

Welcome

- Megan: Welcome to NIFA Listens. My name is Megan Haidet, and I am a program specialist within the Institute of Food Production and Sustainability at the National Institute of Food and Agriculture.
- Megan: This is our second listening session of 2018. And we are here to hear from you. We want to know what your priorities are, what your challenges are, and any suggested breakthroughs that you have that NIFA can help with related to research, education, and extension.
- Megan: We have an agenda at the front, and we're going to follow that with some flexibility, noting that if a speaker isn't in the room, we'll jump ahead.
- Megan: If you have a PowerPoint presentation, please bring it to the back, to our AV team, and we'll get that loaded up.
- Megan: Each speaker is invited to talk for 10 minutes. And we will provide five- and two-minute warnings as your time is up.
- Megan: We hope that you can stay on topic and remain respectful to those in the room. So please silence your phones, and if you have to take a call please step out.
- Megan: At the end of our agenda, there will be time for unscheduled speakers to talk. So please, if you're inspired, don't hesitate to add your name to the sign-up list outside the room.
- Megan: Today's session is being recorded and live-streamed through a webcast. So please, when you're speaking, stand at this podium so we can capture you on video.
- Megan: The video and transcripts will be available in about a week. And that will be on our NIFA Listens website.
- Megan: We have some refreshments. And there is a bathroom around the corner. So please help yourself.
- Megan: We will have a break around 10:10 this morning. And we will break for lunch at noon. If we wrap up all speakers, our session may end by that lunchtime break.
- Megan: Well, I think that's it for housekeeping duties.
- Megan: I would like to introduce the director of the Institute of Food Production and Sustainability, Dr. Parag Chitnis, who will give you a little bit more information about NIFA Listens, why we're doing this, what we heard last year, and what we hope to do with your feedback.

Megan: Thank you.

Parag: Thank you, Megan.

Parag: I think I'll stand behind, and more hopefully you'll hear me. But you may not see me. But since I'm in the camera, probably I'll stand here and kind of go over some of the background and then talk about what we heard last year. And then we can see how the input that you are giving, we'll be using it also in the future.

Parag: If I can go to the next slide. Or maybe I can change it here.

Parag: So NIFA is an extramural funding agency. And many of you know. So we are one of the agencies at USDA, and we fund research, education, and extension activities. Our mission is to invest in these activities so that we can advance agricultural sciences. And we collaborate with other agencies and the land-grant universities as our partners, and then administer our programs collaboratively.

Parag: What we plan to do is I can kind of little bit explain how we decide what the science priorities are made.

Parag: So there are a number of ways we, as a federal agency, take input to determine the priorities in our budget requests and in our RFAs. First and foremost is through Congress, because in farm bill, lot of these priorities are specified.

Parag: Secondly, the Secretary of Agriculture in the White House's Office of Science and Technology Policy as well as Office of Management and Budget can give us, "Oh, these will be the priorities for the administrations."

Parag: So we take that input also. So both the legislative branch as well as executive branch can give us some priorities for them.

Parag: Then there are internal stakeholders, which are the scientific staff at NIFA. When they go out and talk to you at professional conferences or visit your universities, they are listening to you. And they have the pulse of the community they are working with. And so they bringing those ideas forward in these internal discussions about science.

Parag: And the last and most importantly, the input that you give us in terms of what your needs are and where science is going in your field in terms of research, extension, education, are what's really needed on the farm or in the orchards or forests or any [inaudible 00:05:41]-growing operations.

Parag: And so those the things that we can then take in, and then decide on our priorities. So these are all the inputs that we use in deciding the priorities for our budgets and RFAs.

Parag: So here we are trying to focus on three questions.

Parag: This is an opportunity for you to tell us about when canceling all agricultural sciences, what is really should be addressed by NIFA in terms of through our programs. We are also trying to look at, in your field, what are the opportunities for us, what are the scientific breakthroughs that are near happening where NIFA should be investing in. And the last, what is your top priority in terms of science that we should be addressing.

Parag: So we are looking at both what are your needs as well as what are the opportunities in science that we can address through our priority-setting processes in the future.

Parag: So when you talk about where are your needs on your priorities, please look at these questions and address them in you talks.

Parag: We [inaudible 00:07:00] input through a variety of mechanisms. Electronically, you can put in information. You are ... answers to these questions. And you can go to our website and essentially click on it and you'll go through the questions. And you can paste your answers, send them in. And last year, we got hundreds of those types of inputs.

Parag: And then in person, like this particular session. As Megan pointed out, this is the second session in New Orleans. There are two more happening. We do them regionally, around the country.

Parag: So how will this stakeholder input, we will use it?

Parag: So first of all, once we get your input, we will go through the science ideas and identify gaps in our programing. Or, if there are opportunities where it should be investing more money to really facilitate those needs, we will also determine which programs are underperforming or which programs are performing well based on what you tell us, and then try to address those in our future, I think, programing.

Parag: And then this combine input with other types of inputs we have, we will use it in our budget requests and in our RFAs to address those gaps or to facilitate those priorities.

Parag: So what did we learn in '17?

Parag: We got about 600 written or, in these sessions, kind of inputs. And in all domain, those were all analyzed. We learned that it's all about systems. Big challenges facing agriculture are really based on systems. Looking at the entire picture and then addressing those challenges by looking at the entire picture will be very useful. Bringing in disciplines like social sciences and engineering sciences and biological sciences together.

Parag: And the second thing that, in terms of your needs, I think what is needed are solutions. Either those could be data or technology solutions, or these could be extension, education type of solutions so that there'll be changes on the ground. And the need to strengthen the research and extension enterprise and capacity is something that we heard.

Parag: As I said, that there are about these 600 of those responses that were analyzed that came from the Survey Monkey online as well as inputs and transcripts that could be also emailed to us in text format. And then we can incorporate these.

Parag: When they were analyzed, these came from 383 personal opinions of 260 organizational people representing organizations, probably that.

Parag: So this is what we heard last year.

Parag: If you see the organizational demographic, these are the types of organizations gave us input, universities as well as private industry was there, professional organizations were there. So we got it from a variety of different sources.

Parag: And these were the themes that came up. The top theme was data and technology followed by planned production. Sustainability in agroecology, economics, social systems, and extension followed afterwards.

Parag: So those were the themes that came from the 600 or so comments that we received. And you can see the whole list of themes. And I think what you have been telling us last year probably is represented in some of these priorities.

Parag: If you go to the next. Okay, here.

Parag: So for example, if you look at some of these top themes, so this one is the theme about data and technology. So inside that, we had about ... what? ... 224 comments, 118 of the personal opinions. And those kind of comments, the themes came up were about data, technology, gene-editing. So both biotechnology as well as physical technology were represented.

Parag: And those are the kinds of opportunities that you told us we should be addressing in the future. There will be other, similar analysis was done with all those themes. And these particular report of what we heard last year is available online, on our website. So to find out more, you can go to our website.

Parag: We also have these videos of all inputs and sessions from last year, also available, and this year will become available within a week or so after the session, on our website. So you could go and listen to those, too.

Parag: So thank you, first of all, for coming. I want to welcome you on behalf of NIFA.

Parag: Before I go further, I think I want to introduce. There are a few of my colleagues who are here. And they are here because I think they want to listen to you. And then they will participate in the synthesis afterwards of these ideas. We will be interacting with you. If you have things to talk to us on some specific issues, we'll be here during the breaks and after these talks. So we will be happy to talk to you about if there are specific concerns, comments that you want to make.

Parag: So if we can introduce ... Megan has already introduced yourself. Olivia?

Olivia: Oh, yes.

Parag: Yeah.

Olivia: [inaudible 00:12:49].

Parag: Yeah. So Olivia Moreno, she's another Program Specialist. Then we have Hongda Chen.

Hongda: Hongda Chen, National Program Leader for Bioprocess Engineering and Nanotechnology.

Joshua: Joshua Stull. I'm a Congressional Stakeholder Affairs Officer. And sometimes I tell jokes.

Parag: And so I think so we try to get people from different parts of NIFA to come here and listen in each of these sessions and actually personally interact with you because that's extremely important for us, is listening from you directly.

Parag: So again, thank you for coming. We are here to listen. And I think we will probably be proceeding with the talks afterwards.

Megan: Wonderful.

Gina Eubanks from Louisiana State University AgCenter

Megan: So I am going to introduce our first speaker today, Dr. Gina Eubanks, from the LSU AgCenter.

Gina: Good morning to everyone.

Gina: I am Gina E. Eubanks, and I'm here today at the request of Extension Committee on Organization and Policy, which is better known as ECOP. And ECOP is the body that represents the Cooperative Extension Section of the Board on Agricultural Assembly within the Association of Public and Land-Grant Universities.

- Gina: My current position at Louisiana State University, or the LSU AgCenter, I serve as the Associate Vice President and Chief Operating Officer for Cooperative Extension. In my capacity or my role there, I'm actively involved locally and nationally in developing leadership and marketing and communication to advance the programs, private-resource development ... that's simply fundraising ... innovation that allow our partnerships to benefit the people in Louisiana and everywhere else.
- Gina: I like to say it speaks volumes that NIFA is listening to us and want to hear from their partners within the system, and to be able to share our top priorities for food and agriculture, research, extension, and education.
- Gina: So I'd like to first thank you for investing the time and energy in this process.
- Gina: As an ECOP member and as an individual from the Louisiana State University, we understand and believe and know that NIFA is a valued partner for cooperative extension.
- Gina: Extension programs have been built from a legacy, a long legacy of agriculture, 4H, home economics, known today as family and consumer sciences, community development.
- Gina: And we develop contemporary programs that we deliver in effective ways to farmers, their families, the communities in which they live. These programs are delivered to rural, tribal, and urban communities. And it's all intertwined together. When you really think about, from the standpoint of teaching, the research and the extension, there's no separation. It's very much intertwined together.
- Gina: Extension is an integral part. It's integrally important and critical to the NIFA portfolio.
- Gina: Capacity funds are vital. They're vitally important to leverage state and local investments in supporting locally based and national programs. These funds enable the development of local and regional partnerships, the development of a strong volunteer base, linkage with partner organizations, and increased resources that address important issues to our society locally, nationally, and internationally.
- Gina: These resources provide a base of fundamental talent for unique state-by-state stability, responsiveness, and the ability to seek additional funds, competitive funds.
- Gina: One example, or one example I want to share with you today, in the state of Louisiana, is the Healthy Communities Initiative. In that effort, it's a joint program between LSU AgCenter, Pennington Biomedical Research Center, Southern University Ag Center, and then that's all in collaboration with the State

Departments of Health, Economics, and Transportation as well as local government. So you can see how intertwined that particular project here in the state of Louisiana would be.

Gina: The aim of the program, which is Healthy Communities Initiative, is to improve the health profile by promoting healthy eating and physical activity, and to provide access to healthy foods and recreational facilities.

Gina: That particular Healthy Communities Initiative just allowed the LSU Ag Center to receive a \$5 million grant from CDC for HOP, High Obesity Program. And within that, 15 other land-grant institutions are funded, have received a grant from there, all of it looking at adult obesity rate for parishes or for counties over 40%.

Gina: The seven parishes in the state of Louisiana that are involved in that initiative would be Madison Parish, St. Helena Parish, Tensas, Claiborne, East Carroll, Assumption, and Morehouse.

Gina: Now, you have to remember, I said 15 other land-grant institutions. So we've reached out to those other 15 land-grant institutions. And we're able to do that because we have the base of the capacity funds. We have staff on board to be able to move those programs forward.

Gina: Now, relative to the three questions posed by NIFA for these listening sessions, my comments are as follow.

Gina: "In your field, what is the most needed breakthrough in science slash technology that would advance your agriculture enterprise?"

