

NIFA Listens: Investing in Science to Transform Lives  
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Megan Haidet: Well, thank you so much for coming out to the Atlanta Marquis this morning. My name is Megan Haidet and I am a program specialist at the National Institute of Food and Agriculture. Today we are hosting, NIFA Listens, Investing in Science to Transform Lives. I really appreciate you all coming out and wanted to remind you about the purpose of this session. We want to hear from our stakeholders, all [00:00:30] of you, and we want to know, what is your top priority in food and agricultural research, extension, or education, that NIFA should address. And, what are the most promising science opportunities for advancement of food and agricultural sciences.

We invite each speaker to talk for five to ten minutes. We hope that you stay on topic and are respectful of everyone in the room. If someone is absent [00:01:00] from our agenda, we're going to remain flexible and skip ahead to the next speaker. We've also allowed for some room at the end of our session this morning for any unscheduled speakers that are inspired to talk and contribute to NIFA Listens. In case you didn't know, this program today is being videoed and actually there's a live webcast that is available. We'll also have [00:01:30] this recording available on our NIFA Listens website in four or five days.

We have some lovely refreshments. Please help yourself. The restrooms are out in the hallway. If you need to take a call, please step out of the room. Lunch is on your own today. If we have enough speakers, we will come back after lunch to make sure we listen to all stakeholders that have come out today. [00:02:00] That's about it for housekeeping duties.

So, our agency director, Dr. Sonny Ramaswamy, couldn't be here today, but he sent a video. So, please take a listen.

Video: Hello, my name is Sonny Ramaswamy. I'm the director of the National Institute of Food and Agriculture and I want to take this opportunity to welcome you to what we refer to as NIFA Listens. [00:02:30] This is an opportunity for you to be personally involved in telling us where we need to be investing our resources in regards to the research, extension, and teaching endeavors that NIFA supports and the work that you undertake at your institutions.

We are offering this opportunity for in-person input and if it turns [00:03:00] out that you've got additional thoughts that you want to share with us, you can certainly go to our website, [nifa.usda.gov/nifalistsens](http://nifa.usda.gov/nifalistsens). Again, [nifa.usda.gov/nifalistsens](http://nifa.usda.gov/nifalistsens). And you have the opportunity to provide additional input through the 1st of December 2017. I can guarantee you, that all this input that's going to be provided by you in person all through the -- our website

[video skips 00:03:28]. I'd encourage you to also talk to your colleagues [00:03:30] that have not participated here and tell them to also provide input. We're going to take all this input and analyze the information that's been provided to us and incorporate that into the priorities that we're going to be investing in over the next many, many years.

I want to thank you for participating in this very important effort and look forward to engaging with you now and in the future as well. Thank you very much.

Megan Haidet: Great. [00:04:00] Next, I invite Dr. Muquarrab Qureshi. He is NIFA's Deputy Director of The Institute of Youth, Family and Communities.

Dr. Qureshi: Thank you, Megan, and good morning everybody. So, this is NIFA's [00:04:30] second external stakeholder listening session. The first we had was at Kansas City last week where we heard folks just like you from that region. National Institute of Food and Agriculture decided to host these --

[00:05:00] So, National Institute of Food and Agriculture, which is an agency of United States Department of Agriculture decided to host these external listening sessions, which obviously are very, very mission critical to us. But before I go into some brief presentation, I would like to bring greetings to you from another colleague of ours, Dr. [00:05:30] Meryl Broussard who's NIFA's associate director who oversees all programmatic institutes of National Institute of Food and Agriculture. He could not be here in person, but he wanted us to convey his best wishes to you all as well.

We also have a lot of NIFA colleagues here and I would like to introduce them to you as well, but I would invite them to come to the podium [00:06:00] and introduce themselves to you so that you know who's here and it would hopefully enable all of us to have a little better discussion whenever we have time during the break. So, first let me invite Dr. Luis Tupas.

Luis Tupas: [00:06:30] So, good morning. I'm Luis Tupas. I'm the Deputy Director for Bioenergy, Climate and Environment at the National Institute of Food and Agriculture. In my previous before becoming a science administrator, I was a practicing oceanography at the University of Hawaii where I spent 12 years of my career there before coming to Washington DC and joining the Department of Agriculture in 2004, and I started out as the National Program Leader for Climate [00:07:00] Change. I'm very excited to be here. I wasn't at the Kansas meeting, but I will be at the next meetings. And one additional thing, in my institute, I'm also responsible for the Small Business Innovation Research Program, which is the program for commercialization of technologies. So, I'm here also to hear any ideas regarding that. Thank you very much.

Dr. Qureshi: Thank you, Luis. [00:07:30] Next is Dr. Denise Eblen.

Denise Eblen: Good morning, everybody. So, I'm Denise Eblen. I'm also a Deputy Director at NIFA and I have over sighted the Institute of Food Safety and Nutrition. I am an 18-year veteran of USDA. I joined USDA for a postdoc from Ireland in 1999, and I enjoyed USDA and [00:08:00] the United States so much that I became a citizen and I'm still here. I was at ARS. I was at the Food Safety and Inspection Service for about 14 years and I joined NIFA three years ago.

One of the best, greatest things about NIFA is the relationship we have with our stakeholders. When I was at a regulatory agency, there's a different relationship with stakeholders. You're regulating them, but the relationship we have with stakeholders were at NIFA is so collaborative and it's great the way we get to meet with you to talk about our common [00:08:30] interests, our common interests in solving these significant agricultural challenges. So, my own expertise is in food safety and nutrition, but of course, I've learned so much more here at NIFA thinking about the broad agricultural challenges that we have.

So, as everybody knows, we have a new administration. We have a new secretary and we're going to have a new undersecretary shortly at some time, and we have to, again, prove to them that everything we're doing, that we remain on the cutting edge of science in terms of research, education, and extension needs. And that [00:09:00] we're really funding the things that are needed by the community, needed by the system, to promote American agriculture. And so, having these sessions where we come out and meet with you all and hear from you all what it is that you need and needs that you see, this really helps us as we go back and say, hey, this isn't just us, bureaucrats in DC coming up with these ideas. These are the ideas we're getting from our folks and our stakeholders across the nation. So, again, thank you so much for coming today to share with us. We're here to listen and we're here to talk with [00:09:30] you. We'll be here at breaks and I really look forward to an engaging conversation with you all today. Thank you.

Dr. Qureshi: Thank you very much. Music, please. I'm just kidding. Next, our colleague Selina Meiners is here.

Selina Meiners: Good morning, everyone, [00:10:00] Selina Meiners. I work on the communication staff at NIFA, and our job is really to help tell your story. And there's a lot of ways that we do that. You might be subscribed to some of our newsletters, like the NIFA Update and Fresh from the Field, which is our -- they're both weeklies. And if you're not, just go our website [nifa.usda.gov](http://nifa.usda.gov), you'll be prompted immediately to enter [00:10:30] your e-mail address and then you can choose all the topics that you want to subscribe to. Whether it be our press announcements or specifically AFRI or 4-H or any of our newsletters. But also find us on social media and tell your communications staffs to do that as well because that's how we also collect impacts of the research that NIFA has funded and those impacts, of course, can end up in products like [00:11:00] our annual report, which you may have picked up on your way in. So, we encourage you to

have your communication staffs reach out to us so we can all help tell your story and continue the great work that's going on.

Dr. Qureshi:

Thank you. And again, my name is Muquarrab Qureshi and I'm Deputy Director of a program institute called Institute of Youth, Family and Community. [00:11:30] And my institute, essentially, has programs which deal with all the minority-serving institutions. All the tribal programs, 1890's program, Hispanic serving institutions, insular area programs, and also the education portfolio overall. We have a K through 20 education portfolio which includes, you know, K through 12, [00:12:00] even K through 14, which are community colleges, four-year undergraduate, graduate, pre doc, postdoc programs.

