer, although a lot of people used to always think I was a career CIA officer too. And our offices were right across the hall from each other. So I remember going over and saying hello to him and thinking, well, you know, this is another kind of young guy like me.

And this was during the Ford Administration, and then the election came and President Carter won the election. And we were all, the professional people, were being called in, and most of us expected that we'd get sent back to our agencies and new people would be brought in, which was the way it worked.

So I went down and I got my pink slip – and it really was pink – and so I was back packing up, and I looked over in Bob's office and he wasn't packing up. And he ended up working for four presidents in one way or another, through the National Security Council staff. But the Democrats coming in knew real talent when they saw it, and they kept him there to work closely with the new National Security team and the president. And that was one step on an incredible career that took him from being an entry-level case officer, coming in and being trained, all the way to the top of the agency. That's never happened at the State Department, and it doesn't happen in almost any other department.

And so an incredible achievement has to be due for a reason. And that reason, I think, is the same reason that lets him now be the president of Texas A&M University, and that is – What's most valuable, if you're a career government official committed to our Constitution but not to any political party, is that people from those parties who come in, elected by the people to

run our government, know they can count on you to be straightforward and to be honest and to give your unvarnished view about what's the truth, what's the situation as best you can tell it.

And I can tell you that that's not always welcome when you do that in government. But Bob Gates and the intelligence community, when he directed it, was that type of institution and would serve the president and the members of the cabinet with that – “We're going to tell you, here's how it is, because that's what we're here to do, and that's how we serve our country.” And that, after all, is what a university president is to do, is to preside over an institution where science and knowledge that's obtained from research and appropriate methods can come forward, no matter how much somebody else doesn't like it.

So I've been a great admirer of Bob Gates and his career and what he's done, and I thought this was a unique opportunity to lure him to Iowa. He, of course, is Dr. Borlaug's boss down at Texas A&M, you know. As we were having breakfast, he told me that his relatives, as they made the trek from the east back in the 1840s, had made a stop in Iowa. So he's got some Iowa roots, although they kept going on to Wichita, Kansas. So in a sense, kind of welcoming him back to his old connection to this state.

It's my great privilege to ask you to join in welcoming Bob Gates.

Food and Security in the 21st Century

Robert Gates

President, Texas A&M University
Former Director, Central Intelligence Agency

Well, as we say at Texas A&M, howdy! And good morning. It's a pleasure to be with you here this morning. Of course, I have to tell you it's a pleasure to be anywhere but Washington, DC – a place where those who travel the high road of humility encounter little heavy traffic – a place where so many people are lost in thought, because it's such unfamiliar territory – where people say, "I'll double-cross that bridge when I get to it." – The only place in the world you can see a prominent person walking down lover's lane holding his own hand.

Well, first I want to thank Ken for a very generous introduction and also want to congratulate the three new laureates who were recognized last night.

Going to a university, having spent almost 30 years in CIA has been an interesting transition. I sometimes ask myself whether it's scarier to be responsible for several thousand clandestine agents operating all over the world or to be responsible for 46,000 kids between the ages of 18 and 25. Everybody seems to know the right answer to that one.

Well, given my background and particularly my lack of a scientific background, addressing this group of distinguished scientists on the challenges that we face in the 21st century in meeting the food needs of our time, reminds me of the time George Bernard Shaw was introducing a speaker and he told the speaker, "You have 15 minutes." And the speaker said, "Fifteen minutes? How can I tell them what I know in 15 minutes?" And Shaw replied, "I suggest you speak very slowly." I know that feeling.

Well, it is a privilege to be here today at the Norman E. Borlaug International Symposium, and especially an honor for me to be here with Norman, who is a living legend at Texas A&M, just as he is all around the globe. Although, you know, there's always somebody who doesn't get the word. A year ago this fall on a very hot September Saturday... Norman's a big football fan at Texas A&M, and he drove to the parking lot where he normally parks, and it was full. And the parking attendant, who didn't have a clue who he was, directed him to park someplace else, and he ended up parking about a quarter of a mile from the stadium and having to walk to the stadium. One of Norman's faculty associates told me about this. Dr. Borlaug would never have said anything, but one of Dr. Borlaug's colleagues let me know about this. And I called our parking people, and I said, "I want Dr. Borlaug to have the parking place immediately next to the elevator inside the stadium." So the next week Dr. Borlaug drives up to that parking place, and there's a police car and two motorcycle policemen there. And he rolls down his window, and he says, "I thought this was my place." And the policeman said, "Yes, Dr. Borlaug, it is your place. We're here to protect it."

Well, how many people in history have saved the lives of a billion people? Several international organizations have estimated that's how many lives have been saved by the work of Dr. Norman Borlaug. Dr. Borlaug is still very active in research projects at Texas A&M and

Mexico and elsewhere. He continues to receive high accolades. The National Medal of Science was presented to him by President Bush earlier this year. And more recently, the U.S. Senate has voted to award him the Congressional Gold Medal. We need to get the House of Representatives on board for that.