Gina: My response. The behavior and social sciences need to be integrated into multidisciplinary programs to assure that local people can benefit from research discoveries and new technologies. I'm saying to the end-user of the research, the education, and the extension system need to be engaged in helping to determine what is important in crafting solutions to local problems. In other words, the one thing that comes to mind would be advisory committees, that you get feedback from those individuals.

Gina: Next question. "When considering all of agriculture, what is the greatest challenge that should be addressed through NIFA's research, education, and extension?"

Gina: Again I say to you, integration. Integration of all three functions with extension having co-leadership roles, which will result in adoption of new technologies at the local level.

Gina: One quick example of that that we've had in the state of Louisiana would be grant opportunities such as the [Cipher 00:21:24] Program. In this particular program in Louisiana, we're providing teens with the opportunity to learn

through science. We're also providing them information in nutrition, gardening, health. And that would be the extension component.

Gina: And then the education component would be the career awareness related to hands-on experience during the school year and in after-school programs.

Gina: "What is your top priority?" That's the last question that NIFA wanted us to address. "What is your top priority in food and agricultural research, extension, and education that NIFA should address?"

Gina: Extension's strategic priorities reflect the broad-based issues facing rural and urban America. And I have five, nutrition, health and wellness, 4-H, positive youth development, water quality and use, food production and food security, community and economic development.

Gina: Farmers, growers, producers, and consumers live in rural and urban communities, have families with elders and youth, and want to live in healthy communities. Cooperative extension is a key element in the maintenance and growth relative to food, agriculture, and the community, the enterprises that live within that particular society.

Gina: One such effort here, in the state of Louisiana with the LSU AgCenter, we're very much into what we call the master program. And the master programs very much are interested in protecting soil, water, and air.

Gina: We have an opportunity that all of you may be familiar with. It's the Louisiana Master Gardener Program volunteer training. In the state of Louisiana, it's in 53 parishes, serving 96% of the state's population.

Gina: The Louisiana Master Farmers Program is a national model for volunteer education and compliance with natural resource and environmental conservation.

Gina: And then we also have the Louisiana Master Cattleman Program. Here, we're teaching producers to be better stewards of their environment and the animals and resources. In that particular program thus far, we've had 542 graduates.

Gina: As stated earlier, NIFA is a key partner in this work. It is important for us to interact with NIFA as well as other agencies of government, non-government organizations, and private sector organizations.

Gina: Therefore, I like to leave you with just one statement. This is typical, and this can happen when we're in D.C. and we're able to travel to other agencies that are there in the Washington, D.C., area.

Gina: I'd like to thank you for this opportunity of being able to share the thoughts on behalf of ECOP, Extension Committee on Organization and Policy. Thank you very much.

Allen Owens from Louisiana Nursery & Landscape Association

Megan: Next up, we have Allen Owens from the Louisiana Nursery and Landscape Association.

Allen: Good morning, everyone. Thank you, Megan.

Allen: I appreciate the opportunity to be here with everybody this morning. And I am representing the Louisiana Nursery and Landscape Association, and also, I guess, to a lesser degree, the other Louisiana horticulture associations, the Turfgrass Association, our fruit and vegetable producers.

Allen: And we really think that consumer horticulture is an area that we need to be working in with more research, more extension, more outreach, more education.

Allen: There's a new program that's called the National Consumer Horticulture Initiative that's going on nationally. You can see more about it at consumer hort, H-O-R-T, dot org. And we're trying to get more households in the United States involved in gardening, which is happening, but we have a pretty aggressive goal that we want 90% of US households to be gardening or doing something related to gardening by 2025.

Allen: So we want to emphasize that plants do that. Plants are around us where we work. They're around us when we shop. They're around us where we live. They're around us where we play. It's a very important component of what's going on in agriculture in our country.

Allen: 35% of US households are growing their own food now. That's an increase, in recent years.

Allen: We're seeing more interest in local food and buying local plants, buying local produce.

Allen: The National Consumer Horticulture Initiative has a vision of, like I just said, trying to get more households involved in gardening by 2025. And the mission is to grow a healthier world through plants, gardens, and landscapes.

Allen: So what is consumer horticulture? Well, this is what Dr. Eubanks just said. We want to target the end-user, the folks who landscape their homes. We want to educate people that buy at farmers markets. We want people to know about plants.

Allen: Turf grass, that's very important in consumer horticulture.

Allen: When you're out in a state park, that's nature. That's consumer horticulture.

Allen: So one of my nursery friends, 25 years ago, said, "Allen, you know, what we do in horticulture impacts every person every day." And it really does. Everything we do every day could be included in horticulture.

Allen: If we had a fiddle-leaf fig plant in this room, which is a foliage plant, it would be taking all the pollutants out of the air that's in this room right now. But we don't have a foliage plant in here. So where is it? I should've brought one today.

Allen: So this is what I just said. We have a lot of increase in school gardens lately. Again, community gardens have increased 100 or 200% in the last 3 to 5 years across the country.

Allen: We want better landscaped public places. We want interior plants in our hospitals. We've all seen research results that show that patients get well faster when they're surrounded by indoor plants and can go outside and can enjoy nature during their hospital stay.

Allen: So this is what the efforts are with the National Consumer Horticulture Initiative.

Allen: We want a unified voice. We want all of us working together. We want people to know what plants do, what gardens do, what landscapes do.

Allen: And we still want to increase the value of what we're doing in horticulture. It's a very big agriculture commodity that a lot of time that's not appreciated in some areas because it's got such diversity in it. You've got fruit and vegetables and pecans and sweet potatoes and nursery crop growing and landscaping and turf grass. But it's many, many jobs across the country.

Allen: And in almost every state in the United States, horticulture is in the top three in economic contributions in that state. When you take the production part and combine it with the end-user part. For every one dollar in horticulture production, you get at least seven to eight dollars of return value. So that's critical.

Allen: Urbanization. We have of course environmental issues in urban areas. Horticulture can address that.

Allen: We don't want to forget about the rural and suburban areas, but the urban areas are where most of our population is and we need to be concentrating horticulture in those areas. We're getting to the point where we're one and two areas where we're getting to the point where we're one and two generations removed from the farm and the average 20/30/40 year old person now didn't

grow up farming with their father or their grandfather. They don't know horticulture. I answer horticulture questions on a daily basis as do the county agents and everybody who works at the LSU Ag Center and Mississippi State and Southern and Texas A&M. People don't know gardening like they used to. It's very important that we continue to educate folks about this.

Allen: So consumer horticulture, what can we do to advance it? Social welfare. Dr. Eubanks mentioned a few of those things. Sustainability. I still don't know if I know what the definition of sustainability is, but lower input to get benefits. Habitat restoration. Urban environments. What do trees do in urban areas? All this needs to be addressed. We all have these climate debate issues now. Horticulture can address that particular topic. Food security, local food, the safeness of our food sources is something that's being talked about a lot, and it's really hard to totally encompass everything that's involved in consumer horticulture because it's such a very large area that we're working in.

Allen: I did talk about this, but we're seeing a lot of new research that's showing about the interior plants in hospitals and helping people's physical health but also their mental health.

Allen: Okay, so what about stuff that goes to the dump? In the United States there's nine million tons of compostable organic waste. This is household waste that's organic. It may come from the garden or landscape or from the home. This ends up in land fills. There was a study and it took a certain number of households. An average household can use 1,000 pounds of composted organic waste a year with just a little bit of effort. So if you take that 1,000 pounds and figure out how many households there are in the United States, we could take away that nine million tons. We could take away 45 million tons. So we're not utilizing some of these possibilities.

Allen: Pesticide use, water. Water is our most valuable resource. Without water we're not going to be able to do very much. A lot of pesticide issues being talked about in agriculture and in horticulture. We need to address this with IPM, with proper pesticides management, taking care of our water resources. Water is going to limit agriculture production and water is going to limit the world population at some time.

Allen: Invasive pests. A lot of these start in California or Florida. We get I'm not sure how many new invasive species into the United States every year or maybe it's something that's been here that's just now mushrooming out, but this is a threat to our agriculture industry and our horticulture industry. We need to be thinking about managing these kinds of problems. This is important in consumer horticulture too.

Allen: One thing about horticulture, it brings communities together. That's unique in the agriculture field. You have the producer end, and the producer end always seems to be where extension in research and education and outreach is, but we need to be doing some more of this end user kind of product. When you get

into the horticulture area, research for producers is good, but when you put a little bit of effort in to the end user you can really merge those two together and get a lot of positive results.

Allen: Top priority, we just want consumer horticulture to be more at the forefront. I was glad to see some of the 2017 notes on some of the priorities and issues that y'all saw with [nata 00:36:37] plants and environmental management, and I don't remember some of the other ones that were up there, but all of this is something that we need to be thinking about. I think the horticulture industry would like to see a NIFA working partnership with the Consumer Horticulture National Initiative and try to get some more funding for extension and outreach and try to transfer some of our research information that we have out to the gardening community. Anything that we do in horticulture improves quality of life. It improves how we feel about what's going on in our daily lives and to make us all better as far as connecting the producer end with the end user. Home gardens, home landscapings, farmer's markets ... All that's important for us.

Allen: Thank y'all. I didn't have a good ending there, but anyway ...

Mark Ladimore Jr. from Association of Exetension Administrators

Megan: Thank you. Next up we have Mark Ladimore Jr. from the Association of Extension Administrators.

Mark: Thank you Megan. Good morning. As stated, my name is Mark Ladimore and I currently serve as the administrator of 1890 cooperative extension and director of land grant affairs at Fort Valley State University in Georgia. I want to take this time first of all to thank NIFA director J. Scott Angle and his staff for providing this opportunity to us to provide input into the topic investing in science to transform lives.

Mark: Those of us who are close to the work oft times have valuable ideas and thoughts. We have those conversations and, "Well, try this way," so it is refreshing to have this opportunity to just share some of our thoughts this morning. So again, thank you.

Mark: Today I'm speaking on behalf of the Association of Extension Administrators, the 1890 Extension of Administrators, better known as AEA. AEA represents cooperative extension programs at the 1890 historically black land-grant universities. The organization is composed of extension administrators in those 18 states. That's 18 states. In one of the states we have more than one 1890 land-grant universities. I'm not going to have a quiz this morning.

Mark: The 1890 land-grant university spreads across the southern, northeast, as well as the central region. AEA represents those universities on matters pertaining to organization, policy, program, goals and strategies, legislation, and budgetary

concerns. As such, we consider NIFA a valued cooperative extension partner. Cooperative extensions have been built, as Dr. Eubanks indicated earlier, on a legacy of agriculture. Formerly 4-H, now 4-H Youth Development, Home Economics, found in consumer science now, and Community Development. In 2018 those four components of cooperative extension is just as valuable now as they were back then.

Mark: These programs are delivered to rural, tribal, and urban communities and play a critical role as we try to transform linkages between research and applications to the public. The 1890 Cooperative Extension Program assists diverse audience, but have specific emphasis on serving those who have limited resources and also limited social resources. This role is critical for NIFA as well and critical for helping assist the audience who oft time feel neglected, left out, and under represented.

Mark: With what I've just stated as my guiding principles, I would now like to address the three questions. Number one, in your field what is the most needed break through in science/technology that would advance agriculture enterprises? Number one, youth. Increasing the number of youth involved in agriculture and preparing them for the ever changing technical agriculture workforce. This is extremely critical today. Starting at the pre college level and promote youth interested in agriculture by creating opportunities for increasing employability skills. For example, the soft skills. The hands on experience is exceedingly critical. A group of educators from several universities in Georgia just recently ... educators as well as company managers ... formed a committee and just complete a survey looking at what's the challenges that's facing the future employees in the agriculture industry. One of the comments indicated moderately prepared students which means creativity, innovation, organizational planning skills, problem solving, decision making, team work, relationship building, and also communication skills. Those are things in which really stood out in the survey. These things came from individuals that's in the seat and have the authority to hire.