We also have a division called Division of Family and Consumer Sciences in my institute and above all, we are also the headquarters of 4-H. And you can see I'm wearing a tie of 4-H and a lot of you are very familiar with what 4-H is. It's one of the premier youth engagement, positive youth development [00:12:30] agencies in the country. Over six million youth all across the country as members of this organization. And NIFA is the headquarters of 4-H. I also bring greetings to you from our Secretary of Agriculture people in Georgia are no stranger to, Dr. Sonny Perdue, who's our Secretary of Department of Agriculture and we really are enjoying his leadership and guidance as we move forward the [00:13:00] National Institute Food and Agriculture Commission and Programs.

So, without further ado, I would simply tell you who we are and why we are here. National Institute of Food and Agriculture as you know, previously was CSREES, Cooperative State Research Education and Extension Service. In 2008 Farm Bill, CSREES was changed into what is now National Institute of Food and Agriculture. Our director, [00:13:30] Sonny Ramaswamy, which you just heard briefly from is Presidential Appointee. So, that was a huge change in the leadership structure of National Institute of Food and Agriculture that our director is a Presidential Appointee. NIFA primarily is an extramural funding agency of U.S. Department of Agriculture. We lie in a mission area called Research [00:14:00] Education and Economics mission area. We call it REE mission area. Other members of our mission area family are ARS, the Agriculture Research Service, which is USDA's intermural research component. These are the folks who are actually bench scientists and do hands-on research. Then we have National Agriculture Statistical Service, NASS we call and then also ERS, the Agriculture Research Service and also the National [00:14:30] Ag Library is also in this mission area.

So, National Institute of Food and Agriculture has a mission to invest in an advance agriculture research, education, and extension activities to help solve societal challenges. We have big missions, big goal, but eventually at the end of the day, our goal is really to solve problems and help people in the street and transform [00:15:00] their lives through all the discoveries and innovations which are made through research education and extension activities. We collaborate with leading scientists and organizations, federal agencies and other partners just like you all here in the room to essentially build a joint agenda

where NIFA needs to invest its resources so that we are all delivering innovation at excellence in science and discovery. [00:15:30] And through that, we apply those scientific discoveries, which are made through your efforts, essentially to transform lives of Americans.

How does NIFA prioritize their portfolios? Our marching orders essentially come through Congress. Congress develops what is known as a Farm Bill. I'm sure that term is not new to you. Our new Farm Bill, or next Farm Bill, is being drafted as we speak [00:16:00] and Secretary of Agriculture and his team is going around the country doing some listening sessions of what we ought to be considering to include in our future Farm Bill. And all these Farm Bills and congressional languages go through the appropriation process, which essentially applies funding to NIFA. We also consider priorities, which our secretary would consider important to [00:16:30] be funded across the country. And also, certain priorities, which come through the executive order or Office of Science and Technology policy through the Office of the President for us to consider funding.

We also rely heavily on our internal stakeholders. Like you heard from my colleagues, we in our own right are also subject matter experts. We have national program leaders who are veterinarians, pathologists, microbiologists, [00:17:00] entomologists, plant scientists, plant pathologists. I mean, you name it, we have people in almost every subject matter expertise who are on top of their game. They interact with stakeholders through PD meetings, through panels we conduct, attending professional society meetings, doing state liaison functioning, engaging with academia and universities and our Cooperative Extension System and Public. And through that, we [00:17:30] continue to listen what is important for our stakeholders, for NIFA to consider, including in our next portfolio.

The second avenue we use for establishing our priority is what we are doing today. The external stakeholder listening sessions. Through this import process, again, we learn or want to learn, is NIFA investing in the right places at the [00:18:00] right time. Are there any gaps which we ought to be familiar with or aware of. So, this listening opportunity really provides us a great opportunity for your feedback and we sort of, as guidance to start a conversation, floated two questions for you to consider. First, "What is your top priority in Food and Agriculture Research extension or education that NIFA should consider?" So, we really want to [00:18:30] hear what you think is your top priority. And the second, "What are most promising science opportunities for advancements of food and agricultural sciences." So, very broad, overarching questions. No idea is a bad idea. We want to listen to every idea, which you have, without any judgment, without any preconceived likings or affiliations. We truly want to hear from you what is important for you.

This, in turn, would inform [00:19:00] our science emphasis area as prioritization. All what NIFA does is focused under several science emphasis area. I think we have about nine science emphasis area at this point or we call them since buckets in which we think that every stakeholder can see him or

herself. We also want to identify some gaps if there are any gaps in our programs from feedback that you would provide. We also [00:19:30] want to determine if there are some programs which have really done their job. They have, you know, they continue to be redundant or they kind of underperforming. So we can sunset those programs and move on. We would like to hear that also from you. And also, combined with input from NIFA employees, feedback gathered through listening sessions will be used in the context of NIFA's current science emphasis areas [00:20:00] to identify gaps in the current portfolio and potential future investment.

As Megan pointed out earlier, this is not end of the story as they say, for getting your feedback. Our websites are continuously open and especially for this effort, we would be receive comments until December 1st, 2017. So, please go back after today's session and [00:20:30] share this information with your colleagues and ask them to please continue to provide us with their input. Nifalistsens@nifa.USDA.gov. And also, this is, as I said, second of our stakeholder listening session. We would be meeting the third one next week in Sacramento and fourth one would be in Maryland. So, if you have your organization representative or your interest in other regions of the United States, please ask [00:21:00] them to share with us some of their best needs and knowledge.

So, thank you for coming and we look forward to listening what you have to say today. Thank you so much and I'll hand this meeting back to Megan who will take us through the day. And Megan can introduce herself to you as well.

Megan Haidet:

Thank you, Dr. Qureshi. So, I actually come from the fourth scientific [00:21:30] institute at NIFA called The Institute of Food Production and Sustainability, IFPS. And I work in the Division of Plant Protection on the Pollinator Health Program, Pests and Beneficial Species Program, the National Plant Diagnostic Network, and I help with the grant-making process, our peer review process, and other special projects like NIFA Listens. [00:22:00] I have a background in conservation biology and worked on a national germ plasm collection program called Seeds of Success with the Bureau of Land Management for about seven years before I came to NIFA.

Couple more housekeeping issues, please try to stay at the podium so we can have the video look clear today. I will give everyone five and two-minute warnings so you can stay [00:22:30] on track with timing. And we'd like to take a photo of all participants today. So, I'll give you another reminder. We'll do that just before our break at 10:00 or 10:15.

Okay. Well, now that all of that is out of the way, we'd like to begin listening, hearing from all of you. So, first up is Dr. Dale Greene from the Warnell School of Forestry and Natural [00:23:00] Resources at University of Georgia.

Dr. Greene:

We'll have to get that walk-up ditty for my next faculty meeting.

Good morning and thank you for the opportunity to provide input to your research planning process. My name is Dale Greene. I currently serve the Warnell School of Forestry and Natural Resources [00:23:30] at the University of Georgia as its dean, but I'm also here representing the National Association of University Forest Resource Programs as its southern share. That organization represents the deans and department heads of forestry programs across the country. In addition, my wife and I are also forest land owners and I serve as a trustee with the American Forest Foundation whose mission is helping America's private forest land owners better manage their [00:24:00] forest lands. As I'm sure you all understand, those private forest landowners own the majority of the forest land in the United States, and it's their harvests, not those from public lands, that today support our globally competitive forest-based economy in the U.S. south.

