

RAJ SHAH: Welcome and thank you for joining us at the launch of a new scientific enterprise at USDA. I hope you can tell, we are thrilled and excited and very much appreciate the fact that you've all taken so much time out to be here today to both recognize those great leaders that are joining us from around the country that helped us get here, and to learn from and to meet some of the new leaders that will take us forward as USDA science makes some advances and leaps into the next generation.

If I can make a few housekeeping suggestions – please remember to turn off or mute your cell phones and pagers, especially since we're webcasting live today to our friends, partners, and employees around the nation, and we hope around the world. I am Raj Shah, the Under Secretary for Research, Education, and Economics at USDA, and the Department's chief scientist.

Since I came to work in June, every day has been a new surprise for me about the depth and quality of USDA's science portfolio, the history and scale of USDA research across this country and frankly around the world, the unique collections we maintain and the technologies that we've developed in the course of our nation's history, the expertise and tremendous commitment of a world-class research staff, many of whom are here today. I thought I knew what USDA science would be like before I got here. But every day, I'm convinced that this is in fact one of the better kept secrets in our Federal government.

The Economic Research Service, for example, houses more economists in one place than any other Federal agency, and produces thoughtful analysis on a range of issues. The National Agricultural Statistical Service is the envy of the world in its ability to identify and report the information that forms the basis for a broad range of policymaking and program implementation. The 2,200 Ph.D. scientists of the Agricultural Research Service perform research in every part of the country and many corners of the globe. And their recent advances have unlocked the secrets of the corn genome that will help us develop resilient and more robust crops. They've developed tools that are reducing the rate of Lyme disease on the East Coast, and they're developing technologies that will help us

develop more efficient animal production systems that have a reduced carbon footprint and methane footprint over time.

And we are the stewards of a long tradition of excellence in the Land-Grant University System, a system created by President Lincoln. This system enabled an agrarian country to grow and develop into a technological superpower. So I'm proud to be part of this work and part of this team. And I'm proud to work for Secretary Tom Vilsack, who I have the honor to introduce today.

Not only does he have a vision that I fully share for the broad reach of scientific discovery to improve our health and the quality of life, he's also committed to using the best scientific knowledge available to inform public policy. At a time when agricultural science is poised to make incredible contributions to Americans' wellbeing, Secretary Vilsack is guiding our effort. And he's pushing us to honor our history. He's pushing us to focus on what we can do best and get out of businesses where we're not as effective.

He's pushing us to be demanding in our insistence that our scientific enterprise generate impacts and results for American producers and consumers. And it's just very exciting that he's provided so much leadership and such a commitment to science in general. I'm thrilled today to also have Dr. Holdren, the President's science advisor, here with us, and a number of dignitaries from across the Federal science community.

So with that, Secretary Vilsack, we're eager to hear your thoughts. Thank you.

[applause]

SECRETARY TOM VILSACK: Well, Dr. Shah, thank you very much for that kind introduction. And I do want to identify, we have so many dignitaries in the audience today, but I do want to take this point of personal privilege to speak about four who are with us today in particular.

First, former Secretary of Agriculture, Dan Glickman joins us today. I think-- [applause] He is a great friend, was a great Secretary, and has provided me with a lot of counsel and advice over the course of the last several months. And I do appreciate him taking time from his busy schedule to be here. This is a continuation, Mr. Secretary, of your work.

We are also joined by a member of The United States Senate, Senator Bond, thank you so much, from Missouri. [applause] When I first met with Senator Bond during the confirmation process, I learned two things about him. First, he is passionate about science and the science that's taking place in his home state. And secondly, he is absolutely passionate about chestnuts. He has got a little business going which has been quite productive I'm told this year, Senator. So thank you again for taking time from your Senate responsibilities.

We're also joined today by the founder of the Danforth Plant Science Center, Dr. Bill Danforth. [applause] Dr. Danforth came into the office several weeks after I became Secretary and expressed with a great deal of passion the importance of science in the future of agriculture and meeting the challenges. And so Dr., we very much appreciate you taking time, traveling from St. Louis to be here today.

And we are also joined by our newly appointed and confirmed FDA Commissioner, Peggy Hamburg. [applause] We share with the Commissioner a dedication to ensuring the safest and most secure food supply in the world. And I know that she's dedicated to that and has been working hard ever since she was confirmed, to make sure that we live up to that responsibility.

Well, ladies and gentlemen, today marks an opportunity to truly transform the field of science. And that happens but once a generation. And right now I'm convinced it is USDA's opportunity to work with Congress, other science agencies, and with our partners in industry, academia, in the non-profit sector to bring about transformational change. We can build on the recent scientific discoveries, incredible advances in sequencing plant and animal genomes, for example. We have new and powerful tools –

biotechnology, nanotechnology, and large-scale computer animation and simulations – applicable to all types of agriculture.

These discoveries and these tools come not a moment too soon. The United Nations Food and Agriculture Organization predicts that food production will need to double by the year 2050 to meet demand. And this must happen in an environment where our production system is already under threat.