Mark: A second concern or thought here is increasing the profitability and sustainability of small scale agriculture. This would definitely help out limited resource farmers as well as alleviate a lot of the rural and urban poverty that we're presently dealing with today. Integration, as Gene indicated earlier, integration of the social and behavioral sciences ... This is extremely critical today. We need to do more of that in agriculture. Enhancing end users use of research education and extension. Really in solving those problems, those local problems, so anyway getting back to the basics. Access new technology. So in accessing these new technologies we need to engage and/or apply these technologies in businesses to help small farmers/small land owners to really enhance their operation. When we say new technology we're not necessarily talking about something that was just created this morning or yesterday. We know that with NRCF fund example that going back to the conservation practice that we used when I was an intern ... That was some time ago.

Mark: When considering all of agriculture ... This is the second question. When considering all of agriculture, what is the greatest challenge that should be addressed by NIFA's research, education, and extension? As stated earlier, integrating of all three functions of the land-grant mission with extension having a co leadership role. What this does is take that technology and it also ... not only technology ... take it to the local level and then if there's challenge at the local level we bring it back so we can engage in that research and be a stronger team than we are.

Mark: Understanding the foot and health and nutrition concerns related to the double incidents, obesity and undernutrition. Support increases in capacity funding for 1890/94/1862 institutions. Capacity funding enables the development of local relationships. It results in the development of the significant volunteer base, enable linkage with partner organization, and provides increased resources available to address many of the local, region, and also the national issues. We definitely need to focus on those capacity funding.

Mark: Support increase increase in capacity funding for 1890's Extension and Evan Allen research to equitable levels. Raising the level of the 1890 Extension and Evan Allen capacity funding to the authorized level of 20% of [inaudible 00:46:21], that is for the 1890 Extension, and also 30% of the [inaudible 00:46:27] fund respectively and that's for the research component. Those are the authorized levels, 20% extension and 30% for research. What this means is that we can enhance our program offering and working jointly with our 1862 colleagues we really can make more of an impact than we're making now.

Mark: Three, what is your top priority in food and agriculture research, extension, and education that NIFA should address? Nationally, as stated earlier, extension strategic priority reflects five broad base issues facing rural and urban America. When you really loo at it those five strategic priorities really covers the gambit. Nutrition, health, and wellness, 4-H positive youth development, water quality and use, food production and food security, community and economic developments. We definitely can give you an example with the hurricane, with Michael coming through southwest Georgia last week. NIFA is already engaged in these and what we're asking is that NIFA should continue to address these priorities.

Mark: Number two, corporate extension is instrumental in assuring that farmers grow as producers and consumers remain healthy and sustainable. This role would not be possible without significant public and private investment in corporate extension. With the influence with the resources that we get from NIFA we'll just enhance and grow that partnership which is definitely needed. We can't do it alone. Extension cannot do it alone. NIFA cannot do it alone. We need to engage the local community and we're asking NIFA to continue in those direction.

Mark: There appears to be a great deal of discussion and interest around SNAP-Education with EFNEP into a new nutritional program, educational program. That discussion is

ongoing now. What we're asking is that NIFA as we move would take steps to support the 1890 Land-grant University as it related to equitable partners in the program delivery in definite respective states.

Mark: Finally, we believe that relocating NIFA away from the capitol region will have profoundly negative and costly effects on the health of the National Land-grant University Extension teaching and research systems. The day to day interactions between NIFA and other federal agencies will plummet reducing the capacity for partnerships that align and strengthen outcomes for NIFA stakeholders. Meetings are easy to schedule and arrange on the web. Relationships are not. Thank you for your attention.

C. Ruben Walker from Southern University Agriculture Research & Extension

Megan: Thank you. Next we have C. Ruben Walker from Southern University Agriculture Research and Extension.

Ruben: Thank you, Megan. Good morning. I would like to do what our congressman often says. My written information is already sent, but I can just paraphrase before I get started. In specific, the greatest value challenge that we have is to show the importance of agriculture, family and consumer sciences, not only in rural America, urban America, but suburban America. That's our greatest challenge. Rural America understands it, but many times those in the suburbs do not. This is why we're having problems sometimes when our farm build because those who may be in the urban areas/suburban areas do not really fully understand.

Ruben: The most important break through as far as Southern University Ag Center, and it may I'm sure Louisiana State University Ag Center which is our flagship agricultural entity, is that we need to build human capital to reach more peoples and more perishes and other states, more counties.

Ruben: A personal priority or at the Southern University it is the most important thing. It's students. I want to touch upon those within my eight minutes left. I would like thank President Trump for selecting Secretary Sonny Perdue. He is an ag man, but not only that, he's an animal scientist like myself and he's a vet. So we really thank President Trump for selecting him as our 31st Secretary of Ag. We'd also like to thank NIFA. NIFA has been good to the land-grant system and non land-grant system. Louisiana State University for sure and Southern University as well. NIFA has been the bread and butter, Evans Allen facility funding, capacity building, and also agriculture in our every day lives.

Ruben: So two things I want to touch upon in the few minutes is that as far as suggestions ... Agriculture cuts across rural, suburban, and urban sectors of our nation. We know that the pig is used for humans. Bypass, heart valve from the pig is used to replace human heart valves. The make up that the beautiful ladies

that are here today are wearing, that was a rabbit, that was a chicken that the experiment was first done on to test the make up. Animal agriculture have an important role. This is where I'd like to commend NIFA for what they have done with the dual purpose research with NIH. For those of you who aren't familiar with it is that NIFA has a pot of money working with NIH and we know that NIH have about \$18.2 billion in research money. NIFA, maybe three/four million. When that was done several years ago, that is a good thing. To take NIFA funds, put those with NIH, we have a bigger pool and let's do things that would benefit human health. So I would like to encourage to continue to do that.

Ruben: One of the things I would like to suggest on that is ... Had a group of colleagues. We was liking to see additional centers where the grants go. There are centers when you write the grant it goes to the cancer center, it goes to different centers to be reviewed. We wrote one dealing with altering the sex ratio. If a dairy man can get more dairy heifers than dairy bulls, that benefits his bottom line. If the layers who is in the business of having more female chicks to lay eggs because a male can't, a rooster can't ... If you could alter the sex ratio from 50/50, it's better. The challenge that we had was it was difficult for us to find the place for that. So we would like to see in that dual purpose area that they would expand the centers where it goes. We're working on another one dealing with cancer. That's an easy one. When it's submitted it goes to the cancer center, the Kennedy Cancer Center. So I would suggest with NIFA partnering with NIH if they would expand that dual purpose research to more areas where grants go. We know that those who write grants, if it goes to the wrong area it's almost the death nail of your grant. I did put all this in writing.

Ruben: Also I would like to say that the second thing related to students, someone need to replace us. I'm 64 years old. Someone need to replace us. Students are so important. NIFA put out a report by Dr. Ali stating that 39% of the graduates that are needed would have to come from other areas. That mean that the ag family consumer sciences cannot fill those needs. I have had a pet peeve and on my bucket list is that there ought to be a way that there could be pilot programs of funding to encourage the land grants, the 106 and some of the other non land-grants is to add a family consumer sciences, to add the ag courses into the general education curriculum. If you have a shortage that 39% of your employees come from business, IT, lawyers, nurses, etc., that means that we may need to expose them at LSU, at a University of Florida, at Mississippi State, at a Fort Valley, at a Southern University.

Ruben: Let's expose them to agriculture the way we do in general education. And we know what that is, right? You have to take what? Two Englishes, two maths, two or three social science, a health. Why not add ag family consumer sciences courses into the general education? Child development can be used as a social science. Agriculture economics is a social science. We have animal genetics in my program. Why can't that be used as a natural science elective? Animal breeding which I teach, why couldn't that be used as a natural science? Business. We have agribusiness, agriculture economics. Why can't that not be

used? We teach biometrics in my department. Why can't that be used as a mathematics? In other words, find a way creativity.

Ruben: And if I'm a college president, if there was a pilot program F. King Alexander, Dr. Chancellor Ray Belton at Southern University, if there was a program they can apply for money to help get that going, I believe that would be attractive. That's not saying that they must take it, but at least add courses into the general education. The reason why is because 39% of the students that graduates come from other areas besides agriculture. So I would encourage if there is a way that that can be done. And I have some suggestions before I sit down.

Ruben: Oh by the way. I do things a little different. My name is C. Ruben Walker. I am the associated vice chancellor for strategic initiative and external engagement at Southern University and I'm also a professor in the department of animal science.

Ruben: Also I would like to say that some of the suggestions for that ... Our congress will always say, "How are you going to fund that?" NIFA would say, "How are we going to fund that?" We've got two minutes left. Some of the ways could be possible using the discretionary funds. Some of the program like capacity building grant. We could infuse that already into some of the guidelines already. These could be ways that would begin to get more peoples at our 106 land-grants. It's an ag school, but we do not have ag courses. There's a university in Ohio that have ag incorporated into the general education curriculum. We need to find other creative ways that that can be done.

Ruben: The four questions again, the greatest thing that we have I believe at Southern University that we have a need is students and retention because without them, there would be no individuals like the distinguished people that are here this morning. One of the greatest things that we need in terms of break throughs that we need is we need more personnel of all cultures, genders, orientations. In order to do that, you've got to make your facilities ... and that's why we thank NIFA for the facility funds. As Dr. Ladimore from a university we know that some of the 1890's may not have the facilities. But we need to upgrade our facilities and buildings. That way we'll make it more attractive for our international scientists and scientists that are here.

Ruben: So with that I would like to say the three questions have been addressed in a written text and I thank you all for listening to this brief expose on the three questions. Thank you.

Maggie Kyser from the National Young Farmers Coalition

Megan: Thank you. Next up we have Maggie Kyser from the National Young Farmers Coalition.

Maggie: Good morning everyone. As Megan said, my name is Maggie Kyser. I'm a farmer here in New Orleans and also a produce safety trainer for the National Young Farmers Coalition as well as an organizer for our local NYFC chapter, the Greater New Orleans Growers Alliance.

Maggie: The National Young Farmers Coalition represents, mobilizes, and engages young farmers and ranchers to ensure their success. With the goal of helping 25,000 young people enter into viable farming careers by 2022. NYFC tackles the critical structural and economic barriers that prevent motivated young people from starting and growing farm businesses. Since it was founded in 2010, NYFC has launched 41 farmer led chapters in 28 states including the Greater New Orleans Growers Alliance, or as we call it GNOGA. It has built a grassroots base of young farmers across the country.

Maggie: We help young farmers become leaders in their communities through chapter organizing. We address structural barriers facing young farmers through federal and state level advocacy. And we provide business services including tools, resources, and technical assistance to help them navigate business challenges and seize market opportunities.

Maggie: The Greater New Orleans Growers Alliance is a trade organization of growers and their allies, harnessing our collective power through mutual aid, logistical support, and shared resources in order to influence policy, create a just and sustainable food system, and enhance our economic viability.

Maggie: In January and February of 2017, the National Young Farmers Coalition conducted a National Young Farmers survey to help shape our work by finding out who are the next generation of farmers and what are their needs and challenges? We received responses from 3517 past, current, and aspiring farmers under the age of 40, from across the United States, and based on their responses, developed a policy platform to ensure that farmers today and future generations can continue to grow food for our nation. I have submitted our report and would like to share some of the results of that survey to help NIFA develop the research, extension, and education priorities.

Maggie: Farmers over the age of 65 now outnumber farmers under 35 by a margin of six to one. And nearly two thirds of farm land is currently managed by someone over 55. In Louisiana, 34% of farms are managed by farmers over 65 years old. Of the farmers that are 44 or younger, currently farming fruits and vegetables in this state, only 29% list farming as their primary occupation. With so many farmers leaving the industry and so few able to step in and take their place, NIFA should prioritize support for the next generation of farmers and ranchers.