The deans and directors of our forestry schools put research into forest health issues at the top of the list of research needs that your agency should be considering. [00:24:30] If these are not addressed by informed forest management approaches based on the latest science, we stand to lose significant components of forest ecosystems across the United States. Another calamity on the order of that we experience with the chestnut blight is not at all inconceivable. There's several examples of this. Hemlock species in the eastern United States are keystone species around which important [inaudible 00:24:58] habitats along [00:25:00] cold water streams depend. We are steadily losing these important species to the hemlock woolly adelgid. Both hemlock species could be lost within the next 10 years.

Ash species are some of the most economically valuable hardwoods in the east. They make up a small component of most eastern hardwood stands, but a high percentage of their economic value. The trademark bat of professional American baseball [00:25:30] has traditionally been made of ash, and it's a common landscape tree in many municipalities. In less than 15 years, the emerald ash borer, an introduced pest, has moved from Michigan to the southeast. In fact, within the last four weeks, South Carolina has imposed a statewide quarantine on the movement of ash in a desperate attempt to limit its spread. This is complicated many, many things including wood supply to hardwood using mills that are [00:26:00] located on the Georgia/South Carolina border.

Sudden oak death has been devastating to oaks in California. I'll remind you that chestnut was about 20 percent of the eastern hardwood forest before it was obliterated due to the chestnut blight. Today, oaks comprise far more than that of the eastern hardwood forest. We simply cannot allow this pathogen to come east. It would be devastating environmentally.

[00:26:30] Not all pathogens are introduced. We have some native species that cause problems as well and one is the mountain pine beetle. This has particularly been aggravated by warmer summers and particularly by milder winters, which do not knock back the populations of this pest. The scale of

destruction from the mountain pine beetle has to be seen to be believed. [00:27:00] This beetle has killed trees on over 100 million acres of forest land. Georgia has more forest land, commercial forest land, than any state in the country. This is four times that amount. Half of the standing pine in the Canadian province of British Columbia is now dead, and significant reductions in their annual allowable cuts have been imposed as a result. This is one of several reasons that Canadian-based companies now own and operate close [00:27:30] to 50 lumber mills in the U.S. south, and this beetle is now decimating forests in the U.S. interior west.

We consider these steps to be the most promising opportunities to address these significant forest health issues that are facing forests across the United States. We've got to have research to help us design pre-invasion risk assessments ahead of time [00:28:00] as well as early detection technologies to identify these threats. This isn't just entomology and plant pathology research, though. This requires changing forest management techniques based upon that so that we can better control these pests, and to help us enable more resilience or improve it in forest stands or to reduce the vulnerability of ecosystems before pests arrive. [00:28:30] And sadly, we also need significant research into how to restore damaged ecosystems, and this will probably involve using additional breeding, genetic techniques, as well as forest management techniques. And again, I got back to chestnut. We are now at a point where we have a resistant chestnut and we're working on ways to improve nursery practices and out plant chestnuts and perhaps my grandkids will see chestnuts again in the eastern [00:29:00] U.S. forest.

These efforts could be funded in multiple ways. Certainly additional funding for competitive grants through NIFA programs should play a significant role, but stronger funding of the McIntire-Stennis Forestry Research Program is essential if forestry programs are going to be able to have the capacity to effectively use competitively obtained funds. McIntire-Stennis funding has failed to keep pace with inflation and [00:29:30] the addition of institutions without meaningful forestry research, expertise, facilities or capacity to the program for political reasons has even further diluted the impact of the funding that does come to forestry programs. If we're serious about addressing the key issues facing our forests with impactful research, then we must focus our attention on the key problem areas and we must put the resources to find the solutions in the hands of those with the expertise and resources [00:30:00] to find those solutions.

Ladies and gentleman, I thank you for the opportunity to comment today and for your service to USDA.

Megan Haidet: So, we have a couple of minutes if there are any questions or comments from the audience. I will get the mic to you.

Speaker 8: [inaudible 00:30:30].



Megan Haidet: [00:30:30] The slides are part of the video, yes. It will be a split screen. So, there's a visual of the speaker as well as the slides. Any other questions or comments? Okay, Luis, mic.

Luis Tupas: Dale, Luis Tupas. What's the status of educating new foresters? How's the [00:31:00] schools -- forestry schools doing in terms of new students?

Megan Haidet: Thank you. We're not ready for jokes yet, but please stay up here while we do the Q & A just in case because I'm not sure you're ready. Too ready.

Dr. Greene: Thank you. Sorry to walk off. Thank you for the question. You're asking about enrollment?

Luis Tupas: Yes.

Dr. Greene: [00:31:30] Yes. Undergraduate enrollment?

Luis Tupas: Yeah, professional enrollment.

Dr. Greene: Right. Yeah, undergraduate enrollment at our institution is up 50 percent over the last six years. We've had full placement of our forestry graduates for the last five or six years except for the one or two who's unwilling to be flexible about where they live. So, I think we have the strongest job market I've seen in 35 years and that's moving our enrollment numbers up. So, I think the -- [00:32:00] we're not short of people. We are challenged by the number of baby boomers that are retiring from both the public and the private sector. There's a big wave of people exiting, but our numbers are climbing. So, hopefully we'll meet that demand. Other questions? Yes, sir.

Lee Friedlander: Good morning, my name is Lee Friedlander. I'm an agriculture teacher at Hixson High School, which is in [00:32:30] Chattanooga, Tennessee. What role do you see citizen scientists and citizens engaging in risk management, risk assessment, and mitigation of these threats moving forward? As you said, most land is in private hands, how do you engage the nonscientists, the everyday landowners who are managing these trees and these private forests or even small residential properties?

Dr. Greene: Okay. So --

Lee Friedlander: Sorry.

Dr. Greene: You started by asking about [00:33:00] citizen scientists and --

Lee Friedlander: Citizen scientists, specifically, how do you see their role in the effort of assessment and management in mitigation of these threats?

Dr. Greene: Well, there's several groups that are active in a variety of ways. I could -- there's a group in Georgia, for example, Save Georgia Hemlocks is working hard to inform people about options for protecting hemlocks on their property. There are a variety of groups like that. As far [00:33:30] private forest landowners, there are a lot of ways that we reach out to them with information. Extension is one source. The State Forestry Agencies are another USDA State and Private Forestry within the forest service is one, and then consulting foresters. So, I think most forest landowners that are actively managing their property are aware of these potential threats in their area and -- or they have access to that access to that information at least. And those that are aware of it [00:34:00] typically take active steps to do something about it. Okay, thank you.

Megan Haidet: Thank you. Thank you. Next we have Casey Mull from the National Association of Extension 4-H Agents.

Casey Mull: [00:34:30] Dr. Qureshi, distinguished members of the NIFA staff, American anthropologist Margaret Mead shared, "The young, free to act on their initiative can lead their elders in the direction of the unknown. The children, the young, must ask the questions that we would never think to ask, but enough trust must be reestablished so that the elders will be permitted to work with them [00:35:00] on the answers."

Good morning. I'm Casey Mull and I'm honored to represent the almost 5,000 members of the largest association of youth development professionals in the country. The National Association of Extension 4-H Agents. For over 115 years, the 4-H organization has served as the premier model for positive youth development in the country. A top priority [00:35:30] in food and agricultural research, extension, and education that NIFA should address is positive youth development. Positive youth development is an intentional prosocial approach that engages youth within their communities. Schools, organizations, peer groups, and families in a manner that is productive and constructive. Too often, youth are seen only [00:36:00] as the recipient of a teaching tool of many other food and agricultural programs. Youth can and should have a seat at the table to not only be the receiver of the extension in education programs, but also to contribute to the research in their food and agricultural systems. You see, youth as contributors to the research, to the education, are a means to extending the learning to the elders around them.