For every degree increase in temperature from global warming, we can expect a ten percent drop in yields. Water is increasingly in short supply in the U.S. and abroad for drinking, for irrigation, and for livestock production. Climate change is already disrupting farming and grazing patterns and food production, and not just overseas. Many sectors of the U.S. agricultural economy are exceptionally vulnerable to climate stress.

USDA science needs to change to respond to these pressures, to ensure the sustainability of the American food, fuel, and fiber system, and to address some of America's and the world's most intractable problems.

Today, I want to share with you the bold new ideas and new ways of doing science at the Department of Agriculture that we believe will help remake and reinvigorate agricultural research. And I want to introduce the people who will be leading this change, and their partners in the Federal scientific enterprise who will help us in this transformation.

In the 2008 Farm Bill, Congress showed wisdom and leadership in giving USDA two very powerful new tools to transform our science program. First, they gave us the opportunity to create the position of chief scientist to strategically manage the Department's entire scientific portfolio. In addition to his role as Under Secretary of Research, Education, and Economics, I've asked Raj Shah to be that chief scientist.

Raj believes and I believe that USDA science needs to be focused, needs to leverage other resources. And it needs to concentrate on select priorities at a large scale to produce

valued outcomes. Ultimately, our success in science has to be and must be matched by its impact in society. Already Raj has begun an in-depth and systematic analysis of our research programs, their goals, and their outcomes to help us better match available resources to critical outcomes for solving national and international problems.

Second, the Congress also established a new National Institute of Food and Agriculture. NIFA is how we now refer to it. NIFA has many responsibilities. NIFA will integrate planning of science across the USDA with its partners and beneficiaries of science. It will enhance education and create opportunities for the brightest and best scientists to establish careers in food and agricultural science, something I am particularly interested in making happen. It will also improve processes for engaging traditional and non-traditional stakeholders throughout the realm of research, education, and outreach activities. And it should enable us to aggressively partner with our other Federal science agencies.

Formed in the main from the existing Cooperative State Research, Education, and Extension Service, NIFA will be the Department's extramural research enterprise. And even though we have a long and rich history of agricultural research dating back 150 years, it's no exaggeration to say that NIFA will be, in spirit, a research start-up company. We'll be rebuilding our competitive grant program from the ground up to generate real results for the American people. To lead this enterprise, President Obama has tapped a preeminent plant scientist from the Danforth Plant Science Center in St. Louis.

I'm pleased to introduce Roger N. Beachy, winner of the Wolf Prize in Agriculture and a member of the National Academy of Sciences. Roger's work has led directly to the development of new disease resistant crops. And he's no stranger to the kind of revolutionary environment that NIFA will be. He was indeed the founding president of the Danforth Center, a veritable powerhouse of plant science and agriculture-related research that has and will continue to save countless people from starvation and malnutrition.

Now, under the leadership of Raj and Roger, I want USDA science, extramural and intramural, to focus most of its resources on accomplishing a few bold outcomes with great power to improve human and animal health, and to protect our environment.

One of those outcomes will be that USDA science will support our ability to keep American agriculture competitive, while also at the same time helping to end world hunger. At a time when disruptive climate change threatens production of some of the world's staple foods, some of the biggest gains we can make in ending world hunger will involve the development of stress-resistant crops. Drought-tolerant, heat-tolerant, and saline-resistant crops will offer tremendous opportunities, not only for farmers around the world, but also positioning American farmers competitively in that world market. Our contributions to global food security will help us go far in helping to re-brand America's image around the world.

Another outcome is for the USDA science to support our ability to improve nutrition and to end child obesity in this country. USDA delivers meals each and every day to more than 30 million of America's children through our school lunch and school breakfast program. And the Department's supplemental nutrition assistance program, SNAP, serves almost 35 million people in more than 12 million households every month. USDA manages world-class nutrition research at human nutrition research centers across the United States.

Our scientists, for example, have discovered the harmful effects of trans-fats, research that even now is transforming the kinds of foods Americans eat. But we can and we must do much more. We can and we should at USDA be on the frontline for confronting childhood obesity. Our common goal is to help our children lead healthy and productive lives. At USDA, we want to take nutrition and food choice insights that we've gained from our science to test out some new approaches to school lunches and school breakfasts, and other nutrition assistance and education programs.

Another outcome we will focus on is that USDA science will support our efforts to radically improve food safety for all Americans. Each year in the U.S. alone, food borne pathogens like ecoli tragically kill 5,000 people and sicken 75 million more. The cost to the economy from these infections exceeds \$35 billion dollars. Where USDA could make the most difference is by focusing on new diagnostic tools to identify food pathogens and trace toxins and chemical contaminants in food, to help us identify effective interventions to reduce pathogens and contaminants when producing and processing foods, creating statistical models to understand how food pathogens and contaminants make their way through the food distribution system, and economic research to identify who is most at risk from food borne illnesses and from which sources.