Maggie: Young farmers face serious obstacles to launching and growing their farm businesses. They can't afford farmland or find available farmland. Student debt is compromising their ability to access capital, and adequate labor and support staff are difficult to recruit. Federal and state policies are under-serving these needs and many young farmers face barriers to accessing these programs that

are designed to help them. The New Orleans food policy advisory committee in 2017, in their 2017 Food Policy Assessment reported that while schools, businesses and institutions desire buying and serving more local food, there were barriers to do so.

Maggie: Farmers did not feel adequately prepared to sell to large buyers. They lacked knowledge about growing to scale, policy and licensing needs, and they struggled with appropriate marketing and outreach, as well as land access and financing. Similarly, a study by the Acadiana Food Alliance in 2017 of farms in southwestern Louisiana found that their region needs both more and better trained farmers. Furthermore, one of the top three barriers to entry of young farmers who took the young farmer survey in 2017 was lack of training opportunities to get the knowledge and skills necessary to be successful, such as accessing capital, business planning and land transition, all of which can help a beginning farmer go from a struggling operation to a viable business.

Maggie: NIFA should prioritize young and beginning farmer training and programs like the Beginning Farmer and Rancher Development program, and offer support to young farmers in the following three areas: agricultural land transition, modernizing technical assistance to meet the needs of the changing face of agriculture, and resources for on-farm adaptation to climate change. Land access is one of the biggest challenges young farmers face when starting their business. In the young farmer survey, land access was the top challenge cited by current farmers, aspiring farmers, and those who have stopped farming. 39% of respondents who are current farmers cited land access as a significant challenge, and 17% calling it the most significant challenge that they face.

Maggie: NIFA's education and extension programs are well poised to train, retiring farmers to transition their operations and beginning farmers to access land and the capital required to purchase it. Training to aid and farm transitions can help this new diverse population get the headstart that has benefited generational family farms in the past while there is a supply of farms to be passed to a new population of farmers. NIFA should prioritize programs that address gradual and intentional farm transition, planning to different audiences who will farm with a modern approach for decades to come. NIFA programs can incorporate farmland, transition into existing programs, especially those focused on young farmer training, such as BFRDP. A new BFRDP grant was recently awarded here in Louisiana, which is the second one ever awarded in the state. It is currently recruiting its inaugural class of beginning farmers for the Grow Louisiana Beginning Farmer Training and Program.

Maggie: The program will serve as Louisiana's first statewide, extensive, year-long, sustainable agricultural education program that provides technical, business, and hands-on training to beginning farmers, building a longterm support system for them here in Louisiana. Programs like these lead to farmers who are more confident and successful in their farming ventures, and build communities of beginning farmers for continued support, mentoring, and information exchange. Prioritizing programs like this can encourage and support farmland transition.

Maggie: The new generation of farmers is more diverse than previous generations. It includes more women, people of color, and first generation farmers. These farmers have more diversified operations, are increasingly located in urban areas, and are marketing using new and different channels. However, research and training has not kept up with the changing demographics of farmers and methods of production. Through your programs, NIFA should ensure that all education and extension programs are geared towards this new diverse group of farmers and farm operations, and that extension agents and other service providers are trained to work with people of varied races, genders, and cultures.

Maggie: With the increase in urban ag, and farms with diversified crops and livestock, extension agents and service providers also need to be prepared to work with many different types of operations. In an urban setting, food production is inextricably linked to food access. The national average for grocery stores is one store for every 8500 people, whereas New Orleans has only one for every 14 thousand people. Urban farmers see this need and neighborhoods that do not have a grocery store often have higher concentrations of urban farms. However, farming in these areas is very different than farming and rural settings.

Maggie: Urban farmers usually operate on very small scale and have different needs and challenges when it comes to managing soil, water, markets, and food safety. Additionally, NIFA should consider the demographics of those that work with farmers and ranchers. To serve a diverse population, USDA and its partners need a diverse workforce to reflect the changing demographics of the farm and ranch population.

Maggie: Lastly, one of the major challenges to the next generation of young farmers and ranchers is climate change. In NYFC's young farmer survey, 66% of young farmers have experienced unpredictable weather, more severe storms, and increased pest pressure, uncertainty in water supply and/or rate of disease. In the coastal environment of New Orleans, we see an ever-increasing threat of storm and severe weather. We lose an acre of wetlands every hour, which provide vital protection from hurricanes, storm surge and flooding. Wetlands sequester carbon, so wetland loss further exacerbates climate change.

Maggie: Programs like the Sustainable Agricultural Research and Education or SARE Program, can provide vital research on how young farmers can adapt to a changing climate and be resilient in the event of floods and severe weather. And NIFA should prioritize climate change and climate adaptation into all your research and education programs. As severe weather becomes more frequent and intensifies, all farmers will need to build their on-farm resilience. Building healthy soils and other on-farm conservation practices can help farmers weather storms and floods. Soil health can also aid in carbon sequestration and lead to healthier crops with higher yields. However, soil health practices and areas like New Orleans look very different than soil health practices in the Midwest.

Maggie: More research is needed on how to build soil health in coastal areas, subtropical climates, and areas with high precipitation. This includes research on climate-appropriate cover crops for soil retention, alt and toxin abatement, nutrient replenishment, and methods of reduced tillage or no till cover crop systems in warm and no frost climates, as well as seed saving for climate appropriate varieties. Additionally, technical assistance providers and education programs need to be well versed in soil health and climate resilience and be able to provide guidance on building healthy soils, planting trees, and reintroducing animals to mitigate land loss and climate change by sequestering carbon, reducing runoff, and reducing the need for fertilizer and pesticides. Thank you for your time and opportunity to discuss the needs of young and beginning farmers here in Louisiana and across the country.

Rogers Leonard from Louisiana State University Agriculture Center

Megan: Thanks. Maggie. Next, we have Rogers Leonard from Louisiana State University Agriculture Center, LSU AG center. Thank you.

Rogers: Well, good morning.

Speaker 1: Good morning.

Rogers: And I would like to add my welcome to New Orleans as well for our team from NIFA today. It's wonderful to have you here. My name is Rogers Leonard and I currently serve as the associate vice president for agricultural and natural resource programs with the Louisiana State University Agricultural Center. My oversight encompasses both research efforts in the experiment station, in outreach programs for cooperative extension in these areas. Currently, I also serve as the chief operating officer for the Louisiana Agricultural Experiment Station. In this capacity, I have the opportunity and pleasure to travel the entire state and interact with our stakeholders, farmers, ranchers, foresters, and many other segments of agricultural industries. The LSU AG center works very closely with many state agencies, including the Louisiana Department of Agriculture and Forestry, Louisiana Department of Environmental Quality, Department of Wildlife and Fisheries, as well as Louisiana Farm Bureau Federation, and many of the animal and plant commodity organizations. Therefore, my comments this morning will represent priorities for the AG center, but what I will also refer to is somewhat collaborative for all Louisiana agriculture.

Rogers: It's very important that NIFA take this opportunity to hold stakeholder listening sessions across the US. I applaud the team for doing this for a number of reasons. It certainly is one approach to learn about local and regional agricultural needs. The only way to find that out is to listen to the people. It is our hope that you will use this information in the decision making process for establishing future research in extension outreach priorities. I also recommend that you take the opportunity to attack or approach some of our younger producers in different ways out there today. Many of our millennials, for

example, like online surveys and they like to be targeted and this may be a better approach to try to understand their current and longterm needs.

Rogers: One thing I think we can all agree on is there's never too much information when we're trying to prioritize in this type of process. During your assessment, I might remind you that one key challenge is to remember that many of the smaller programs that are funded by NIFA, and I'll give a couple of examples, R4, CIRI, and Extension IPM are critically important to the state and regional stakeholders. And much of that is what makes it out to the public. The LSU AG Center's research and extension programs, together with Southern University, represent a pillar supporting Louisiana agriculture. And USDA NIFA is a partner, supporting many of our projects through its capacity and competitive funding lines. We could not get our job done without federal support, and we try to acknowledge that assistance everywhere possible.

Rogers: There are numerous examples of past successes through the AG Center's partnership with NIFA that should be continued. Just saying we have new initiatives will not continue to meet the challenges that we have and have had for the last 100 years or longer. Many of these areas generally include the current and new technologies enhancing the quality and efficiency of agricultural production, natural resource conservation that has already been talked about this morning, risk management at all levels of agriculture based on the issues that we have with climate variability or climate change, youth and youth-adult ... Excuse me, and young adult education, and then human health initiatives.

Rogers: So with that I'll try to briefly address the three questions that were posed to us in the request. What's the greatest challenge it should be addressed by NIFA's research, education and extension programs? I personally find this a very difficult question to address, as many others would likely suggest, given the breadth of research, productivity, and future needs for Louisiana agriculture. I'm sure that many will target a specific focus area, so I'll try to take a different approach. I want to talk about an administrative issue, if I may. Flexibility in funding programs, either through the capacity or competitive funding process, to address real time needs is critical for the science to move forward on a timely basis. Being somewhat proactive with funding opportunities in this area is much more important than trying to be reactive.

Rogers: Think about the storms they just went through and all the effects on agriculture in the southeastern United States right now. There will be a number of questions and attempts to get funding to support those areas. You cannot predict those sorts of events. Examples of invasive species, we've already heard about that this morning. Agricultural pest outbreaks and crisis management, from natural or manmade disasters are representative candidates for researchable topics in extension education. As I've said, many of these issues cannot be predicted, and the process for postmortem funding is simply too late and after the fact.

Rogers: Timely research projects and efficient technology transfer addressing stakeholder's needs is necessary for a sustainable crop and animal production. Commodity production input cost are currently at levels that make it difficult for our ranchers and crop producers to sustain catastrophic losses in successive seasons and ever recover. This is why it's difficult for young farmers to get into agriculture. Flexible funding initiatives which integrate research and extension for these emerging issues should remain a priority. All of NIFA's challenged areas are equally important. I don't think anyone would challenge anyone on that at this point, but addressing current on-farm, on-ranch issues identified by the land grant universities and the commodity organizations needs to be considered.

Rogers: In addition, we believe that NIFA's current capacity programs, all of them, including Hatch, Smith-Lever, Mac-Stennis, animal health, addressing current and future food security, and enhanced efficiency of food utilization should be maintained. These funds, allow states to address many of these emerging issues that are not identified as national priorities, but they are critical to local and state stakeholders. These programs offer funding to support these defined needs, and that would otherwise have limited stakeholder opportunities for crop and animal production and natural resource management.

Rogers: The second question, what is the most needed breakthrough in science technology that would advance the agricultural enterprises? We must continue to advance yields and quality of crops and livestock. Novel Cultivar and breed development is critical to meet the challenges of food security needs for the next two decades. Stakeholder expectations for higher food production and improve food quality dictate research on these topics. Variety and breed performance continues to improve, but adaptations to climate variability or change require scientists to remain village in their work.

Rogers: The LSU AG Center continues to experience significant successes in breeding work with crops such as rice, sugar cane, sweet potato, and wheat. Those are just a few. The results of this research support sustainable solutions to climate variability and those otherwise detrimental effects on agriculture. In addition, there's been a more shift to healthy diets, an example of that is the Mediterranean diet, which are more plant-based. This will further require research funding to support this change for folks to look at all the necessary components as we move to plant-based diets. Biotechnology represents a wide range of important tools and should be included in this process as well. Recent history has demonstrated that public discovery to incorporate novel ... Excuse me, public discovery of these tools allow the university and commercial breeders to reduce the overall time to incorporate novel traits in the plant varieties or animal breeds.