There's a wonderful picture [00:36:30] in our history books of Marius Malmgren of Hickory, Virginia. As a member of the 4-H corn club in 1912, he grew 209 bushels of corn on his one acre 4-H project when the average yields were 45 bushels per acre. By adopting those innovative practices shared by the researchers, individuals [00:37:00] like Marius were able to convince their parents and their neighbors that innovation was not to be feared, but to be embraced. Today, young people like Marius that grow up intimately embedded in our food systems are still important to 4-H. But youth today, just like their parents, are more often separated from the food and agricultural systems that feed and clothe our [00:37:30] nation and the world.

I'd be remiss if I didn't share two anecdotes about what 4-H is doing presently to help tie together young people in the food and agricultural systems. And one of those anecdotes happened right here in the Marriott Marquis. A few years ago, I had the opportunity to take a young man named Steven, bring him -- he had just been elected as a state 4-H officer. [00:38:00] And we brought him to the Marriott Marquis to practice an elevator message. To give him that life skill of being able to pitch an idea, to be able to talk about the importance of science, the importance of agriculture and food systems in his state of Georgia because he was meeting the governor of Georgia and our current secretary of agriculture the following day.

I don't really -- I don't know if Steven still [00:38:30] remembers what his elevator pitch was, but Steven grew up in Claxton, Georgia, and he had never been to Atlanta before. And he may not remember his elevator message, but I definitely know he remembers the look of shock in the drop of his -- and I remember the shock of the drop of his jaw as he walked into the largest building that he had ever been in. And I also remembered [00:39:00] him ordering his first Starbucks cup of coffee where he exclaimed to the barista, "This is a great frappaponcho."

Ladies and gentleman, that's what positive youth development is. And to tie that back to the food and agricultural systems, to our NIFA staff members, when you take off or land at Hartsfield-Jackson later this evening or tomorrow, I want you to know that there's a positive [00:39:30] youth development program through the 4-H program that is occurring on either side of the runway. Through the [inaudible 00:39:38] Sustainable Communities Project. And the young people that are growing up there, some of them have never even been into downtown Atlanta. Many of them are living in poverty, and just earlier this year, we gave them these youth that are growing up in an urban setting, the opportunity to see their first row crop being grown [00:40:00] in Tifton, Georgia.

Promising opportunities to advance food and agriculture priorities exist that involve youth as fully engaged collaborators and members. First, we need to know more about youth development. How and why youth contribute to their communities, both urban and rural. Second, we need to solicit input from youth to bridge that rural and urban divide in understanding food and agricultural [00:40:30] systems. And third, we need to utilize youth as full contributors to solutions to our most complex food and agricultural challenges. Present day issues demonstrate the challenge of science, literacy, and the fear or the lack of understanding of science. In order to comprehend and overcome these fears, we must use the social sciences to analyze, explain, and assist [00:41:00] in removing these barriers to understanding. An opportunity for further exploration is the challenge of our food and agricultural systems within a growing urban populace. Social sciences inform these challenges and positive youth development is where to start with youth as receivers, but also as engaging contributors.

Youth development has been part of -- [00:41:30] a formal part of USDA since the Smith Lever Act created and formalized the corporative extension system. And it may be easy to argue that the mission of youth develop or 4-H's inclusion within USDA is not drawn from nor closely related to the agencies overall missions, that instead it is often viewed primarily as a legacy to honor with you seen as an audience to serve. [00:42:00] I commit to you all on behalf of the National Association of Extension 4-H Agents that we believe growing a healthy crop of young people in our rural and urban communities is as important to our future as agriculture, nutrition, families, and food systems. Furthermore, it is from growing that crop of young people that we can most effectively ensure America's ability to harvest the talents and fill the jobs needed in our communities, [00:42:30] our industries, our laboratories, and our farms in ways that will ultimately help solve the problems our elders, the problems USDA and NIFA seek to address.

Thank you.

Megan Haidet: Can you guys hear me on the mic? Okay. [00:43:00] Are there any questions? All right. Thank you so much. Where was the music? No, just kidding. All right. Next up we have Bill Hubbard from the Cooperative Extension Service Southern Region.

[00:43:30] Thanks.

Bill Hubbard: Good morning. Thank you, Megan. It's quite an honor to be on a panel with distinguished guests and employees of USDA NIFA. It's a great opportunity for us to talk a little bit about something that is very important and fits hand and glove with really the last two presentations you heard. First, the importance of forest research through the McIntire-Stennis Program and then 4-H and youth development.

[00:44:00] My name is Bill Hubbard and I serve as the Southern Regional Extension Forester. This position is supported by the 1862 Land Grant University Directors and the USDA Forest Service State and Private Branch here in the southern United States. Through this unique partnership, we have been able to leverage scarce resource to address key landscape scale forestry and natural resource issues in the south, including wild land fire, loss of forest land, invasive and exotic pests and impacts of climate [00:44:30] and catastrophic weather events to name but a few. I have had the pleasure of working in Extension for over 30 years working with and alongside hundreds of knowledgeable and passionate scientists and natural resource Extension professionals. Also, as a liaison between the universities and the USDA Forest Service, our office has worked with our state Extension forestry partners to provide training tools and information to professionals, forest owners, urban dwellers, and youth [00:45:00] alike. State Extension and state forestry agencies work very closely together here in the south with impacts that are far greater than if we were to work alone. My remarks are personal in nature, but I'm confident that the

several hundred colleagues I work with across the country in renewable resources extension feel similarly.

The first question you asked, "What is the top priority in food and agricultural research extension or education that NIFA should address?" Certainly of priority of importance we [00:45:30] believe is the need to address funding, the Renewable Resources Extension Act or RREA at its fully authorized level of 30 million dollars. Current RREA appropriated levels for the country are just over four million dollars or an average of \$80,000 per state and have been at that minimum level since the program began almost 40 years ago. These funds, along with Smith Lever Act funds are used at each of our land grants to expand efforts to reach the close to 11 million private forest [00:46:00] land owners who control close to 300 million acres of forest land. This is almost 40 percent of the nation's forest.

These lands and the products that come from them support close to one million forestry, wildlife, and wood products-related jobs and contribute over 300 billion dollars to the national economy through direct and indirect spending. In addition, billions of benefits that aren't typically measured in the marketplace, such as no consumptive wildlife activities, biodiversity, improved water quality, [00:46:30] and a host of other benefits, are derived from healthy management of our forests. The reason that this is a top priority is that extension is only reaching through flat funding of RREA and Smith Lever programs, a very small percentage of these forest land owners.

Family forest lands and family forest resources are critical to the economy of the south. The capacity funds from RREA and the Smith Lever Act are the only federally funded assurances that extension forestry and natural resources programs will be delivered to land [00:47:00] owners. No other federal agency or organization has the mandate to provide nonformal education to this audience. Through education, we see knowledge change, adoption of practice, and changes in our landscape, in our communities, and our well-being. Not just for today, but for generations to come. In short, RREA and Smith Lever dollars blended with state, county, and even nongovernmental resources go a very long way in developing impactful educational programs that change [00:47:30] people's lives.

Another component of the RREA annual appropriation is the National Focus Funds Program. It provides funding to support some of the most innovative and creative regional, national programs in the country. These funds are a minor component of the total RREA budget, but have encouraged our state level extension specialists to think outside of the box and outside of their states. Multistate regional and national collaborations are encouraged through this program. The importance of the regional aspect of this [00:48:00] program is reinforced by the fact that no state has an extension forestry compliment of specialists and educators to address all of the forestry resource issues that transcend state and political boundaries.