I think it goes without saying that another outcome must be, as we seek to end our dependence on foreign oil, that USDA science will secure Americans' energy future. President Obama has set for all of us an ambitious but achievable goal for securing America's energy future from new domestic sources, including 60 billion gallons a year from biofuels by the year 2030. We need to focus specifically on rapidly improving the amount and the quality of plant-based feedstocks that will be the source of those biofuels. At USDA, we have a great and enormous capacity to develop new biofuel feedstocks like perennial grasses, woody plants, energy cane, algae, and others, and to understand the production systems needed to grow and harvest these plants at a scale necessary, and to allow us to model the economics of bio-energy production and its use. This is where USDA dollars and its science dollars should be used.

We also have a responsibility to focus on an outcome where USDA science will make us better stewards for America's environment and our precious natural resources. Agriculture and forestry ecosystems are climate dependent and can be affected in myriad ways by changing climates. At the same time, agriculture and forestry practices can provide valuable offsets as a way to mitigate greenhouse gas emissions from regulation induced markets.

Research aimed at improving crop, animal, and forest management in the face of climate change and at quantifying the potential for forests and agricultural lands to serve as carbon sinks, can turn a liability into an asset. In fact, we believe that research in this priority area will identify agricultural operations in the United States that within ten years will be net carbon sinks. Achieving this goal will require intensive research into the effects of climate change at the regional, community, and even individual farm level at a scale we have never, ever begun to dream of.

Now these priority areas, along with existing commitments to science education and sustainable agriculture, will drive USDA science. Recognizing the power of science and technology to transform the life of every American, President Obama this spring pledged to invest more heavily in the nation's basic sciences, and to commit as much as three percent of America's GDP to science.

I want to state clearly that agricultural science needs to be and will be part of that strategic investment strategy. Focus, scale, and impact – these are the levers that Raj, Roger, and I will use to launch a new paradigm for science that underpins our food, agriculture, and natural resource systems research. I'm asking today for a commitment of will and energy to bring about our generation's new era of agricultural science.

I'm excited. I'm excited to share this new vision of USDA research with you. And I look forward to working with all of you to chart a course together, to accelerate the pace of scientific discovery in the agricultural sciences. We will speed up the application of this new knowledge to address the challenges facing the United States in global food and agriculture production. And we'll translate these new knowledges into tangible benefits for the American people and for the world. And that is an important mission. And today we begin that mission. Thank you very much.

[applause]

I have one other responsibility this afternoon besides launching this great effort, and that is to introduce a great friend, someone I've known for just a short period of time, but someone for whom I have an enormous amount of respect, John Holdren.

He is one of the most committed advocates and partners in this Administration to our efforts and to all efforts of those committed to science to bring about transformational change through scientific advances. He has served as a professor of environmental policy at the Kennedy School of Government at Harvard, as the director of the Woods Hole Research Center, and as president and chair of the board of the American Association for the Advancement of Science.

A physicist renowned for his work on climate and energy, he has received far too many honors and awards for me to mention today. But trust me, they are numerous. And he has been one of (and I can attest to this, because I have seen it) he has been one of the most passionate and persistent voices of our time about the growing threat of climate change. Today, he serves the nation and President Obama as his, President Obama's, director and advisor for science and technology. He is the director of The White House Office of Science and Technology Policy. And he is the co-chair of the President's Council of Advisors on Science and Technology.

He is a good friend of the USDA research effort and science effort. And John, we are appreciative of you taking time from your busy schedule to be with us this afternoon.

[applause]

JOHN HOLDREN: Well thank you very much, Secretary Vilsack, for that very generous introduction. And thank you all. I am immensely pleased to be here today to help celebrate this very important step being taken by the Department of Agriculture. And before I say anything else, I do have to say (and planned to say this no matter how the Secretary introduced me) that I have immense respect for him.

As he said, we've only known each other a few months since both of us came into this Administration. But it has become clear in the work we've done together in a number of different contexts, including a group of Cabinet members and agency heads focused on the energy and climate challenges that this country faces and how to solve them in ways that make us more productive, more competitive, and more sustainable, I have to say that this is a powerhouse. The USDA is in terrific hands. And I am just delighted to have Tom Vilsack as a partner as we work to advance the ways in which science and technology can help us address the whole array of challenges that our country faces.

With that said, it's not surprising that we are seeing such a bold and important focus on science coming to the Agriculture Department under your leadership, Mr. Secretary. And speaking both for myself, and indeed for the President, I can tell you, The White House is behind you a hundred percent in this. I want to say that my communications director wanted me to say a hundred and fifty percent, but as a scientist, I couldn't bring myself to do it.

I also want to take a moment to acknowledge Raj Shah who is just a spectacular choice as the Department of Agriculture's first chief scientist. In his short time here since coming from the Gates Foundation, he's already shown extraordinary initiative and commitment to bringing fresh approaches and new scientific rigor to the Federal agricultural enterprise. We just have an unbelievable team here. And of course, we are here celebrating the addition to that unbelievable team of the President's extraordinary appointment of Dr. Roger Beachy, who again, it's already been said, is a world leader in plant science, literally respected all over the world. I can't tell you how many emails I've gotten from my colleagues in the scientific community congratulating the Administration on the wisdom of this choice and our success in persuading Roger Beachy to take on this job. I can't think of a better person to bring the Department's huge store of expertise to the tasks and challenges that NIFA is going to be taking on. And I know for sure, Roger, that you will hit the ground running.