Rogers: It's just as important to recognize that many of the advances to this date in plant variety and animal brain development are a function of conventional practices. Research must identify the biological factors that limit progress in both of these areas, and our scientists must diligently worked to overcome

those barriers to progress. New varieties in animal breeds adopted by stakeholders do result in transformative changes in knowledge, technology, and behavior. In addition, our stakeholders are demanding full disclosure today for food production and food safety, so research process and comprehensive records must be documented throughout the food chain, from seed as a new variety, to sale food product for all new agricultural product.

Rogers: Question number three, what is your top priority in food and agricultural research extension or education that NIFA should address? For this one, I chose to continue on an initiative and vision that the previous administration of NIFA recommended and really just started on. Digital agricultural research, education, and outreach programs are incredibly cross-cutting, and this covers many numerous disciplines and they have value throughout the complete food chain. The banking and medical industries use these types of data on a daily basis. However, agriculture is lagging behind in the adoption of many of these information technologies, but when we really look closely, agriculture probably stands to benefit more than many other US industrial segments.

Rogers: The information that a farmer collects has not only value to him, but when aggregated with that of other producers, it offers patterns of information that have tremendous worth to the overall industry. In fact, if we think closely, this type of information could be considered as a value-added opportunity for future farming operations by adding value to each acre of land out there today. US farmers are purchasing agricultural equipment, tractors, different types of fertilizer and pesticide applicators that all contain a variety of sensors and data storage devices. They can't buy a Fiat anymore, they have to buy a Rolls Royce simply because everything is coming with this equipment.

Rogers: Engineering is ahead of implementation by agricultural producers in this respect. Beyond this on-site, mechanical, real-time data collection, there appears to be no limitation to the amount or diversity of public information available, but the limiting factor is education of agricultural stakeholders to integrate that information into their daily decision making process. A noteworthy example of this is the remote collection of weather information that's global and easily accessible. Integration of this information into many agricultural applications is limited. It's most commonly used by very large commercial operations, service providers, and of course the government.

Rogers: Beyond the crop and animal production levels. Digital agricultural information has relevance in distribution, processing, and sales operations. Accessibility to information throughout the complete food production chain is becoming more common. The real value is integration into one or more levels for overall decision making as we move forward, not simply at production, not simply at the distribution level. Digital agriculture for the future dictates additional support for all three missions, research, extension, and teaching. My comments today have focused on a few different topics, but clearly support a request for NIFA to continue its focus on access to a safe and plentiful food supply to improve human health both in the US. This 2018 listening event here in New

Orleans has allows stakeholders to provide impact on those questions. Thank you for the opportunity to have you as an audience this morning. I hope the rest of your trip goes well and enjoy the city and the food. Thank you.

Jeffrey LeBlanc from Dr. Chou Technologies, Inc

Megan: Thank you. Actually, one of our NIFA staff found out this morning that the Cafe Du Monde was started in 1862, the same year as the land grant universities. So we're exploring a little. Next up, we have Jeffrey LeBlanc from Dr. Chou Technologies, Inc. Great.

Jeffrey: Okay. Good morning and thank you. As the only speaker this morning from a small business and agriculture, I believe that I have some valid and important story to share with you guys. So, we are a recent recipient of ... And I also want to start off with commending NIFA for having an event such as this, for taking feedback from your stakeholders. So we are recent recipient of a NIFA SBIR, phase one grant. I think the fact that NIFA has an SBIR program is commendable. I would encourage that the phase one rounds of funding maybe increased to stay on the same tiers as those from DOE and NSF.

Jeffrey: So our NSF ... I'm going to share with you guys what the project is going to be on. It is on the production of refined cane sugar, from a sugar mill, without an attached refinery. So as you see in the slides, you'll have cane directly from the field being led to a CTI process and the result is going to be a white refined sugar that you can use, that is commercially available. Our team at CTI is myself, Dr. Jeff LeBlanc. I have a PhD in chemical engineering and seven year's experience in R and D and laboratory experience. Dr. Chou is a world renowned sugar technologist. He's written two handbooks published by John Wiley and Sons used in the industry. He has about 50 years experience in consulting, R and D, and commercial sugar plant design.

Jeffrey: And we're also teaming up with the University of Louisiana, the lab of Dr. William Sheridan is assisting us. Okay. Is the slide not working? Next slide please. Okay. So the goal of the project is a nothing short of development of a novel, cost effective, commercial process for producing white sugar directly from cane without an attached refinery. I'm going to explain exactly what that means later on in the slide for those who are not familiar. For phase one of the grant, we're going to be dealing with the laboratory and bench scale demonstration of the process. This process is six unit operations between the raw cane stalk to the refined sugar process. There is no transportation between the sugar mill and refinery. The white sugar comes from the mill.

Jeffrey: Phase two of the project is going to involve a pilot scale demonstration with an existing mill here in Louisiana. And this grant supports NIFA and SBIR's goals to create innovative, disruptive technologies in regards to agriculture related manufacturing technology and energy efficiency. Okay, so the timeline on the project, it technically started September 1st 2018. However, I received my

password this morning on my way to this meeting to actually access my funds for the project. So we're about a month and a half in and haven't even seen the money yet, but good thing we have a young and ambitious team to get this project done.

Jeffrey: And so the project end date is April 30th, 2019. Like I said before, the two partnering entities are Dr. Chou Technologies and the University of Louisiana Lafayette Chemical Engineering Department. Below, we have how the effort's going to be split up, about 75% of the project is going to be handled by Dr. Chou Technologies and we'll have support from the lab at University of Louisiana. From the lab, we will be more mentoring a PhD student working directly along with two CTI engineers, me and Dr, Chou, as well as the professor, Dr. William Sheridan.

Jeffrey: Okay, so some context on the proposal. This is the WASDE USDA plot for the past three years, as well as the projections into next year. Basically, it has the breakdown of sugar production for the entire nation, but separated by the three states which are producing sugar from cane. The number that is important on this slide is this total refinery supply. So this is the amount of sugar that is coming from cane in the United States. And the reason why that number is important is because generally, you need about 1.2 tons of steam to refine one ton of raw sugar. So this translates to about 11 million tons of steam required per year to make sugar. So the monetary value of that is about \$200 million per year. The CO2 related to producing that steam is about 1.5 million tons per year. This is about 27 peta joules of heat.

Jeffrey: Peta joules, that's 10 to the 15. So this is a huge amount of energy. All of these assumptions are based on 85% boiler efficiency and neglecting transportation. So these are very conservative numbers right here. So there's a lot of energy being wasted. The one step process that we're proposing will reduce the amount of steam required to .65 tons of steam per one ton of raw sugar fed to the process. Like I said, this due to that reduction in the number of unit operations.

Jeffrey: So for those who don't know, the way sugar's produced, it's basically three steps. So sugar cane is growing out in the fields, which is then transported by truck to the mill. At the mill, it goes through usually about four or five unit operations in order to produce raw sugar. The raw sugar is not a food commodity. That raw sugar, the only thing you can do with that is sell that to a mill. It goes ... I mean, sell that to a refinery. Those are getting trucked over from the mill to the refinery, then refined to produce the raw sugar through another 10 or more unit operation steps.

Jeffrey: So we've been doing this for about 50 years in this type of process. So nowadays, the more progressive mills, what they do is they refine the mill and they have the refinery on site. We're even going to further intensify the process to do the entire process in six steps. And by the way, so this process, the other crop that we get sugar from is beets. Beets is a one step process. You bring the

beets in, you slice them up, you make the juice, you clarify that juice, carbonate that juice, evaporate it, and then crystallize it and you have the white sugar. So the way we designed the process is we looked at what are the main differences between cane juice and between beet juice, and how do we design a process in order to emulate that for the beet juice? Main differences come down to the fact that cane has more calcium, more invert sugar, more polysaccharides, and a lot less less sodium. Okay, so we actually have to add sodium into the cane in order to ease processing process. We already have a patent on the process, Dr. Chou actually got a patent in this in 2006.

Jeffrey: So we're ... and our ... the first step of our ... or one of the research objectives for the project, is to verify that once that process as proposed into the patent, and then develop our own data to do a scale-up of the process. Okay?

Jeffrey: However, the ... one of the important parts I wanna talk about today is this market survey of refined sugar products, with respect to quality, particularly color. Okay. So ... the story behind color is that ... sorry ... excellent ... story on color is that US food grade requirements only have requirements on your heavy metal concentration and your microbial count. It has nothing to do with color. The reason why sugar mills design to a lower color output is because Coca-Cola required a net input of 20 to 25 ICUMSA, which is the international unit for color of sugars.

Jeffrey: As we all know, Coca-Cola does not use cane sugar anymore, they use high fructose corn syrup. However, so we're still designing mills to produce down to this color spec when we actually don't have to get that low. So our first metric for designing our mill is actually just getting ... an idea of what is the perceived refined white sugar color. So we're doing a survey across the nation, at least five different states, getting three different distributors from each one of those states and three different packaged sugar products from there, in order to determine what an actual national average is. We're gonna do at least 30, we're at 18 right now, and the average is about 47 color. Okay.

Jeffrey: And the reason why that's a big deal is because if you're designing a plant, it's easy to get a color of 150, 200. Okay. That's a very easy process to do. You have to pump in lot more energy in order to bring it down to 35, 20 color. Okay. So here this goes into the unit operation process, I'm not gonna belabor this too much, but basically here are the four steps that we're looking at the laboratory scale along with the Ph.D. student.

Jeffrey: So some quick conclusions is that this is a process that combines the roles of a cane sugar mill and a sugar refinery. The one step process promises to save energy, labor, water, greenhouse gas production, from the sugar cane production process. On the note of the social effect of this, is that this problem actually becomes a worldwide need with respect to health, if you're talking about combating sulphitation of sugar, okay.

Jeffrey: Most sugar produced in the world, not in the United States, nobody produces ... so if you produce sugar through the sulphitation process it's called plantation white sugar. Bulk of the sugar in the world is plantation white sugar, which was produced by using sulfur dioxide as a bleaching additive. We don't do any of that here, but what happens in those processes is usually the heavy metal counts are not down to the requirement, and they actually just bleach it in order to et the appearance of the refined white sugar color.

Jeffrey: So, if this process can be made commercial and replace those sulphitation processes across the world, this is addressing worldwide health need. So the research objectives one and two have already been initiated in the first month of the project, and like I said, by April, is when we're finishing off this project. If I have one more minute, I just want to address a couple of the questions that came from ... along in the mail, or in the email?

Jeffrey: So what is the greatest challenge that should be addressed through NIFAs research, education and extension programs? One, technical. Not only technical aspects of the work but they also need to be transformative. I do applaud, I think that is included in the description, and I do applaud that, but you know, in cane sugar, we're battling ... with technology, we're battling the status quo. You know, they just say, "Hey, we've been doing this for 50 years, if it's not broke, don't fix it," well the reason why we wanna fix it is because we can reduce that steam consumption by nearly half, which is a huge process intensification.

Jeffrey: What is most needed breakthrough in science technology, in your agriculture enterprise? Mine's obviously going to be this one step sugar process. What is your top priority for food and agriculture research extension, or education that NIFA should address? And my answer to that is transitioning to the bio-economy, okay? So bio-refineries today or ... the way we look at ... there's a term, bio-refinery, in the scientific community, bio-refineries already exist today in forms of plant mills ... pulp and paper mills, sugar mills, distilleries, so on and so forth.

Jeffrey: The way you transition into a bio-economy, is you capitalize on the byproducts that come from those refineries in order to produce high value products that can feed into the bio-economy. You know, for instance, taking sugars from, you know, bagasse, or lignin from bagasse, and upgrading that into a manufacture ... an engineering material that can be used for other applications, okay.

Jeffrey: And so, those are all my comments.