We must work across state lines. We must work regionally and nationally to ensure that we are meeting the needs of our stakeholders in a fiscally responsible fashion. Programs such as RREA and the Smith Lever Act provide for national, regional, and state cohesiveness to collectively tackle key major issues such as, [00:48:30] the forged health situation we heard about earlier from Dean, Dale Greene of UGA's Warnell's School of Forestry and Natural Resources. Issues such as the wood manufacturing opportunities included in new engineered wood product lines that promise more renewable and sustainable options for everything from our tallest buildings to the smallest nano technologies that go into plastics, paints, and concrete. And the associated building of basic industrial training support and problem solving essential to a strong forest industry.

[00:49:00] Another issue, the wild land fire education is important for field management and disaster planning education. It is so desperately needed to reduce the loss of life and property in our increasingly urban rural interface. Another area, the bioenergy and alternative field education that can change the way we think about our environment and how our energy is produced and used.

Urban forest education is key to improving the environmental, social, and economic well-being of the 80 percent of the citizens [00:49:30] of this country who live in cities and towns. The Wildlife Management Education for both consumptive and non consumptive uses as well as education to minimize the loss of yields and damage to lands from vertebrate pests. The environmental science as education is also critical. This is key to reverse the nature deficit disorder trend that is witnessed by so many of our children today. And the list goes on.

The good news is, that through improved impact and evaluation tools we are more confident [00:50:00] than ever that the federal dollar is being put to good use. In 2015 alone, our RREA programs were responsible for over 144 million dollars in savings or earnings from program participants leading to hundreds of new or expanded businesses that created thousands of jobs. For every one dollar RREA invested in the state level in 2015, the local impact was over nine dollars. Increasing the federal allocation to its authorized level of 30 million [00:50:30] dollars is smart for people, smart for the economy, and smart for the environment. It is an investment that returns 10 times its initial value in one year alone.

Leading on to the second question. One of the most promising science opportunities for advancement of food and agricultural sciences. Extension works with people, and without a solid research-based understanding of what motivates land owners to adopt forest and wildlife practices, then the new knowledge that is discovered through our forestry and wildlife research [00:51:00] will not reach its full potential and use. We don't know enough about the motivations, barriers, values, and other important social and demographic drivers of family forest owners. We need more research on positive motivators, be they social, economic, or environmental to lead forest managers to improve

the management on their land that improves the health and productivity and reduces risks to catastrophes or market downturns.

Additionally, the most critical forest resource [00:51:30] issues that need more research include, forest health, living with fire, development of new uses for wood, invasive pests, effective wildlife management damage control, and nontraditional natural resource extension delivery mechanism similar to the citizen science discussion we just had. We need stepped-up funding for our forestry research dollars via the McIntire-Stinnes Act to accomplish these heavy scientific questions.

Many of us in the natural resource extension field often say that black top is not easily [00:52:00] returned productive and healthy forest land. If we are to keep our forests in forests and more importantly, keep them healthy forests, then we will need the support provided by stepped-up efforts such as those as the increase of RREA funds to the authorized but never appropriated 30 million dollars.

Thank you for the opportunity to brief you on what those of us working forest lands and forest owners see as a high-priority need of the USDA and NIFA in particular. Thank you.

[00:52:30] I can do a dance.

Megan Haidet: Yeah. All right. Thank you, Bill. Are there any questions?

Speaker 12: Thank you. Bill, how would you describe -- you talked about establish a good working relationship between research and extension. How would you describe the ideal situation for that?

Bill Hubbard: [00:53:00] The ideal situation between working with research and extension? Well, we've got a pretty good relationship already. So I'm not sure if we can improve upon that, but we have -- many of our specialists now are located in the colleges of forestry. They have split appointments. They work very closely with the county delivery system. I think the biggest problem is capacity. The funding is very limited. I believe, recent forestry deems a survey in the southern [00:53:30] region had extension capacity at about 20 percent, and I think that's pretty good given the funding we had. So, there's great relationships and the added funding would enhance that tremendously. Good question.

Megan Haidet: Thank you so much. Next up we have Katie Welborn from the Carolina Farm Stewardship Association.

Katie Welborn: [00:54:00] Good morning. I'm Katie Welborn and I'm with the Carolina Farm Stewardship Association. We are the oldest sustainable AG organization in the southeast. We work in North and South Carolina. We have about 3,000 members. Those are made up of organic farmers, food producing farmers,

farmers market managers, and food and farm advocates that want to support a sustainable, [00:54:30] localized food system in the southeast.

The heart of what we do is farm services. So, we have a team that does a lot of organic consulting, food safety consulting, high tunnel workshops, business planning, and we also do policy and advocacy. So, today I wanted to share a little bit about one of our top priorities whether we're working on food safety legislation or food policy council development or [00:55:00] any type of research, is to really have authentic grassroots community input in all of our policies and programming. And I think that most everyone in the room would agree that this is an ideal and worthy goal. I mean, we're all here at a community input session, right, for this government agency here, right? But a lot of times putting that into practice is difficult, time consuming, and costly, but it's worth it.

So, I wanted to share a little bit [00:55:30] about a project that I was a part of before I worked for Carolina Farm Stewardship. We worked with CFSA, but I was actually working at the University of South Carolina on an ethnographic study of food systems change through community organizing. It's a very long term there, I guess. But it was funded through the Agriculture and Food Research Initiative through NIFA and it was called, Capacities. And through that, we were trying [00:56:00] to get real community and grassroots input to create policies and programs in the midlands of South Carolina to ultimately combat childhood obesity. But what we found early on was that we were assuming that a lot of these grassroots networks that had already been built up that we could tap into to get input to then create policies and programs to combat childhood obesity.

We learned very quickly that those grassroots networks, they were lacking in many places, and in a lot of instances they didn't really exist in regions in which we were working. [00:56:30] So, that put our project into maybe a longer timeline than we originally planned and we really met people where they were. Whether they be at farmer's markets or door knocking in neighborhoods or met a lot of very friendly extension agents who let me follow their pickup trucks around and go knock on doors of farmers who might not even have internet access to see what they're -- what they saw as their largest policy hurdles to what [00:57:00] they were trying to do with their food and farm businesses.

There are a lot great organizations and programs that ultimately came out of that project. One is called End Child Hunger SC. There's another community organizer I was working with through that that has organized and still is organizing lots of concerned parents, neighborhood organizers, schools and places -- churches, places like that to increase the number of summer food service sites and sponsors [00:57:30] for summer food service around South Carolina.

We also did a lot with SNAP Healthy Bucks. We evaluated South Carolina's pilot program through that community organizing process and it's now a statewide Healthy Bucks Program at farmer's markets in our state. We also started the



Midlands Food Alliance, which is a food policy council. So, food policy councils, if you're not familiar, bring together lots of different stakeholders in food and agriculture and public health to work on local food and farm issues. So, with that work for Carolina [00:58:00] Farm Stewardship Association we try to take that, lessons that I learned and that's kind of been a theory that we work with as our organization. We work now to develop lots of food policy councils around North Carolina and are looking to do more of that in South Carolina to make sure that the programs that we are doing and what we're putting on in North and South Carolina as well as what we're advocating for the local state and federal levels, are actually putting the money and the staff time and the resources [00:58:30] into getting real grassroots at the table. Which sometimes is at a forum like that, but sometimes is actually having the funding and the staff and the capacity to go out and meet, for example, the farmers that might not even have access to the internet and might not know that a session like this is happening.