Secretary Vilsack already has done in his remarks here a great job of spelling out some of the agriculture-related challenges that we face as a nation and a world. I don't propose to re-plow those furrows. This is one of the domains in which no till is the preferred approach. But -- Low till, I should have said.

But one thing I can add is a glimpse at the larger context within which these changes at Agriculture are occurring. I think it's already become clear through a number of the Administration's initiatives that we have the good fortune to be working under a President who really gets it when it comes to the importance of science and technology in helping the society to address the range of challenges it faces. He believes in supporting excellent science. He believes in hewing to evidence. He believes in incorporating that evidence fairly into the complicated process of policymaking.

That commitment in fact was evident in spades yesterday when the President threw himself into, not one, but two major science-based events. Early in the afternoon, he hosted a wonderful ceremony honoring thirteen scientists and engineers and one innovative company, the winners of the National Medal of Science and the National Medal of Technology & Innovation, the highest scientific honors conferred by the government. It was a sparkling event in the East Room of The White House. For those of you who did not attend or see it live streamed, I encourage you to read the President's remarks at that event, which are posted on WhiteHouse.gov, because his words could not have been more on-target in highlighting the importance of science and innovation in addressing our national and global challenges.

Then last night, there he was again, out in front on these issues, this time with the First Lady and their two daughters, on The White House south lawn for a remarkable night of stargazing with 150 middle school students gathered from the area, four NASA astronauts, the new NASA administrator, General Charlie Bolden, for a night of astronomy, hands-on astronomy on The White House lawn for kids. It was spectacular. And again, the President's remarks, which I'm sure if they're not posted already will be very soon, are extraordinary. They were uplifting. He talked to these kids about the

discoveries that remain out there for them to make if they stay in school, work hard, study science and math, and focus on their opportunities.

There were kids in the audience (my wife was standing next to a couple of them) who had tears in their eyes because of the way the President was able to stress the opportunities ahead of them if they only seize them.

So it is inspiring to see that the Department of Agriculture, whose mission, as the Secretary noted, has long included many crucial areas of science, but which has long been hobbled in its ability to sponsor extramural research grants and programs of the sort that NIFA will now support, has been given the freedom and the resources and really the highest level of backing to do so much more in this domain, so much that will be possible now with NIFA and it's splendid new leader.

The unfortunate truth is that the USDA has not always been at the table when we talked about the broad science-based issues facing us as a society. But it's at the table now and it's going to stay there. And you know that this is not your grandfather's USDA when you hear the Secretary talking about sequencing plant and animal genomes, using the tools of biotechnology and nanotechnology, taking advantage of large-scale computer simulations. This is a new USDA and one that is going to reach new heights.

So forgive me for saying that I foresee a great new crop of projects coming out of this transformation at Agriculture, and I want to thank Raj and the Secretary and now Roger Beachy for your role in spearheading this effort. Agricultural science is poised to make tremendous contributions to solving our most pressing problems, not only food and nutrition, but energy, environment, climate change, even medicine. I want to encourage the agency leaders who are here today and others throughout the Administration to find new ways to partner with Raj and Roger and the Secretary, to help bring new ideas, new approaches, and new perspectives to the table as we work to strengthen our nation, and feed and protect our world.

And with that, I turn the microphone back to Raj Shah. Thank you all very much.

[applause]

RAJ SHAH: I want to thank you, Mr. Secretary, thank you, Dr. Holdren. I count myself quite privileged to be part of this Administration with this tremendous commitment, both to science but to all of the different things it takes — resources, investment, strategy development, partnership across the Federal science enterprise — to make sure that every penny we spend in this area generates real, visible impacts that help transform our country at home and help re-brand us around the world. So we very much appreciate your commitment to our work. And we will continue to try to live up to your expectations.

I count myself fortunate, too, to be part of a team here at USDA that includes a dedicated series of administrators who've led these agencies up to today. Ed Knipping, Kitty Smith, Colleen Hefferan, and Cynthia Clark are all with us here today. And I just want to recognize the work they've done to get us to this point.

[applause]

We've heard a lot about the newest member of our team, Dr. Roger Beachy. He is of course a world renowned plant scientist, an eminent leader in science. And I've worked closely with Roger on a number of important issues over the years when I was at the Gates Foundation and had the opportunity to work with Roger and his excellent team at the Danforth Plant Science Center. And I can say that I'm very, very excited that the President has appointed him to this important role.

Roger recognizes the unique value of our Land-Grant University System. He recognizes that our extension system, with resources and staff in every county of this country (I just met 130 of them in Manhattan) are critical to getting technology out to users, whether that technology is around human nutrition or actual agricultural technology for the purpose of production.