Megan: Thanks so much. We have actually reached the time of the day that we were intending to take a break? We had one more speaker, before this break, but we're gonna push Kamran Abdollahi to after the break, so we'll take a short break, come back in 20 minutes, at 10:30 and actually, once you take that break, if you could come back 10:25, we'd like to take a group picture of everyone that came out this morning. So thank you.

Megan: Hey everyone, if you could please take your seat, we're actually gonna postpone the photo until after the session today, we'll just get started with our remaining presenters this morning.

Kamran Abdollahi from Southern University and A&M

Megan: All right. Thank you everyone. Next up we have Kamran Abdollahi from Southern University.

Kamran: Thank you.

Megan: Thank you.

Kamran: Thank you, good morning. It is wonderful to be here in front of you this morning, I didn't know what I'm gonna get into when I answered my email, I said, wow, this is turning out to be a conference and something ... but honestly I appreciate it, I appreciate NIFA, some of our esteemed colleagues, administrators, prior to me mentioned the importance of NIFA, importance of some of the things we are doing.

Kamran: So for the sake of time and not overlapping, I'm gonna forgo some of the introductory things that I had in mind to mention, but again thanks to those colleagues that ... Dr. Walker, Dr. Johnson, Dr. Eubanks, you know, all of us, Mr. Allen, you know others that have already mentioned many of these things that I wanted to say.

Kamran: But anyway, I'm gonna stay with the answers that I gave when it came to, what are the importances and what is the importance in my field. I happen to work with some of ... some entities like National Association of University Forest Resource Programs, sat on the advisory council to the USDA Secretary on Urban and Community Forestry, and some of these things that I'm gonna inject in there are part of the strategic plans that have already been put out, and we hope the secretary gets to read some of those. And I'm sure NIFA, which has been a tremendous partner in education research and extension, I'm sure, you know, they would be in a position to get some of these issues or comments to higher levels, so we can actually get more investment.

Kamran: So with that said, I just ... that the major pillars of NIFA, the education, research, extension services of ... by ... the diverse work force and for a diverse population, is really what I kind of ... I have gotten over all these years of working with university and in partnership with federal government and industries. It boils down to helping people, Dr. Walker mentioned the students, I would say we need our communities. Communities are important, so we are serving our communities at local, state, federal ... Any entity that you can imagine we are somehow, somewhat, responsible or accountable to.

Kamran: The other aspect as it relates to NIFA is the importance of capacity building. Capacity building has helped us, so I can attest to that, our program has benefited, flourished, has been able to serve the constituents and beyond? All of those because of capacity building, okay? And there's a great appreciation for other programs, but capacity building, when you don't have capacity you won't be able to do anything. So, capacity building has been tremendous. With that said, one question asked, what are the greatest challenge, or what is the greatest challenge, and I guess it's there already.

Kamran: Let me push this button here, and advance it. Okay. Our indicator to better preserve and utilize our fragile ecosystem for optimizing human food, safety, protection, health, and prosperity. Now those are the things that came to my mind, you know, as I was trying to group these together. Use of words, but most of the time we tend to leave somebody behind in terms of when we try to describe what we do, so the inclusionary approach, I think that would help us would be to look at our ecosystems, and it's not just me but it's the science behind it that brings more and more entities together. So if you think about ecosystems, or ecosystem approach, then we have common ground as opposed to just simply describing our niche, what we are doing.

Kamran: Like for example, I'm doing urban and community forestry. But when you come into preserving ecosystem, we can still include urban forestry and so many other entities. It's great to be in Louisiana, NIFA. Being here, you can actually see how fragile our ecosystem, or ecosystems, are. And I think investing in that, to better preserve it ... Because if you don't have it, you won't be able to use any amenities from that. So therefore we need to look at these fragile ecosystems. So identifying, being able to create baseline for those data, and being able to describe, and then being able to even quantify the services that they provide, would enable us to better program and manage and be able to serve people as it relates to food, safety, protection, health, and prosperity, and beyond. Now, maybe prosperity, economic prosperity, you can name all of those under that, would encompass.

Kamran: So therefore encompassing those are really important. The other one is the major things, distressors we are facing, whether it is climatic, or whether it is humanly induced, et cetera, those are really causin' a strain, and those are the ones that we end up dealing with because they're measurable. The strains are measurable and you will be able to look at those. So if you leave climate change and look at just flooding, or drought, the impact that it would have on crops or ecosystem in general, then you would have a better appreciation there for the investment needs that we need to do.

Kamran: So I thought that our challenge is really to preserve our ecosystems, as it relates to my field, and also other some fields. The other question that was raised was as it relates to: what are the most needed breakthrough in science and technology as it relates to my field?

Kamran: So I'll try to put that together. Again, I could have been a little bit selfish, put my project in there and say what I'm doin', but I was thinking that in order to make sure that we have consensus at least on moving forward with investment into these areas, I realized that my field wouldn't have been able to thrive without utilization of high-tech ecosystem models, for example. I have worked with one of the models like i-Tree as it relates to urban forestry and it has been great in terms of quantifying the ecosystem services, and now it's getting to be more like social services and so on and so forth. But it has created a platform for convincing others to look at this ecosystem.

Kamran: Remote sensing technologies or tools, GIS technologies, robotics, innovative bio-products, and nanotechnology. The beauty of those are that those things brings us together. Again, common platform. I come from, my first discipline was agricultural engineering, and then I moved to forestry and eco-physiology. I started building an appreciation for teamwork and looking at common things that bring us together. So investing in those things such as remote sensing, GIS technologies, and their applications to our field would allow us to move forward. And I thought those are tremendously important in my field.

Kamran: The next question was: as it relates, what are the high priorities, or what should be? Again, there are many priorities, but I think the most important ones are really putting investment or funding for research and teaching. Now, in this case, since I am putting ecosystem at the center, so ecosystem restoration is one to look at. The other one is climate change. Now, science backs it up. And science backs it, and we want to be true to what science says, we need to follow that. So I think there should be investment in that. And, now, whether you wanna call climatic changes causing flooding, and drought, and so on and so forth ... That is just use of term. But those stressors, as I mentioned, are causing the strains, and we need to cope with those, we need to be able to have mechanisms for adaptation and even mitigation.

Kamran: So, with that said, the other one is enhancing partnership and collaborative ventures. Many of you mentioned that: "I don't know how my program would have been able to survive without collaboration or partnership." So I think that's one of those major pillars that needs to be more invested in. There should be more programs enticing more partnerships, collaborations. But not taking the investment off of table, and say, partner together for efficiency is great, but let's invest additional funding or dollars into partnerships and collaborative ventures.

Kamran: Investing in bio-products research and development ... Just notice the one gentleman just gave us a good discussion of his project. But bio-products, these are the things that are causing tremendous stress on our ecosystems. Our ecosystems, you know they have inputs and they have outputs. Some of those wastes could come to be producing additional products for us.

Kamran: Investing in bio-technologies goes without saying, that those are the drivers of pushing forward some of the innovative approaches and products in our fields.

Kamran: Investing in environmental remediation, especially where we are, in Louisiana. We appreciate the need for that, but it's not just Louisiana, but it's around the country. We have to preserve the environment, otherwise we would not even be sitting here and talking about additional investment into our future.

Kamran: Investing in risk and disaster mitigation. I think several of you mentioned that, but it is vital to us here. We are talking about communities. They call us resilient communities, but let's face it: we are communities that are bein' hit by many disasters. Risk assessments can be done way prior to that. Mitigation can be in place if we do have investment in R&D to create better opportunity for us to deal with that. And, of course, policy-makers are thirsty to receive all of these, and we need to be able to give that to them.

Kamran: Investing in biofuel and bio-economy R&D. Someone mentioned to me: "I submitted a bio-energy capacity-building grant, Dr. Johnson, it didn't get funded." The need for biofuel and bio-energies, they are just ... Few days ago we just heard in Iowa the importance of creating opportunities for our farmers. This is another layer or opportunity to help farmers and also put biofuel into the nation's alternative energy source, so we can be self-sufficient or enhance the security.

Kamran: So, anyway, with that said, bio-economy is the last one I put in there. One person mentioned that. I think that's where we're headed. So let's push for that, but thank you very much for your audience.

Megan: Thank you.

Charles Magee from Florida A&M University

Megan: Next, we have Charles Magee, from Florida Agricultural and Mechanical University.

Charles: Good morning.

Charles: As Megan said, I'm Charles Magee, Professor of Biological Systems Engineering at Florida Agricultural and Mechanical University.

Charles: I sent the abstract in, and my top priority, the greatest challenge that I think we face is: human capital development in the STEM field, especially at the graduate level. But before I give you the reason, talk about that even further, we have anybody from NRCS in here?

Charles: Even though we don't have anyone from NRCS, every opportunity I get I like to thank NRCS for what they have done for us at Florida Agricultural and Mechanical University, and specifically in the Biological Systems Engineering Program. Without NRCS, we wouldn't exist today. Our program wouldn't exist today. Nah.

Charles: We are educators, extension, research, teaching. You know, a lot of times we put ourselves in a silo. "I'm extension." "I'm research." "I'm teaching." And this is what I do. And they always say that education should be treated like a business at University. It is a business, but it's not a business to make a profit, it's a business to produce a product. That's what it is, that's what we do, okay? So all of us, whether you extension, research, or extension, or education, we are in the business of human capital development.

Charles: Now, the three questions that you sent out, it's gonna take human capital to advance all of 'em. Especially in the STEM field. And I listed as my top priority: the greatest challenge we have in education, and I consider all the agricultural sciences, STEM program, the challenge we have is the like of advanced education for underrepresented groups. I won't say that's the only problem, but that's one of the main problems. That's where we have fallen short, okay? STEM education for underrepresented groups.

Charles: Now, I'll go back to NRCS. We enter into the Biological Systems Engineering Program at FAMU, it started in 1996. There are only two historically black universities with an ABET-accredited biological systems engineering, biology, and agricultural, whatever name you wanna call it. There are only two programs. So, NRCS has been the lifeblood of our program. In initiating the program as well as sustainin' it. And the way they have sustained the program is by providin' us with scholarship funds to recruit students that wanna go into this type of engineerin'.

Charles: Now, and let me give you some of the results. So the program started, we admitted the first class in 1996, we had our first graduate in 2000. And from that point on, we have graduated 64 students from the program. In our original mission statement, our goal was to create a pipeline for these biological systems engineering students to continue on and get advanced degrees. Over the last eight to seventeen years, since 2001 I should say, more than 40 percent of our graduates have attended graduate school to pursue advanced degrees. And outta that 40 percent, about 90 percent of 'em pursue graduate study in STEM fields, okay?

Charles: So over the years, I have heard so many STEM administrators say: "We just can't find qualified African-Americans," I should put that in quotation marks, too, the "qualified" part, "that wanna pursue these types of degrees." I don't buy that, 'cause we have demonstrated at FAMU that we can find the students, we got the students, and we can get 'em to go to graduate school, okay? So NRCS, in addition, they said, "We will give you a certain amount of money each year to recruit students, and the only obligation you have to us is to make these students available for us to do summer internships." That is part of our agreement with NRCS, and that's what we have done, and they said: "We just want to diversify our technical workforce," or "We wanna help diversify the technical workforce for USDA."

Charles: Now, lemme give you some numbers, what has happened. Our first graduate was in 2000, and as I said before, 40 percent of our graduates have gone onto graduate school at 25-plus universities, to pursue advanced degrees. And most of these were in STEM fields. Now, out of our 64 graduates that we have had, that's not many, that's only about three per year ... Out of that 64 graduates, 10 of 'em have already earned a PhD in a STEM field. Three of 'em got PhDs in biological-ag engineerin'. Two of 'em got PhDs in molecular biology. We had one PhD in biomedical engineerin'. We had one PhD in environmental toxicology. We had one PhD in civil engineerin', and we had one to et a PhD in sociology. And we had one to get a PhD in higher education administration.