So when you talk about service to mankind and people who truly make a difference in the world, you are talking about Norman Borlaug. He is, I think, the epitome of John Wesley's challenge to "Do all the good you can, by all the means you can, in all the ways you can, in all the places you can, at all the times you can, to all the people you can – as long as ever you can." And that's what I think this conference is about – doing all the good we can, making a difference in the lives of people through agriculture and food production in the 21st century. Making a difference through finding solutions to problems as old as mankind and as new as the latest famine—whether caused by nature or, more often, by man.

Many of us have just finished this hearty breakfast, just as we ought not to do every day. We're extremely fortunate. An estimated billion and a half people don't have breakfast, or perhaps any other meal every day, because of extreme poverty. About one of every five people in the world makes less than a dollar a day. Poverty breeds hatred, discontent and desperation. Poverty and despair are the breeding grounds of instability and terrorism. Since the beginning of human history, adequacy of food supply has determined the strengths of clans, tribes and nations. And all too often they have gone to war to assure their food supply.

For these reasons, at CIA, perhaps to your surprise, for decades we devoted considerable information collection and analytical resources to assessing global food supplies. We developed sophisticated satellite and analytical technologies that allowed us to measure wheat, rice, soybeans and other crops around the world from space. We also focused our efforts on water supplies and conducted studies on areas where we believed cross-border conflicts were likely to break out, as one or another sought to acquire more water.

These are not the kinds of things people think about normally in terms of national security or intelligence targets. But we focused a lot of effort and invested a lot of money in this work, estimating food and water supplies, to help our government anticipate food needs and potential areas of discontent and conflict.

In fact, as we deal increasingly with the impact of global warming, here, too, CIA has helped science. In 1992 when I was Director of Central Intelligence, then-Senator Al Gore came to me and asked that the 30-year-old archive of intelligence satellite images be made available to scientists to study. Since we had been taking photographs from space of the same sites, principally in the northern part of the Soviet Union for 30 years, Senator Gore and others thought that they would provide an outstanding basis of research to measure climatological change and the impact on the earth. I agreed to Senator Gore's request. We gave 50 or 60 scientists secret clearances, opened the archive, and the next year the research began.

So now I find myself at a land grant university, which similarly has long helped with food supplies and providing solutions to the problems of developing countries. Indeed, I must say, bragging a little bit, that several of the World Food Prize recipients either graduated from

Texas A&M or have taught there at one time or another. And Dr. Perry Adkisson as well as the founder of the World Food Prize, Dr. Borlaug, continue to teach at Texas A&M.

So this morning I want to take just a few minutes to talk about several areas where I believe universities can help other countries and our own government more effectively tackle 21st century problems related to food supply.

First, investment. Consider the country of Rwanda. This East African country has been the site of numerous wars in the last two decades. A staggering 800,000 people were killed during the mid-1990s in Rwanda. In addition to the human suffering, the economic consequences were devastating. About 90% of the country is engaged in some kind of agriculture, and 60% of its people live below the poverty line. During these wars, seeds were lost due to the burning of crops and also because starving people were forced to eat seeds, along with animals used for farm work.

But Rwanda has a success story, too. As pointed out in a recent *New York Times* article, the U.S. Agency for International Development invested \$10 million in helping the people of Rwanda grow coffee. And in the last few years the results have been remarkable. Today some of the most sought-after coffee in the world is grown in Rwanda, and companies such as Starbucks are paying top dollar for Rwandan coffee beans. I'm glad to say that Texas A&M had a role in this coffee project, as did Michigan State University.

Second, technology. In Iraq we at Texas A&M have several faculty members assisting in crop demonstrations, and they're going out into local communities and planting demonstration crops. But frustratingly, often these crops cannot be harvested because they're too far from the farmers' houses, and the areas aren't secure enough to travel far from home. And it's certainly not practical for them to go five miles to work in their fields in times of conflict.

And then what happens when conflict ends? Is it smart to go into a community after a war and introduce the same agricultural technologies that were used before the fighting began? What if there are no longer as many farmers as there were before the conflict? What kind of technologies will work after a war?

Too often government's response to conflict has been to say that the problem is a difference in religion or culture or politics or security issues, and that such problems can be solved only through diplomacy and political means. And that's often true. But I would tell you that I think America's universities are too often excluded from participating in and contributing to possible solutions in these situations.

Universities are a terrific source of technology and expertise, and we have an understanding of natural resources and how they are best utilized. And we have solutions. For example, we have developed and are continuing to develop partnerships with food producers and manufacturers to improve technologies in many developing countries. Such partnerships are thriving with companies like McDonald's, Coca-Cola, Nestlé and Master Foods. They are improving technologies that will greatly benefit developing nations.