Roger comes from a family (and I just learned his family history) but Roger comes from a family that has been deeply committed to service. And Roger himself brings a real passion for training the next generation of scientists and making sure that we have a diverse and robust corps of agricultural scientists to help drive our food and agriculture systems into the future.

So I believe Roger will help us all achieve the transformational change we expect at NIFA. And as we reinvent ourselves from the ground up, I'm thrilled to have him as a partner and a leader and someone I intend to learn from and work with — Roger Beachy.

[applause]

ROGER BEACHY: Well thanks, Raj, for your kind remarks. And Dr. Shah, it's been a pleasure to get to know and to work with already in these few days. And Secretary Vilsack and Dr. Holdren, thank you for your kind remarks. You didn't leave much for me to cover, but I'll do my best.

I also want to thank President Obama for honoring me with the selection as the first director of the National Institute for Food and Agriculture, NIFA. Thanks, too, for all of those who worked diligently over many years to make this event possible. It really took a lot of effort. A special thank you to Dr. William Danforth and the selection committee for persistence in seeing this concept through, and to the Association of Public Land-Grant Universities and a large constituency of stakeholders that work to shape the outcome that is today NIFA.

I accepted the opportunity to serve in this capacity because of several key factors. It's been said before, this is a special time in history when science and its applications are valued by the President and many in Congress to an extent unfamiliar in the past several generations. Second, this is a time of growing awareness of the importance of agriculture

to the survival of the Earth community and the health of its peoples, third, a time when the Department of Agriculture is committed to transformative change in the way that research, extension, and education are coordinated to mobilize the scientific community to address critical issues that we face as a society, and indeed, as a race.

Lastly, this is a time when diverse disciplines of science have realized that big questions can only be answered through broad collaborations and partnerships. Allow me to read from a statement from a report that was recently released by the National Research Council, commissioned by the NIH, the National Science Foundation, and the DOE. The committee was chaired by Dr. Tom Connelly and Dr. Phil Sharp. The report is entitled, “A New Biology for the 21st Century.”

I quote, “The lessons of history led the committee to recommend that a new biology initiative be put in place and charged with finding solutions to major societal needs — sustainable food production, protection of the environment, renewable energy, and improvement of human health. The findings of the committee are in stunning alignment with the Department of Agriculture. The new biology would draw together scientists from disciplines ranging from the mathematical, physical, and computational sciences to fundamental biological sciences, medical sciences, and agriculture sciences to address these four societal needs.”

Of these, the key role for agriculture is clear — sustainable food production, protection and enrichment of the environment, renewable energy, and improvement of human health — all begin with green organisms that capture the energy from the sun and transform it into the things that sustain us. With the recognition of the centrality of plants and the animals that they feed to our survival, now is the time to refocus the research and education activities of USDA in a way that attracts truly — *truly* — the brightest and the best intellects to the major challenges that we face.

Success will rely on discoveries in fundamental sciences sponsored by the competitive and intramural grants programs of all research agencies. However, achieving the larger

goals, the grand challenges, calls for the new biology and collaboration between agencies previously not seen. It also relies on structuring the National Institutes of Food and Agriculture to take the lead in certain areas of our strengths — feedstocks for biofuels, carbon sequestration, enriching the nutritional content of foods, and others. The structure best suited to solve these grand challenges requires alignment through the formation of four institutes, each led by an eminently qualified team of managers that fund the best research, education, and extension to meet the challenges — The Institute for Biofuels, Climate, and Environment; The Institute for Food Safety and Nutrition; The Institute for Food Production and Sustainability; and The Institute for Youth and Community Development.

To ensure that outcome of NIFA to build international food security, a center for international programs will be established in my office to leverage the knowledge and commitment of U.S. talent to enhance the lives of those in developing countries. Realignment alone however is not sufficient. The challenges will be met only when we engage the intellect and the passion of bright and energetic scientists to solve three fundamental details — how plants grow and develop to produce carbon-based compounds and sequester carbon from the environment, how animals can effectively convert feeds to safe and effective foods, how plants produce and accumulate the wide range of components that serve as the raw materials that produce biofuels, industrial compounds, and health conferring pharmaceuticals.

Scientists will be attracted to NIFA because we provide funding that encourages exploration and application of new knowledge that offers solutions. Scientists will gravitate to exciting science and adequate and sustained funding to complete the projects. Increasingly, they will be drawn by the opportunity to collaborate with scientists in broad disciplines in the new biology. NIFA will find solutions through awards with longer lifetimes, broader collaborations, and greater funding than ever before. We are confident that these changes will attract the stars of science to work with us, and to create the next generation of scientists that will pursue future challenges. NIFA will be the major player in research, education through outreach and extension, because we will provide solutions

to our grand challenges. And by doing so, we will lead the world to greater sustainability and human wellbeing.

I am absolutely honored and pleased to be here today. Thank you very much for the opportunity.