So, thankful for opportunities like that to advocate for me authentic voices when we're making these decisions. So, kind of want [00:59:00] to switch gears a little bit and talk about most promising science opportunities. There are many, but the one that I want to share today is around organic seeds. So, really, through working with our membership, and we also work with the National Sustainable Agriculture Coalition, and some of what I'm sharing today is from our partner organization, the Organic Seed Alliance. It's just the need for more organic seed in general that should result from publicly funding research. [00:59:30] The cultivar should be publicly available and they should be developed to assess specific regional needs for farmers. So, being a grassroots organization that values grassroots input, we do work with a lot of farmers and as you know, if you get the American Grocers Association Magazine or things like that, or you walk into Wal-Mart right now, you can see that organics are growing in popularity and are more and more readily available. So, we want to make sure that those opportunities are available to farmers in all regions including the [01:00:00] southeast.

So, the southeast is an economically viable option for farmers to grow organic product, but it is certainly with challenges that comes from sourcing, reliable, and productive seed. Because organic farmers are prohibited from using chemically treated seeds, as well as most pesticides and herbicides utilized by conventional farmers, it's important for organic farmers to have access to seed varieties, which are developed using unique regional growing conditions. So, in the southeast, [01:00:30] we have a lot of pest and disease pressures. If this is a place in which you live and work, you're very well aware. Due to our high temperatures and our humid climate, so having access to regionally adapted crop varieties is critical to farmers that wish to produce organically.

So, compared to other regions, the organic seed market in the southeast is somewhat developed, but underdeveloped compared to funding for projects in the west, Midwest, and the northeast United States. [01:01:00] So, we ask NIFA to prioritize, investing in organics seed research into the maximum extent that

we possibly can, and to ensure that funding for organic plant breeding is long-term and addresses the needs of organic agriculture by crop type and by region.

So, I thank you for this opportunity. There's a lot more information about organic seed needs in a recent state of organic seed report that was put out by the Organic Seed Alliance, and I'm thankful for opportunities [01:01:30] to comment here and sending information about commenting online to all of our members as well.

Megan Haidet: Are there any questions for Katie?

Speaker 14: Sorry. Can you give a short summary of what your organization is?

Katie Wleborn: Yeah.

Speaker 14: Some introduction about [inaudible 01:01:54].

Katie Wleborn: Yeah. So, Carolina Farm Stewardship Association, the heart of what we do is the farm services. So, we [01:02:00] offer free high tunnel consulting, food safety consulting. So, it would be good agricultural practices certification consulting as well as now the Food Safety Modernization Act consulting, what that means for small growers.

Speaker 14: What's your size?

Katie Wleborn: So, we have 3,000 members in North and South Carolina. A lot of those are actually food producing farmers or organic farmers of all kinds. The two buckets of farmers we work with sometimes is overlapped. Sometimes they don't -- but a lot of our members are people like farmer's market managers, extension agents, [01:02:30] and we call them consumers that want to support local food production, which we say, "Growing locally to sell locally." So, in their region and organics. So, the heart of what we do is farm services and then policy and advocacy.

Megan Haidet: Any other questions? All right. Thank you so much for coming.

Katie Wleborn: Thank you.

Megan Haidet: Next up we have Mark [01:03:00] Latimore from Fort Valley State University. One of the 1890 Land Grant Institutions.

Mark Latimore: Good morning. First of all, I would like to thank NIFA for this opportunity to speak with you this morning. I am the [01:03:30] Extension Administrator and also the Director of our Land Grant Affairs at Fort Valley State University. In addition, my responsibilities at Fort Valley State University, we are a member of the executive board of the Extension Council on Policies, ECOP, and we were

just reelected to the Board of Agriculture Assembly Policy Board of Directors just a few weeks ago, and as [01:04:00] the 1890 Institution director.

This morning I'm really excited about this opportunity because it gives me an opportunity to reflect back when I was a student and you will see that student will be a strong focus as we continue our conversation. Growing up in southwest Georgia in the small rural farming community, we didn't have traffic lights. And we did have a caution light for a while, but we don't have that [01:04:30] now in that community. It gave me an opportunity to really want to further my education, and I had good mentors to make that happen. Believe it not, in 2017, we still have too students or youth that's in that same shape. Students who are the first generation of that family or who have ever planned to go on to university.

So, as [01:05:00] we testify this morning, not only behalf of Fort Valley State University, but ECOP, 1890's and really just the land grant system, as we look at the two questions that were posed to us, "What is your top priority in food and agriculture research extension education that NIFA should address?" This is the first question. One would be NIFA should continue to differentiate capacity [01:05:30] and competitive funds in terms of that nature and scope. It would be helpful if NIFA, if the federal guides, acknowledged this difference. Especially as it pertains to matching and time and effort requirements.

From the 1890 Association of Extension Administrators, which we identify prior for the 2018 bill. [01:06:00] The 1890 priority for the next Farm Bill are to reauthorize 1890 Extension and Evans-Allen Research Funds, the 1890 Facility Program, and the 1890 Capacity Building Grant Program. In addition to these recommendations, we want to change the percentage, and that recommendation that's been made, change the percentage of the carrier for extension funding from the 20 percent [01:06:30] for one year to the 100 percent for one or more years. The directors, the land grant directors or extension directors, and administrators, are proposing that the carryover provision for the 1890 Capacity Fund be consistent with the carryover for Smith Lever Funding. And among the extension community, we have support on that, so we're asking NIFA to also assist us in [01:07:00] supporting this recommendation.

The agriculture research directors, which is the research component of the 1890's, AEA is the extension component. Just a few months ago, Walter Hill from Tuskegee, testified before the House Agriculture Committee Hearing. And that title of that hearing was the next Farm Bill University Research. And during his testimony, he voiced [01:07:30] confidence in the unique and pivotal role of the 1890's and the past forward. We need to increase investment in both, as we stated earlier, capacity and competitive funding, the 1890 Capacity Building Program, the 1890 Facility Grants, and the carryover provision for the 1890 Extension, McIntire-Stennis Forestry Program, and also the Nutrition Education Program. We're looking at FNET and also SNAP-Ed. [01:08:00] We just recently, as of 2017, received a 501(c)(3) for what we call Center of Excellence. We have

Center of Excellence. These Center of Excellence focus on international activity for students, small and limited resource farm opportunities, small farmers in general, and also in collaborative opportunities for not only the 1890's and [01:08:30] other land grants, but also for nonland grant universities as well.

Without additional funding, the 1890 Extension Program will be unable to address the many needs that we are faced with each day and also, we will fail to address the needs that we see in our commission. 1890 Extension Fund is authorized at, as we stated earlier, 20 percent of Smith Lever, [01:09:00] but currently we are only receiving 14.3 percent of that 20 percent. We know this is a congressional move, but we're asking for NIFA's support to the continued requests that we're making for those efforts.

Graduate and undergraduate students. This continues to be a focus on research and training opportunity needs for our students. This is challenging for the [01:09:30] 1890, but for students in general. We need more students to become interested in agriculture so that we can meet the needs that's available in the community.

Vulnerable youth. According to the NIFA USDA 4-H Headquarters, population of young people are identified as vulnerable based on situational characteristics such as, parenthood, disconnection from school and work, homelessness, involvement in juvenile justice [01:10:00] and foster care. So, these are individuals that the 1890 targets through our 4-H Program and also underserved and underrepresented populations in different areas. So, we're looking at these opportunities as well as we address this particular question.

The second question. It says, "What are the most promising signs of opportunity for advancement of food and agriculture sciences?" Students, [01:10:30] students. STEM and STEAM opportunities, we must push, push, push to get more students interested in the sciences. The sciences of agriculture, the engineering component. It's a must in this day and time. If our students are to be competitive worldwide, we must work to engage our students in these opportunities.