Charles: Now, you might say: "Oh, 10, that's not a lot." It is a lot, when you think about it. We got at least, I dunno, let's say we got 1,000 schools that offer STEM programs, okay? And if our 1,000 schools had 10 graduates to go on, especially underrepresented groups graduates, to go on to get a PhD in the last ten years, 'cause that's what I'm talkin' about, a 10-year-window, we would have 10,000 underrepresented PhDs. So the way I see it: if you a director or chair of a department, and if you can't produce one PhD, underrepresented PhD, in 10 years, you're not doin' a very good job.

Charles: I mean, that's just a fact. I like to deal with simple facts, simple arithmetic. So I don't wanna say the other schools are not committed. But more than half of the PhDs in agricultural and biological engineerin', they are graduates of two schools, undergrad: FAMU and North Carolina AMT. And we have 39 programs in agricultural and biological engineerin'. Now, maybe they got reason, for why they haven't be able to produce some to go onto graduate school, okay? I dunno what the reasons are.

Charles: Now, let's go back to NRCS. In the history of NRCS, which I believe started in 1934, the [inaudible 02:22:34] conservation service, Mark [Latimer 02:22:36] knows what I'm talkin' about. So 84 years, 84-year history of NRCS, they have only had five African-Americans to ascend to the level of state engineer. Out of that five African-Americans, three of 'em are graduates of FAMU Biological Systems Engineering program.

Charles: So the students are out there, and they can ... And naturally to be a state engineer you got to have a P.E. They got the degree in agricultural and biological systems engineerin', but what you think they got their P.E. license in? The Professional Engineering license? They got it in civil engineerin'. So apparently we are doin' somethin' right at FAMU, okay? Outta that 64 students, there's three of 'em have gone on to become state engineers. So we need more resources to duplicate, as far as I'm concerned, what we have done in FAMU at all the other agricultural sciences. And I know it can be done.

Charles: If one agency, NRCS ... And USDA, you know, has what, 16, 17 agencies? If they had done the same thing 10 years ago or 20 years ago, we wouldn't be talkin' about havin' to diversify faculty at University or in the USDA workforce in the

STEM area. So we got to be committed, okay? That's what it boils down to is commitment, okay?

Charles: I use the term all the time. I go to professional meetings, they always, when they start talkin' to me and I give 'em some of these numbers, "Oh, Dr. Magee, how do you get all those students to go onto graduate school?" The answer is a simple answer. I always talk about ... I used to be a, well I guess I still am, a Clint Eastwood ... I used to watch Clint Eastwood movies. Dirty Harry. Some of y'all may have seen this movie. Harry Callahan, Dirty Harry. Anyway, he was livin' in this apartment buildin', and he was livin' upstairs, and this very attractive young lady ... She was an Asian young lady. So they were at the mailbox one day, and she said, "You the cop that live upstairs, aren't ya?" And he said, "Yes." She said, "What does a girl have to do to sleep with you?" And Clint Eastwood, "Knock on the door and ask." So I'm all I'm sayin' to ya, if you want African-Americans to go in your graduate programs, just knock on the door and ask 'em to go in your graduate program. But you have to keep askin' em 'til they say yes.

Charles: And that's what I do at FAMU, is when I find a student that I know might have the potential to go on and get a PhD, at the freshman year I start houndin' those students and trying to convince them. And so a lot of time, by the time they get to be a senior, junior, they just give in and say, "Alright, Dr. Magee. I'ma go to graduate school, just to keep you happy." So you can do the same thing if you want 'em in your graduate program.

Charles: And we, like I said, there are some excellent students out there, with the background to do STEM. I always tell the story, when we talk about the quality of students we have at FAMU, I like to tell the story 'bout doin' the early years, that was back in the '90s ... We recruited a lotta excellent students, but two of 'em, when they got to FAMU, they got diverted, and their attention went other places so they flunked out. To put it lightly, just to give you the actual facts. Okay, and then they transferred to Cornell University. How they pulled that off, I don't know. But they managed to get into biological engineerin' at Cornell, and what you think happened to the two programs after they transferred? The IQ of both programs went up. To show you the quality of students that we had.

Charles: But anyway, our greatest need, as I said before: we do need to do somethin' about the STEM pipeline in the agricultural sciences, and we can address all those other problems that we talkin' about. The two other questions that we are talkin' about. In the next 30 years, we gon' increase the population by, what, two and a half billion people? We gon' need a lot of technically-trained folk to address the full needs that we gon' be faced with by the year 2050.

Charles: And the last thing I want to say. I drove 400 miles to come to this meetin'. I don't want this to turn out to be what I call another NATO meetin'. In this case, NATO stands for what? No Action, Talk Only. Okay?

Charles: So those are all I have to say. Thank you.

Megan: Alright.

Steve Turner from Mississippi State University

Megan: Next up, we have Steve Turner from Mississippi State University.

Steve: Good morning.

Steve: I'm learning a lot about sugar, and about young farmers, and about STEM. Especially about FAMU. But context is always important, so each one of us speakers, we come from some kinda perspective and some kinda place. I've always thought if you can find out what a person's discipline is and what they're trained in, that'll help you communicate with them a great deal.

Steve: First of all, I wanna thank NIFA for hosting these listening sessions. NIFA and the USDA play a crucial role in the health and progress of rural America, which I'm primarily concerned with, and through the programs and investments have translated the landscapes and lives of thousands of communities throughout the nation.

Steve: As Megan said, my name is Steve Turner. I reside at Mississippi State in Starkville, Mississippi, but I'm the director of the Southern Rural Development Center. So let me tell you a little bit about the regional rural development centers.

Steve: There are four regional rural development centers in the United States that are funded by NIFA. They're located in the southern region at Mississippi State, in the north central region at Michigan State, the northeast at Penn State, and in the west at Utah State. So each one of the host institutions is a land grant, and really our role is to coordinate research and extension activities that involve community and economic development with the 106 land grants in the nation. So that includes the 1862s, the 1890s, and the 1994s.

Steve: Here's a trivia question for you. You can take this to your dinner party. Which is the only state in the Union that has an 1862, an 1890, and a 1994 land grant institution? I know ... Charles is not here, I walked over with Charles and told him the answer. Or not Charles. Dr. Walker. Can anyone tell me the state that has ... It's Oklahoma. Oklahoma is the only state in the Union with those three kinds of land grants.

Steve: So what do we do in these regional rural development centers? Well, again, we focus on rural America, and we look at rural America ... And I've been to conferences where we define "What is rural?" And those are fun. These are sponsored by, like NSF, so you get people from all over the world. USDA has a definition of rural. And so we pretty much use that.

Steve: But, again, we realize also the interdependency of rural America on urban and suburban America. You can't separate the two. They're intertwined. And our roles, as directors, and I wanna stress that I'm in some ways representing the other three centers. In our roles as directors, we interact with a lot of clientele who often benefit from the land grant system, or a USDA agency. But often they don't realize the source of the benefit. They don't really realize that this is happening because of this land grant system that we've had since 1862. And they also don't realize the agency that is helping them, and a lot of times is from USDA.

Steve: And NIFA's probably one of the agencies that rural America is most unfamiliar with. They're very familiar with Rural Development Agency. And you can imagine why. The Rural Development Agency has about a \$200 billion portfolio, and that's throughout the nation.

Steve: So, again, the land grant system is who we work with and coordinate with. Capacity is very important within that land grant system. I work with 30 universities in the southern region. So there are 30 land grants in the southern region, plus Virgin Islands and Puerto Rico. In each of our states we have at least two land grants, in the 13 southern states. There's one state that has three land grants. Alabama has three land grants.

Steve: So, again, we work with them, and, this is a reminder, this capacity funding that's been mentioned several times, it's crucial to the life of these universities, and it provides stable funding to complement state and local funding, which we see is often decreasing.

Steve: Now, I mentioned context is important. Really, what I wanna ... I'll answer the questions in just a second, but partnerships have always been important. But in the current environment, partnerships are often a necessary condition to success. You've gotta have partners. I'm gonna give you an example of a partnership that the regional rural development centers have entered into, or were entered into, that's been a shining example.

Steve: We have a program called Stronger Economies Together. Many of you in the room might be aware of this program. We call it the SET program. SET helps rural counties work together as a regional team in developing and implementing a high-quality regional economic development plan that builds on the current and emerging strengths of their region. It's been implemented in over 100 regions in over 30 states, and resulted in these regions securing 779 million in funding over the last eight years from a direct investment of 3.9 million from rural development.

Steve: So who are the partners? The partners are the regional rural development centers, the land grants, rural development, and NIFA is the base of all of that. For the land grants, and for the regional rural development centers. And the local communities. Nothing happens in a local community without local engagement, and energy, and activity. That's what happens. Again that's an

example of a really good partnership, that can leverage knowledge, and information, and it becomes a powerful component. Over 60% of these regions have submitted, and implemented a high quality plan.

Steve: So the three questions. When I got the questions they were in different order, so I'm going to follow the order that you have on your agenda. When considering all of agricultural what's the great challenge. That should be addressed to the [Nephis 02:35:46] Research Education Extension. Well again, and this is not ... I'm not saying anything new. Integration of all the three functions with coordination, and communication between federal, state, and local entities being a primary focus, in order to decrease duplication of services that stretch scarce resources.

Steve: So, again partnerships are going to be crucial to this, but Doctor McGee talked about the next generation. Well what he's talking about is the integration of teaching, research, and outreach, because what we heard about the sugar project was a result of all three of those. Now the outreach is actually a start up business. That's going to be important that we integrate that, and I want to stress two things. Coordination, and communication. Communication between partnerships. Coordination between NIFA, and rural development. That is crucial, and is so important.

Steve: We've been able to enjoy that partnership, but again one of the things that we do is we're connecting those two entities in a coordinated project, and in communicating a lot of the results of that.

Steve: Number two, in your field what is the most needed breakthrough in science technology that would advance your agricultural enterprise? Well I have a farm, but I'm not a farmer, but I do live in a rural community. One of the things I've noticed in my several years as Director of Rural Development Center is the behavior, and social sciences sometimes are not neglected, but they're brought in late to the game. If you bring them late into the game, there's not as a synchronous match there.

Steve: I would say the behavioral, and social sciences needed to be integrated into multi disciplinary programs to assure that local people benefit from these discoveries, and new technologies. The integration of the human element, and that includes political, economic, and sociological into biological, environmental, and engineering systems is paramount to a better understanding, and approach to dealing with future challenges in agriculture.

Steve: Number three, what is your top priority in food, and agricultural research extension, or education that NIFA should address? Again a vibrant, and healthy rural America is important to a vibrant, and healthy United States. With over 80% of farm household income derived from off farm sources, a vibrant, rural community is also important for farmers, and their families, in addition to urbanite, and suburbanites. Let me repeat that. The facts are that 80% of farm household income comes from off the farm.

Steve: Where does that come from? It comes from those communities, either the direct communities, or far away communities where these people work. It's important that these communities be healthy. Agriculture, forest, natural resources, and environments often originate in rural areas, and are dependent on urban, and suburban communities for demand, services, and products. Likewise the reverse is true, we're interdependent. An increased understanding, and appreciation of this rural, urban interdependence is important to the sustainability of our nation.

Steve: NIFA is a key catalyst in supporting, and directing multiple partners, and addressing the most important issues facing the country, and the world. NIFA, and it's programs, and it's support, financial support are a catalyst. I don't have to tell you what that means. It means it gets thing started. It also maintains things. We currently interact with NIFA several times a year in person, and as well as other government agencies, non government organizations, and the private sector. The efficiency of having NIFA located in DC area, where we can visit with them, and multiple other contacts is a positive externality for the entire national [inaudible 02:40:48] university system.