[applause]

RAJ SHAH: Thank you, Roger. So you can imagine that we are excited to be working together on this mission. One of the themes we wanted to articulate today was that we fully recognize that actually getting beyond peer reviewed publications as an outcome (and that's an important outcome) but getting beyond that to really reach impact against some of the tremendous challenges that have been articulated will require deep partnerships across the Federal science enterprise and with other departments and agencies.

And so I'm thrilled today that we are joined by a number of eminent leaders from those agencies and from those environments. As we think about focus, scale, and impact, we know that we need to work together in a very structured manner to achieve the outcomes we've talked about.

The first person I'd like to introduce to make a few remarks is the Under Secretary at the Department of Energy, Kristina Johnson. We've had the opportunity to work together on our bioenergy research programs. And we realize that the Department of Energy and our department have very complementary skill sets. We're finding that we're having a remarkable conversation and we hope to turn that into a remarkable investment portfolio as we go forward so that we can actually hit the President's biofuel targets. So Kristina, if you could join us and make a few comments. Thank you. And I might ask just if the other panelists could also join us on the table now.

KRISTINA JOHNSON: Thank you very much, Under Secretary Shah. And it's a great pleasure to be here to represent the Department of Energy in this stellar lineup. And I think one of the things that we see today is a real strength of this Administration, which is the pure joy that we experience by working together. And I must say, I've only known Dr. Shah for a little while. But it's been terrific. And of course I have worked with Cora at the National Science Foundation and look forward to working with the rest of our panelists.

I wanted to say just a few words about the focus of the Department of Energy. Certainly, we're here to support the Administration's goals of greenhouse gas reduction and energy security and stimulating the economy. We have programs in the Department of Energy in the environment area in biomass and biofuels in the fossil energy, as well as the energy and renewable energy programs, and then also in the basic sciences. So the DOE biomass goals are to make biofuels from a systems perspective cost competitive, like petroleum-based fuels, and also to create an environment conducive to expanding the production and help you meet some of the large goals of those billions and billions of biofuels by 2030.

Before I came into the Administration, I felt that 2030 was a long way away. But when you think how long it takes to actually grow something, and then learn how to break it down, and then ferment it, and then move that into a biofuel that actually works in cars, and you know how to distribute it, it takes a long time. But we'll still make it, definitely, by working together.

So the biomass program takes from the Energy Department a systems perspective. And so at the micro-scale, we're looking at biochemical and thermochemical R&D in order to break down the feedstock. At the macro-scale, at the Idaho National Labs, we're working on feedstock production systems. At the JBEI, which is the Joint BioEnergy Institute in California, we're working on conversion technologies of that feedstock, and then integrated bio-refineries at the NREL, the National Renewable Energy Laboratory in Golden, we're looking at how we can move those through to the consumer infrastructure.

The interesting thing about being in Golden is that there's an awful lot of people in Golden that know how to do refinery and fermentation, shall we say. Coors Beer is located there. I grew up in Colorado, a little pitch for a local brew, not that I've ever imbibed.

So to bring the feedstock conversion and the R&D through demonstration, we do this through integrated bio-refineries. And actually at NREL, I did go out and visit and see one of the bio-refineries. So we're making great progress.

Biomass into biofuels, biomass into bio-power, process heat and bio-based products definitely will bring to the fore opportunities for job creation, the bio-fuels reducing greenhouse gas emissions, and making us energy secure.

Just say a couple words about, what are we doing. Our base program is about \$220 million in 2010. We have money from the Recovery Act of about \$800 million that we're working on demonstrating integrated bio-refinery operations, focusing on scale, cost, and efficiency, which you see why it's so important that USDA and ourselves work together. And a third area (you may have just heard that in the 2010 budget) there's a hub, an innovation systems-based program in fuels from sunlight. And we definitely look forward to working with USDA, National Science Foundation, others, NIH, in doing -- and the Food and Drug Administration of course -- in making this successful. This will be a \$25 million dollar per year entity. And we're in the process of developing the funding opportunity award and standing that up.

We also have programs in the ARPA-E, which is the Advanced Research Project Agency for Energy, 16-03 grants in lieu of tax credits, advanced engineering manufacturing tax credits, the 17-03 loan program for start-up clean energy, and lastly, the small business innovative research program, where this year, we took the 2.8% we get from R&D and we actually stood up a special solicitation to focus on commercialization and job

generation in the clean energy area. And there's lots of interest -- Actually received over 950 proposals in that program. So we'll be reviewing those as we go forward.

So it's an exciting time. We're focused on the three goals and helping our colleagues help us get to energy security, reduction of greenhouse gas emissions, and stimulating the economy. So thank you very much.

[applause]

RAJ SHAH: Well you can see why, from USDA's perspective, it's about having that partnership if we really want to be successful, because biomass and biomass generation is just one small but important part of a larger value chain and supply chain to be successful.