Earlier this year, I had an opportunity to visit China [01:11:00] and Ghana and we talked to students in both -- at several universities in both countries and the student focus, innovation. Entrepreneurship, innovation. Entrepreneurship, innovation. So, these are things that we must, we must do as it relates to our students. So, as we address this second question, the most promising science opportunities for advancement in food and agriculture sciences, is training our students. Give our students the opportunity to work in labs across the country, [01:11:30] different universities, great exposure. Provide our students the opportunity to work industry. Another great opportunity. And this gives the students an opportunity, when they graduate at the undergraduate level, it enhanced that opportunity -- that chance of getting in graduate school, and also, it gives them that confidence that they can do anything, go anywhere, and be successful.

To assure continual relevance, ECOP, [01:12:00] recently engaged the corporate system in identifying and prioritizing strategic issues. These issues included, nutrition, health and wellness, positive youth development, water, food production and food security, community development. So, we are requesting that these focus areas of interest to the corporate extension system [01:12:30] be included in NIFA's strategic action plans and also funding portfolio. Thank you.

Megan Haidet: Thank you so much. Are there any questions? Luis, you've got the mic. All right. Dr. Qureshi.

Dr. Qureshi: Thank you [01:13:00] so much, Mark. Points well made. Just FYI, NIFA listen to the idea of workforce need and workforce development, especially workforce that they can hit the ground running when they join the workforce. There is a program which NIFA started about three years ago called REEU, which stands for Research [01:13:30] and Extension Experiential Opportunities for Undergraduates, REEU. This program is really crafted for the very purpose you are identifying in your comments that at undergraduate levels, these undergraduates would have externships, internships, study abroad opportunities. To go for one summer or two summer periods to another institution, another [01:14:00] agribusiness or federal agency or what have you so that they have some hands-on experiential learning opportunities so that after they graduate, they would be more employable in terms of work experiences, hands-on experience. So, thank you so much for identifying that as a continuing need.

Mark Latimore: Thank you.

Megan Haidet: All right. Thank you so much. [01:14:30] Next up we have Dean Sam Pardue from the University of Georgia.

Sam Pardue: All right. Well, thank you. I have the great privilege of serving the citizens of Georgia as the dean of the College of Agriculture Environmental Sciences at UGA, and we're certainly grateful [01:15:00] for the opportunity to meet with you today. I want to start off with, I recently returned from Taiwan and learned a Chinese proverb that says, "If you are planning for a year, you plant corn. When you're planning for decades, you plant trees, and when you are planning for life, train and educate people." So, I'm grateful for the partnership that we have with NIFA as we train as Mark mentioned, that next generation.

[01:15:30] I want spend a little time, it's been mentioned before, about capacity versus competitive funds and the two different roles that I believe those programs serve, to kind of contrast with models that we've adopted here in the U.S. for agriculture as well as for medical research and then look at the return on investment and the overall efficiency of those models and the ways in which I think they attack and address differing problems.

Almost [01:16:00] a decade ago I wrote a paper and mentioned this very topic. And basically, the premise is that historically, national policy for Ag research has been based on the foundation of what we used to call formula funds, but now capacity funds. And of course, we in the U.S., have the lowest cost, safest, most abundant food system in the developed world. We also have one of the finest medical systems in the world, but it's [01:16:30] primarily based upon competitive grants. One of the differences is, is that U.S. medical costs are relatively high compared to much of the developed world. And I'll mention that in just a moment.

So, I want to contrast those two. They are both important. They're both needed, but I think ultimately they arrive different conclusions. Give you one example of the overall inflation rate for U.S. healthcare costs over the last several [01:17:00] years has been about 7.1 percent, while the overall economy has inflated at a rate of less than three percent. So, clearly, also another factor in our economy that's exceeded the normal rate is that of education. Higher ed has exceeded the national rate for inflation as well. So, we are facing an economic structure where our medical costs continue to escalate. Compare that with agriculture and yes, [01:17:30] there are some spikes where, for example, 2008 everyone remembers that. The summer of historical highs in fuel, food, and fertilizer, but by and large, for much of our recent history, food costs have somewhat mimicked that of the overall economy. And in fact, in 2016, food prices actually were at a lower rate of inflation and actually deflated. And so we're seeing that contrast [01:18:00] between Ag and medicine.

The green line represents individual spending. Now, this is what somebody spends out of their pocket. It is not insurance or government programs. This is just expenditures for food and healthcare. The green line, you'll see in the early 1990's, those two lines started to diverge. In fact, today, individuals spend significantly more on healthcare than they do on food. So, think [01:18:30] about every month when you pay your health insurance, when you make your copays, those kind of things. So, we're a change, at least in the U.S. economy in that regard. These are data from the National Health Center and obviously some of those are projected costs, but by 2025, we are likely to see nearly six trillion dollars spent on healthcare in this country from all [01:19:00] sources. Private insurance, government, and individuals.

Look where we are in 1960. Now, one would argue we did not want to go back to a healthcare system that was available to us in the 60's, but we are spending a tremendous amount of money. In fact, now these data are a little stale. They're over ten years old, but I think they give you some idea of where we're at relative to some of our other countries [01:19:30] in -- principally in Western Europe. The U.S. at that time was spending over 15 percent of GDP on healthcare costs. Many other countries, for example, like Australia, the UK, France and Germany, were anywhere between eight and 11 percent of GDP. So, we as a nation are spending a tremendous amount of resources relative to healthcare. Now, last I checked, nobody wants to die prematurely. So, [01:20:00] whenever we go, we want to absolute best and latest techniques and

procedures, but we as a nation are investing a huge amount of resources in our healthcare system. And in fact, by 2020, nearly one out of every five dollars in the entire U.S. economy is projected to be associated with healthcare. When I was five years old in 1960, we were spending as a nation about five percent of GDP on healthcare. [01:20:30] Now, contrast that with our food costs and I think we'll see where we're at a little bit different.

So, I am here today encouraging, as others have mentioned, about capacity funds. I want capacity funds and competitive funds to still be available for AG research, but I will tell you, capacity funds provide us with a unique platform, a foundation that allows our scientists to experiment and try things that would never get funded from a competitive [01:21:00] perspective. It allows them to go out and get information that will help provide preliminary data that will make them competitive for grants. Competitive grants, I believe, are essential for addressing what I describe and others as the grand challenges of our society. Those large multimillion dollar grants provide us with the opportunity to bring in multistate, multi institutional, multidisciplinary [01:21:30] approaches to solve those problems. Those are essential. My take-home message to NIFA today is that both of these are important and that we need to provide ways, if possible, to grow each one of those.

So, where should we invest in the future? Three areas that I think hold a lot of promise. One is the microbiome and NIFA provided, I believe six million dollars in funding for [01:22:00] work in the area of the microbiome. I think it's encouraging. It's an area we're going to see great promise in the future. The role of big data and finally one that hopefully we could see implemented would be a Rapid Response Fund to emerging crises.

Many of you have seen this photograph. Amazing to me that gut microflora has such a huge impact on our overall health. They've conducted studies [01:22:30] where they did gastric bypasses in mice. It changes the gut microflora. I used to think it was the fact that we have restricted the size of the stomach, but the reality of it is, that procedure changes the gut microflora. Transfer those microbiota to another mouse and that mouse gets lean. I'm ready to sign up Dr. Qureshi. So, in animals, whether it's cattle, small ruminates, poultry, there's a tremendous [01:23:00] opportunity if we focus on the microbiome.

Plants. This actually happens to come from a private company based in Boston. The soybean plants on the left were treated the same way under drought conditions. The only difference is, the one on the right was treated with a microbial treatment from a company called Ag Indigo. [01:23:30] And in fact, coming up in a relatively few months is an entire conference on the AG microbiome. So, hopefully we can encourage NIFA to continue supporting this area of research. Big data, I am confident that as we continue to expand, if we're going to be able to use the massive amounts of data that we have to make good decisions and to help us with risk management, we're going to have to develop better analytics. And this is just the graph showing you the data

storage [01:24:00] trends that have occurred. And you can see more than a quadrupling in just a few years. The massive amounts of data.