In the area of food processing, universities can offer considerable expertise. For example, we've established the Southeast Asia Food and Agriculture, Science and Technology Center in Indonesia. This new center is helping small and medium-size food processing companies develop new methods to improve the processing of commercial products, including better packaging, labeling, advertising, and gaining a better understanding of foreign markets. The center is helping to move products off the farm and to consumers more quickly and efficiently.

A third area we can help is new ideas. Another solution is in the area of crop substitution. In Southeast Asia there's historically been one crop grown that we would very much like to eliminate—the crop that gives rise to opium. Replacing opium as a viable crop does not require a very high-value crop equivalent to replace it. What opium farmers really want is a steady income, a reliable way of having money coming in. They know that when they grow opium, they have limited buyers—often just one. And I think you all will realize that it's usually not terribly wise to try and negotiate a better price with that single buyer.

Moreover, the farmer can't eat opium or feed it to their livestock. They can't process it themselves or sell it. But crops like maize and corn give farmers many options. You can store them, sell them, eat them, export them, or distribute them to other markets. You can't do that with opium.

There is no entrepreneurial reward for growing opium. Farmers are often forced into growing it because of a lack of technology to grow other crops. And what some land grant colleges have done is show farmers that there are ways to make reliable income other than growing opium, and that they work.

Another new idea: Up until 2000, universities were asked to help in foreign assistance—but only to the extent that they worked in the production of food. University agriculture leaders stepped up and said that wasn't the only problem. There were also concerns about family nutrition, food safety, obesity, labeling, food processing, and problems with agribusiness, the methods used for food production, and the conservation of natural resources used to do all of this. And so the term “agriculture” was redefined to include a very broad range of human engagement and enterprise – a breakthrough that will have lasting impact for decades.

Fourth, food security. A further solution is being provided by colleges and universities here and abroad, with respect to food safety. Since the attacks of 9/11, there have been far greater safety concerns over our food supply than ever before, and with good reason. A bioterrorism attack involving crops or livestock has never been a more realistic possibility than now.

U.S. agriculture contributes about a trillion dollars to our gross domestic product. About 22% of all U.S. jobs are somehow related to agriculture. Most of our food production comes from about 500,000 farms and is handled by some 57,000 food processors and about 6,000 meat and poultry workers. If just a few of these groups were hit intentionally by contaminated substances in any part of the food chain, from the farm to the table, there could be staggering economic losses. Not to mention the health and human effects, which could be catastrophic.

We are all aware of the recent problem with E. coli in spinach. And though it was not an intentional attack, that outbreak killed two people, sickened some 200 and crippled much of the

nation's spinach industry as truckload after truckload of the product was destroyed. Imagine such an intentional act played out on a coordinated scale on farms across America. And who can forget the forced destruction of hundreds of thousands of head of livestock in the United Kingdom due to disease.

The economic impact spreads exponentially from farms to suppliers, distributors, food processors, and on to transportation services, retailers and food service providers. There is little doubt that a major attack on our food supply also would lead to social panic. The fear that such an attack could be carried out successfully and the anxiety of people worrying about future such attacks could be as devastating as the attacks themselves.

That's one reason the Food and Drug Administration in the past few years has added more than 200 import inspectors to monitor food as it enters the United States and why the FDA has added an additional hundred food inspectors and another hundred technical analysts to test for food contamination. And other agencies are stepping up to meet this threat. These and additional resources are results of threats to our food supply. You could see the threat.

Through the Department of Homeland Security, universities are often providing aid and expertise. Several efforts to secure food safety are currently being coordinated at the University of Minnesota. At Texas A&M we've established the National Center for Foreign Animal and Zoonotic Disease Defense to address the wide range of threats posed by zoonotic diseases.

Fifth and finally, we bring education to the table. Universities have formed alliances and signed cooperative agreements with foreign universities, such as Texas A&M has with the University of Tikrit in Iraq. One highly valuable resource is the technology available to provide distance education. Providing help by education through the Internet and other electronic means does not put American faculty at risk, and it gives valuable educational opportunities to people in lands of conflict.

In sum, universities have many different kinds of solutions to offer, but we also face challenges, including from our own government. For example, over the last two decades U.S. foreign assistance has all too often ignored the role of science, research and human capital. It is said that today about 95% of all foreign assistance is contracted to consulting firms within 50 miles of Washington, DC. That means universities, civic organizations and other groups are no longer significant players in foreign assistance programs.

The result is that science has nearly disappeared. Human capital development has disappeared. And the investments for long-term institution building have nearly disappeared. Government must get science re-engaged in the solutions to food supply, economic growth, and even the solutions to conflict. But too often universities and scientists are left out of the picture.