Steve: This increases our ability to enhance relationships with NIFA, and our other partners. I want to thank NIFA again for being in New Orleans, which is only five hours from Star Hole, and thank you for listening. Listening is a talent, but it's something that we all can develop. My president, his name is Mark [Keenham 02:41:14]. He spent 20 years working with a senator in the United States Senate. He is the best listener I've ever been around, and he's very successful. I'll leave you with that, thank you.

Jacklyn White from Prairie View A&M University

Megan: Thank you. Next up we have Jacklyn White from the Cooperative Extension Program at Prairie View.

Jacklyn: Good morning. As Megan mentioned I'm Jacklyn White, the program leader for Family Consumer Sciences at the Cooperative Extension Program at Prairie View A&M University. Prairie View A&M University is an 1890 land grant university. I am also the chair of the Southern Region Program Leaders Network, which we are the largest region that NIFA has. I would like to begin my comments by thanking NIFA for investing time, and energy to seek input from stakeholders.

Jacklyn: PVAMU Cooperative Extension Program offers science space educational programs, and agriculture for H and youth development, family, and consumer sciences, and community, and economic development. To farmers, youth families, and the communities in which they live. These programs are delivered in rural, and urban communities in Texas. The 1890 Cooperative Extension Program in Texas assists diverse audiences, with emphasis on those who have limited social, and economic resources to improve their access to positive

opportunities through outreach education in 35 of the 254 counties throughout Texas.

Jacklyn: PVAMU Cooperative Extension Program is built around strong, and valued partnerships with NIFA. Continued success of our extension program to transform the lives of Texas residents, especially those with limited resource depends heavily on NIFA funding core programs that address priority issues of the people in the communities that we serve. These priorities include parenting, money management, housing, nutrition, food safety, health and wellness, positive youth development, community, and economic development. Sustainable, and production, and food security. Water quality, and availability, and there are others as emerging needs come forth.

Jacklyn: The Family and Consumer Science Unit is the core of all programs conducted throughout the states. However the Family and Consumer Science Units are not specifically the focus of grant programs included in capacity building grants, AFRI grants, or rural health, and safety grants. Funding for family issues that could be considered include, but not limited to bullying, parenting, money management, nutrition, diabetes, hypertension, depression, mental illness, health coverage, transportation, abuse, neglect, aging, limited education, and children and families in poverty.

Jacklyn: We're not listed in the capacity building grants that way, but we try to partner with others. It is with this background that I respond to the three questions posed by NIFA. In your field, what is the most needed breakthrough in science, technology, and what would advance your cultural enterprise? Increasing the number of youth involved in extension FCS and 4H programs, prepares them for the ever changing technical workforce. Starting at the pre college level, promote youth interested in agriculture, community, and economic development. Family consumer sciences, and 4H by creating opportunities for increasing employability within the soft skills area.

Jacklyn: Hands on experiences. Money management, and food science are future talents through training. Build on a well prepared workforce as the world populations continue to escalate begins with our youth. Many of those skills to have a productive workforce begins, and are taught in family consumer sciences. An article published as recent as August 2018 states that kids do not graduate with the basic life skills needed to function in today's society. They also pose the question, where is home economics? We're still here, we changed out name to Family and Consumer Sciences.

Jacklyn: But they're lacking in the schools. They're lacking within society, and they're lacking with ... Those skills are lacking within the work force. Family and Consumer Science teach basic economics, budgeting, comparison shopping, basic cooking skills, and time management. Family Consumer Sciences provides our youth with a better start in a real life, and teach adults those same basic skills as well since Family and Consumer Sciences Home Economics was removed from many of the secondary educational levels.

Jacklyn: Most importantly because of the limited diversity, and the agricultural sizes, emphasis should be placed as well on attracting more young people with diverse background, increasing the profitability, and sustainability of small scale agriculture, especially for producers with limited resource is crucial for alleviating rural, and urban poverty. Our going, and engaging the end users of research education, and extension in determining priority issues, and in creating practical solutions. It is crucial to ensure limited resource, and under served communities gain access to new sciences, and technology, to ensure that health, family, and financial success.

Jacklyn: Number two, when considering all of agriculture, what is the greatest challenge that should be addressed through NIFA's research, education, and extension? One is understanding the food, nutrition, and health concerns related to obesity, and the lack of nutrition in humans starts in the family, Family and Consumer Sciences. Also support increases in capacity funding for 1890 extension, and Evan Allen research to equitable levels. Raising the levels of 1890 extension, and Evan Allen research capacity funds to the authorized levels of 20% of Smith Lever funds, and 30% of hedge funds would respectively would strengthen the capacity of the 1890 institutions.

Jacklyn: These resources provide a base for 1890 institutions to build the fundamental, and functional capacity needed to respond to unique, and emerging issues impact, and diverse audiences. With emphasis on those who have limited social, and economic resources, and the ability to see competitive fund. Capacity funds are vitally important to leveraging state, and local investments in supporting the local base, national extension network.

Jacklyn: Number three, what is the top priority in food, and agriculture research extension, or education that NIFA should address? There is a great deal of anxiety among extension educators, and the proposal to combine SNAP Ed with FNS, and to a new nutrition education, and moving the delivery to the cooperative program system under the leadership of NIFA and FNS in the next farm bill. If this occurs, NIFA must take steps to ensure that the 1890 land grant universities are treated equitable as partners in delivering nutrition programs in their respective states. Remember 1890s were ... We were targeted to our limited resource clientele. That's our population.

Jacklyn: We work with this population on a day to day basis, however we do not receive the same funding as our 1862 universities, and this is our targeted audience.

Jacklyn: Lastly, an additional concern is that the relocation of NIFA would adversely affect the Family Consumer Sciences Division of NIFA, as well as others when it comes to funding, and other priorities. Additionally NIFA is the most diverse unit within the USDA. The movement of this office will most likely change the demographics of a diverse workforce within NIFA. NIFA closely reflects the population of the United States. Locating this office will most likely change the diversity of this workforce. Furthermore consideration probably has not been planned as to how this relocation would affect the families, and individuals

employed within NIFA. If they were not able to move, the longevity, and the knowledge base will be lost, which further raises the concerns of the Family and Consumer Sciences Department.

Jacklyn: Again thank you for listening, and for the opportunity to provide input.

Ashley Gasteno from Prairie View A&M University

Megan: Thank you everyone. That brings us to the end of our scheduled speakers, but we have a few unscheduled speakers. I would like to invite Ashley Gasteno up from Prairie View Extension.

Ashley: Good morning, is it afternoon yet? No? Okay. My name is Ashley Gasteno, thank you for pronouncing my last name correctly. Everybody has a hard time pronouncing my last name, but I'm so thankful for that. I currently serve as the Family and Consumer Sciences Extension Agent for Web County, for Prairie View A&M Cooperative Extension. Does everybody know where Laredo is? Texas? Yeah? Yes, okay. The reason why I am up here is to express about an important issue, and an impact program that has been going around within my county, as well as my region as well. One program that has been a huge success is mental healthy program.

Ashley: Mental health is really big right now with all the bullying, cyber bullying happening, all the suicide rates, all the opioid crisis happening, and it's important for us as extension educators to reach out to family members, and to reach out to the community, and educate them, and spread the awareness on mental health. Now as I sit down and listen to what programs could change in agriculture, and health wise, well mental health could be incorporated with a lot of agriculture, and health wise programs.

Ashley: For example gardening. Gardening helps reduce stress, physical activity, and it also it improves the quality time with family. Now we see both parents work, or one parent working two jobs, and it's kind of hard to sit down, and communicate with that child, communicate with someone, and actually express about talking about the problems. That is one thing I see when I go do bullying presentations is parents not communicating with their kids. It's important for parents to communicate with their kids, to see exactly what is happening at school? What is happening is social media?

Ashley: Technology is growing so fast. Parents think they have it down, and believe me they're like, "I didn't know there was this anonymous app that people could post online about different people." I'm like, "Yeah." But kids don't really talk to parents about that, or they feel like the parents are not going to understand them. Bringing in some type of gardening project also as Mr. Owens I believe said that, having different plants around. People that suffer depression, that have some type of mental health illness could really improve their situation that they're in.

Ashley: Kind of just incorporating mental health into the agriculture aspect, into the food, and nutrition aspect, into the money management aspect. I speak from experience. There is this program called The Healing Trauma Program that I'm currently doing out in Web County. It's a huge success program. I did it at the homeless shelter with the women's group. These women were so scared to talk about their problems, talk about the trauma that they have been going forward. After the program finished, they came up to me, and they just thanked me, and said, "You know what? You made us kind of like go ahead and just get up on your feet." They applied for housing. They started applying for job, and they felt better about themselves.

Ashley: As an extension agent I think about how can we all collaborate together. How can the agriculture field collaborate with FCS? How can FCS collaborate with community economic development? How can community economic development incorporate with 4H? I mean we are here to serve our purposes for the community. We are here to spread to the awareness, and how we're going to spread the awareness? One thing is to try to implement, and improve mental health research, and education in all of the fields as possible.

Ashley: I mean our motto is to improve the quality of life as an individual, and out in the community as well, thank you.

Closing Remarks

Megan: Thank you. Also Andra Johnson from Southern University. No speaking, okay. Anyone else interested in speaking today, before we wrap up the public comment portion?

Speaker 3: I have a question.

Megan: Hold on one second. We have a microphone, and actually, Dr. Chitnis is going to help with our wrap up, and may be able to answer your question.

Speaker 3: Thank you. Right now as acknowledged earlier, one of the gentleman had a question about getting his funding a year later. Several of us have those issues, and it's expected that if NIFA moves that they will lose staff, and the back log would increase. How do you think that might play out? Thank you.

Megan: I'll let Dr. Chitnis address that.

Parag: In NIFA, first of all thank you for your question. In NIFA providers finding after it is appropriated by the congress. Many times we had to wait until the all the appropriations are done, before we can committing funds. Even though in order to get programs moving, we start announcing the RFA phase, doing the reviews, and get ready until the appropriations happen. That's one of the reasons why we get most of our grants then in the last quarter.

Parag: That probably explains some of the delays that you have experienced in the past. Do you have any more questions, comments? Anything that you may want to add to what she had taught? Otherwise I can probably give some wrapping comments. First of all thank you all just speakers, as well attendees for coming here, and providing input in this listening session. This has been a tremendous experience for me, and I can probably talk on behalf of my colleagues.

Parag: When Secretary Purdue says that we do right, and feed everyone. That's the mission of USDA. He wants us to focus on customer service, and that's what NIFA is doing, is focusing on customer service, listening to them, so that we can have the strategies for investing 1.6 billion that Congress gives us for research extension, and education funding. What I heard here was a tremendous breath, because we were specific in our questions this year, talking about all of agriculture, and that's what I heard. I heard that we talked about different parts of the value gen, production, processing consumption process.

Parag: We talked about different areas, NIFA is science portfolio in to nine science emphasis areas. There were ideas that fitting all of those nine science emphasis areas. We talked about different kind of strategies, partnerships. We talked about interactions. We talked about integration. We talked about research extension, education, all of these things we have been hearing, and that very thoughtful, deep, I think input that you are giving us. We are receiving also online. It will be extremely useful for us as we write the next set of RFAs, and next set of budge requests.

Parag: Thank you for coming. Thank you for giving this broad input, and letting us know your needs, what unfortunately are for science investments, and please we'll be still around. My colleagues are here, and I want to also I think thank them, and the really superb Avery team for broadcasting this through webinar, as well we will have the recording posted afterwards. These talks, and the input can be also seen later too. Again, thank you. Have a safe travel home, and we'll be around if you have a special questions about your situation to talk about it. There will be a photograph being taken after this. Again, thank you for coming, and this was a great input session.