Next we want to talk a little bit about food safety. And food safety is an issue of common concern to USDA and FDA who's represented here by Commissioner Peggy Hamburg. While we've been successful in getting Americans to eat more leafy greens by more than ten percent over 1990's levels, we've seen the illnesses from pathogens on those leafy greens jump by a much more significant number, nearly 40%. We look forward to working with FDA to help develop new and sophisticated diagnostic technologies to identify food pathogens and trace toxins and chemical contaminants in food. So Dr. Hamburg, we're pleased you're here with us today and would love to hear from you. Thank you.

[applause]

MARGARET HAMBURG: Well thank you very much. And it's an honor and a pleasure to be here this afternoon at the launch of the National Institute of Food & Agriculture. I congratulate all of you who've worked so hard to make this new Institute possible. It's clear that NIFA will make a huge contribution, advancing solutions to some of the most pressing and urgent problems of the world we live in.

In my short time as Food & Drug Administration Commissioner, I've become convinced of the tremendous opportunity and responsibility we now have to reshape our national approach to food safety. We need to strengthen and transform what we do. We need to make sure that as we undertake these efforts, we have a system that is based on the best possible science. We need the work of NIFA to help us move forward in this area that's so important to health of all Americans.

As we press forward with our new agenda, based on preventing unsafe food from entering commerce in the first place, we're delighted to have NIFA as a new and important ally. The National Institute of Food and Agriculture will play an invaluable role in providing much needed science to inform our efforts, to reduce food borne illness. With USDA participation through NIFA, I'm optimistic that together we can make real progress. Our collaborative efforts with USDA in such areas as produce safety and on seafood inspection already have made a difference.

But there's so much more that needs to be done. It's truly a historic time for all of us involved in food safety. I feel very privileged to be part of this celebration today, but more importantly, I feel strengthened in knowing that NIFA will be able to help support our crucial efforts to strengthen food safety, and to address important issues that extend beyond simply preventing contamination of food, but also addressing the importance of healthy food choices in supporting health. So thank you very much.

[applause]

RAJ SHAH: Thank you. Global food security was a tremendous part of my professional life before I came to USDA. And I know Roger feels the same way. Ending world hunger is a shared commitment that USDA has with the State Department and many other parts of the Federal government as we work to execute the President's food security initiative.

Assistant Secretary of State, Kerri-Ann Jones, is leading a broad scientific portfolio at the State Department, and engages in a number of areas where our science can engage with science all around the world. So we're pleased to hear from Dr. Jones.

[applause]

KERRI-ANN JONES: Thank you very much and congratulations. It is really my pleasure to be here for this important announcement. I want to use an old adage. They say good things come to those who wait. Well, launching of NIFA is a very good thing and it has been a long wait. We're really glad you're here. In fact, it's been called for, for many years, and it's a wonderful thing that has arrived.

Many years ago as well, in 1972, the Club of Rome published its controversial report, "The Limits To Growth," which warned of the future challenges posed by trends in population, industrialization, pollution, resource depletion, and food production. In 1972, the global population was 3.85 billion. The world's population is projected to rise from roughly 6.7 billion today to anywhere from nine to eleven billion by 2050. Ethiopia, for example, will likely see its population at least double from its current 80 million to 180 million. According to the OECD, the global food supply will need to increase by an estimated fifty percent to meet expected demand in the next twenty years.

Yet the global annual growth rates in yields of major grains have declined from 35% in 1980 to only one percent today. These troubling statistics beg the question — can we increase productivity of food systems without further degrading the environment? And through scientific research, I think we can.

Most of the world's remaining arable land is in the developing world. And smallholder farmers there need the best advances that research can bring them to meet the growing demands. I'm sure we're all aware of the President's announcement at the G8, highlighting the critical importance and commitment to food security. Secretary Clinton also recognizes that addressing global food insecurity is not just the right thing to do but a

smart thing to do. She has said (and I quote) “Some may ask how food security is related to our own future, those of us here in The United States. Well, the answer is that food security is not just about food, but it is also about security, economic security, environmental security, and even national security.”

Secretary Clinton reiterated in her speech at UNGA last month the central role of food security and that the U.S. is committed to tackling the root causes of global hunger, which include investments in agricultural research.

I predict that NIFA will play a major role in the global food security challenge by harnessing the potential of research, strengthening agricultural education, and delivering the latest advances to the field. In other words, NIFA has been a long time in coming, but it has arrived on the scene just when we need it most. And we at the State Department look forward to working with you. Thank you.

[applause]

RAJ SHAH: The National Science Foundation has been truly the leader in government for science, technology, engineering, and mathematics education. As acting deputy director, Dr. Cora Marrett will remind us of this today. USDA has a special connection with stem education. Our 4H program reaches six million kids. And our public extension service is one of the country’s largest adult education efforts. So we look forward to figuring out how we can use these programs and our new and expanded commitment to training the next generation of scientists, learn from the NSF, and expand dramatically our ability to train and educate America’s kids. Dr. Marrett.

[applause]

CORA MARRETT: Thank you. And in fact, on behalf of the National Science Foundation, I am delighted to join today in the launch of the National Institute of Food and Agriculture. My delight stems in many ways from the collaborations that already

exist between NSF and the predecessor organizations to NIFA. It also stems from our shared commitment to the merit review process. And it stems from our common interest in preparing the next generation for path-breaking research.