For those of us in the university community to be effective at home and abroad, we must continue to introduce new technologies and better practices. And at the same time we must be testing and researching those technologies to see what is working and what is not. We must always be in the research mode and never leave our learning mode. Today too many companies involved in foreign assistance are simply in the delivery mode, because that's how they get paid.

This is a tragedy because we all know the old difference between giving a man a fish and teaching him to fish.

We must develop the full capacities of people on the receiving end and help them become their own decision-makers, helping them to develop sustainable solutions, assuring enduring, ample food stocks for themselves.

The drastically reduced U.S. government investment in human and institutional capital has taken its toll. Up until the mid-1980s the United States invested heavily in supporting the education of people in developing nations. About then, U.S. federal assistance for human capital development for training and educating foreign scholars dropped dramatically. The United States, for example, was the key influence in the development of the India agricultural university system, the key contributor to the African agricultural universities, and to Asian and Latin American agricultural universities as well. We were doing a great job of developing educational institutions and the people to lead those institutions. But such programs are now a pale shadow of what they once were in terms of U.S. government support. One has to wonder what the world would be like today if the United States had sustained that investment in human and institutional capital.

Because of the investments we made in those countries, the U.S. could usually count on the heads of those nations to be friendly and cooperative with us, leaders who were open to business and trade and working with us. By abandoning our efforts in human capital development, and along with it, institutional development, those developing nations have turned to other nations and, all too often, against us.

Let me give you one very concrete example. One of our A&M agricultural faculty members met with the Minister of Agriculture in Syria just before 9/11. This Syrian leader had received his PhD in ag economics from Texas A&M. And he went on Syrian television and stated, "All the policies that I am pursuing today are the result of what I learned in America at Texas A&M." That was the kind of investment we were making. What if we had been able to continue it?

It could be argued that our inability to continue our investment in human capital in developing countries on a scale that we did in the 1960s and '70s is a factor that has contributed at least in some measure to instability in many places today and hostility to the United States.

Before concluding, let me mention another challenge facing us as we try to ensure food supplies for a growing population in the 21st century. And that is the controversy over genetically modified foods. There is the perception that genetically modified foods are some sort of Frankensteinish creation that is abnormal and unsafe. This reminds me of the old line by Mark Twain that, "The trouble with the world is not that people know so little, but that they know so many things that ain't so."

Dr. Borlaug points out that farmers have been genetically modifying their crops for 10,000 years. They selected wild populations of plants for quick growth, larger seeds and sweeter fruits. In other words, they chose the best individual plants that suited their needs.

Naturally occurring mutations contributed to genetic variations, and the process has repeated itself for thousands of years.

Modifying foods is a tremendous asset in our fight against global hunger. But it is a topic that has become a political volleyball on the world stage. Science could help, but it's not being given enough of a chance, and consumers are paying the price for the neglect. Many people who are against genetically modified foods are staunch environmentalists, but they fail to recognize that to feed the world we must have new biotechnologies. They don't understand that by not using these new methods we are forced to cut down more trees, to plow up more land, and use more natural resources to produce more food. Logically, such environmentalists should be the biggest supporters of genetic modification of food crops. It enables us to do more with existing resources. And, frankly, I think the environmentalists' objections are based more on politics than on science.

Let me give you one final thought, and that deals with courage and grand scale of vision. I've talked this morning about what universities can do to help solve problems of food supply around the world in the 21st century – investment, technology, new ideas, security, education. The examples that I have shown demonstrate how much universities can contribute to a better life for hundreds of millions, perhaps billions of people, just as Norman Borlaug.

We also have some real challenges. To tackle both the opportunities and the challenges will take courage. Scientific innovation often means scientific courage – being able to counter critics who will surely come your way. Courage and innovation go hand in hand. Along with having scientists and extension workers who can best help developing countries, we must have the courage to introduce these new methods and also be there as colleagues and friends to these farmers. Simply put, we have to be in the field both literally and figuratively to see our efforts through to completion. And as for the critics, I would quote the ancient Chinese proverb, “Those who say it cannot be done should not interrupt those who are doing it.”

For a long time Norman Borlaug has been one of those doing it. We need the type of courage and scale of vision Dr. Borlaug has had and continues to have. In the early days of his career, he faced great criticism and opposition. But he was persistent and courageous about his views. He knew he was on the right track. He voiced his opinions at every venue he possibly could. He thought on a global scale, and he was successful on a global scale.

Norman reminds me of an observation by George Bernard Shaw who said, “The reasonable man adapts himself to the world. The unreasonable one persists in trying to adapt the world to himself. Therefore, all progress depends on unreasonable men.”

A billion people must give thanks that Norman Borlaug was an unreasonable man. So let us all go out and be unreasonable men and women in the pursuit of progress. For us to do anything less would be a tragic mistake and a betrayal of who Norman Borlaug is and who all the rest of us can be.

Thank you very much.