Let me give you a couple of examples of the collaborations that are already addressed to the complex issues that the nation faces. Through the metabolic engineering program, with funding from USDA, NSF, and several other agencies, researchers are enhancing our understanding and use of a chemical know-how found in the cells of livestock, crops, microbes, to find new ways to make fuels, produce food, and fight disease. Just getting underway is the project, disaster resilience, for rural communities. And now as this title implies, the research here centers on conditions likely to reduce the vulnerabilities of rural communities to both natural and human induced hazards.

For these collaborative projects, and in fact for all that NIFA will be undertaking, the principle of merit review prevails. And that of course is a fundamental principle for the National Science Foundation. But as already mentioned, NSF and NIFA are both committed to the first-rate preparation of scientists, technologists, engineers, educators. USDA has a long and distinguished history of attending to these issues. One recent example that stands out for me about that kind of commitment comes from an activity in Columbus, Ohio, where there is the Metro Early College High School that has strong collaborations with Ohio State University. Specifically, the College of Food Agricultural and Environmental Sciences at Ohio State brings in juniors and seniors from the high school to work on collaborative projects. That's the kind of activity that we know will make a difference for the future.

So in summary, the emergence of NIFA is indeed timely. It's timely given the demands of our time, given the kinds of expectations that we all must have if we are indeed to prepare the next generation for not just the current challenges, but those that lie ahead. Thank you.

[applause]

RAJ SHAH: Our final speaker today has unique insight as to what it will be like to work together. And I will explain why in a moment. But as we heard from our Secretary, child obesity is a growing epidemic in this country. The First Lady, Secretary Vilsack, and NIH director, Francis Collins, have all identified child obesity as one of their top research priorities. And it certainly will be a top priority for NIFA and the USDA.

If anyone in Washington knows how to build a competitive grants program to tackle a complex issue like this, it is Dr. Sally Rockey, as she knows both our grant programs — NIH's, where she's now the director of extramural research, and USDA's, where she used to handle the competitive grant program in NIFA's predecessor agencies. And there are lots of smiles in the room over here. We already partner around USDA's six human nutrition research centers. And we hope to develop partnerships that will first reverse the trend of increasing child obesity in this country and then solve that critical national challenge. Dr. Rockey.

[applause]

SALLY ROCKEY: Well, thank you very much for having me. I am truly delighted to be here on behalf of the National Institutes of Health, and our director, Dr. Francis Collins. Of course, as you mention, it's a particular pleasure for me to be here, having spent eighteen years of my career with CSREES, Cooperate State Research Education and Extension Service. And I think I've grown to have an affinity for agencies that have an acronym beginning with 'N-I', particularly when it translates into 'national' and 'institute.' So I appreciate that.

When I was at CSREES, I learned the remarkable impact that agricultural research had on advancing science and directly impacting the lives of people every day, and how a vibrant education extension program can rapidly translate research into practice.

Not surprisingly, I found that the supported science was to be of high quality, downright fascinating, and often trailblazing. And as an example, the USDA plant genome program began at the same time that the human genome sequencing program was underway at NIH, demonstrating that the power of genomics stood to benefit both agriculture and medicine, as well as human health.

I congratulate you for elevating the profile of science within the USDA, and for reinvigorating the entire scientific enterprise by creating a NIFA, and recognizing that the acceleration of high quality, effective agriculture research and education is vital for sustaining economic prosperity and promoting healthy people and a healthy environment, here and across the globe.

We are extraordinarily confident that the Institute will thrive under the leadership of Dr. Roger Beachy, an outstanding individual and of course a world leader in plant sciences, and who has been connected to the agency for many, many years. Through his long career working on the application of biotechnology and agriculture, nutrition, and human health, Dr. Beachy has demonstrated a welcome appreciation of the important advancements that can be gained through agricultural sciences.

As a mission-oriented Federal agency in life sciences that supports both basic and translational research that will address societal needs, we have a lot in common with NIFA. We both fund the best in science wherever it resides, and work diligently to disseminate information around the nation and around the world. We both strive to foster the careers of young scientists who will lead us into the future of discovery. And in particular, we have many mutual interests in the areas of research.

We together must lead in the area of obesity. And we must combat childhood obesity, but obesity in general, not only just to unravel the physiological, molecular, and behavioral factors that lead to obesity, but also to promote a healthy diet and healthy eating habits. We also share interest in many other areas, including global health, which is one of our

director's, Dr. Francis Collins's, initiatives, and the interplay between environmental factors and public health, and nutrition, and of course food borne illnesses.

NIH and I personally are thrilled of the opportunities that we will have to partner with you, and as you embark on this new adventure as a strong, vibrant, and science-driven institute. So I congratulate you.

[applause]

RAJ SHAH: I'm going to ask Roger to join us. I believe we have a few minutes for questions or comments from the floor. Thank you again, so many of you, for joining us today.