The challenge we have is not the fact we don't have a lot of data. The challenge is how do we then assess and evaluate that data? And in fact, there's talk of creating an Ag cloud. A way in which we can provide analytics and decision-making processes to huge amounts of data that our farmers, for example, [01:24:30] are generating. And last, would love to see a Rapid Response Fund, and it's fortuitous that Dr. Qureshi is here today because he participated in this crisis that occurred back in the early 90's in North and South Carolina and parts of Virginia with PEMS, Poult Enteritis Mortality Syndrome. It was a devastating disease. And what happened was a joining of multiple institutions, multiple stakes [01:25:00] that sought to find a solution to this problem. It was, quite frankly, killing the turkey industry.

Well, we have an issue in Georgia and in many other parts of the southeast with white flies. We have had mild winters and it has created a massive problem as these insects over winter, and as you can see on the far right, they take up residence on the underside of the leaf of many fruit and vegetable crops as well as cotton. [01:25:30] If we don't get a handle on this, I have had vegetable farmers tell me they may not be able to stay in business because they are plowing their fields under because they can't get a handle on white flies. It is a major issues. And just to give you some contrast, the panel on the left, that part of the field on the left was not treated, the one on the right was, but it is incredibly expensive. Some of our folks are applying pesticides that are \$40 [01:26:00] an acre and having to do that multiple times when their margins are so incredibly small.

So, figuring out ways to deal with white flies, that's just one example. It doesn't have to be tens of millions of dollars, but it would be great if we could have a process that would allow us to tap into some emergency funds with these emerging disease. And finally, as I've often said, in the state of Georgia, when you are well fed, I hope you thank somebody that wears Georgia red. Thank you very much.

Megan Haidet: [01:26:30] Thanks, Sam. Any questions?

Sam Pardue: I'm the last one before the break.

Megan Haidet: That's right. We're running a bit ahead of schedule, so we'll move our break up. Instead of being from 10:10 to 10:30, we'll go from now until 10:20. [01:27:00] And if everyone here could step over the side or maybe the back of the room. Selina, you like the back, we'd like to take a group photo. And everyone listening online, we'll see you again in 20 minutes.



Megan: All right, folks. We're going to get started for the afternoon, or the second half of the morning. Next up, we have Ellen Bauske from the University of Georgia. Yeah, it's just the green button.

Ellen Bauske: Just the green button. Hi, I'm Ellen Bauske. I am the Program Coordinator for the Georgia Center for Urban Agriculture. [00:00:30] Let's see. That better? I'm the Program Coordinator for the Georgia Center for Urban Agriculture and I'm in the Department of Plant Pathology. I coordinate programs in local food, urban forestry, urban water issues, and professional training for the landscape industry. I'm also co-vice-chair of the National Initiative for Consumer Horticulture.

I'm going to address the two questions that were post for the day: What is my top priority in food and agricultural [00:01:00] research, extension, or education that I think NIFA should address? Well, that's easy. I think it's consumer horticulture.

Consumer horticulture is the cultivation, use, and enjoyment of plants, gardens, and landscapes, and related horticultural items for the benefit of individuals, communities, and the environment. In a nut shell, it's gardening and landscaping.

Consumer horticulture has [00:01:30] a huge number of stakeholders, and they're very diverse. They're community gardeners, home gardeners, homeowner associations engage in consumer horticulture, public gardeners, nonprofits, municipalities with their parks and recs departments, schools with their sports fields, hospitals. The list is almost endless.

Who gardens? Well, according to Bruce Butterfield of the National Garden Association, just about [00:02:00] everybody. 80% of all households have someone, a member who gardens inside or outside. That's a huge number of consumers.

There are also a very diverse group of industry stakeholders in consumer horticulture. These are businesses that meet the needs of gardeners either by purchasing plants or supporting their use. They include nurseries, greenhouses, turfgrass [00:02:30] producers, landscape design, construction and maintenance firms, wholesale and retail distribution firms such as garden centers, home stores, and mass merchandisers with lawn and garden departments, the list goes on and on, irrigation specialists, floral cultures, et cetera. Okay, [00:03:00] let's see here. Let's go back here.

Consumer horticulture and specialty crops go hand-in-hand. Consumer horticulture ultimately drives the demand, consumption, and sale of many specialty crops. That would be ornamental trees, shrubs, turfgrass, annuals, and perennials, as well as vegetables for the home garden market. Consumer horticulture is a significant driver of the agricultural economy. The Consumer

[00:03:30] hort sector contributes more than \$196 billion to the US economy annually.

The specialty crop research initiative has had a huge impact on the production of consumer hort crops. Of the 162 projects that were funded between 2008 and 2015, 162 of them focused on production of specialty crops. [00:04:00] But the SCRI has had less of an impact on the use of specialty crops, particularly in consumer horticulture.

We know that landscapes have social, environmental, financial health and well-being impacts. We also know that lawns cover a huge area in the United States. NASA estimated it as an area the size of Texas. That's 164,000 square kilometers in turfgrass. [00:04:30] Turfgrass does not come alone. It is accompanied by trees, shrubs, annuals, and perennials. Consumer hort crops are having a huge impact on the way we live.

That brings me to the second question: what is the most promising scientific opportunities for the advancement of food and agriculture in science? I'm going to be a one-note wonder. Once again, consumer horticulture.

We know that consumer horticulture is an essential [00:05:00] component of human life. There are many things we should be exploring. We need to explore the social health and well-being benefits associated with gardening and landscaping. It's time to develop and promote sustainable practices specific to consumer horticulture.

It is essential to educate practitioners on appropriate use of production and management techniques. We need to define the plants, products, [00:05:30] and technologies that are appropriate to the diversity of landscapes and regional climates across the United States.

We can also help specialty crop producers identify consumers and new markets. It's time to elucidate the role of landscapes in sustaining pollinator populations and maintaining water quality and quantity. We need to identify the right green infrastructure [00:06:00] for cities, consumers, and wildlife.

There's some real sticky things we have to grapple with, and that is it's time to proactively address the importation, introduction, and spread of invasive species. All of these research initiatives need a very strong extension outreach component to reach the many consumers in consumer horticulture.

[00:06:30] I mentioned earlier that I was a member of the National Initiative for Consumer Horticulture. This is an initiative founded by academicians, business people, and members of nonprofits who share a common vision: that is to cultivate a healthy world through the use of plants, gardens, and landscapes.

The economic committee pulled together this infographic. It's essentially a roadmap for people who are unaware of [00:07:00] the human value of consumer horticulture. It illustrates how human consumer horticulture impacts where we live, where we shop, where we play, and where we work.

If you'd like to find out more about this infographic and initiative for consumer horticulture, please visit our website. It is [consumerhort.org](http://consumerhort.org). With that, I'd like to thank you very much for giving me this opportunity to speak. I'd [00:07:30] be happy to answer any questions. Got it.

Speaker 3: Thank you for a very interesting talk. I'm learning a lot. I'd like to learn more about what putting the word "consumer" in front of horticulture, what does that enhance in horticulture itself?

Ellen Bauske: Well, it separates it from production. [00:08:00] Our background is always growing more, but consumer horticulture really is the part of horticulture that is drawn by the end user, that person who walks into Lowe's and buys a plant, takes it home, and wants to put it in their yard. That's what the consumer horticulture is. It's from the consumer's perspective, the consumer of horticultural product's perspective rather than the producer's perspective.

Speaker 3: [00:08:30] Thank you.

Megan: Any questions?

Ellen Bauske: Okay, thank you.

Megan: Thank you. All right. Next up, we have Harry Dickerson from the University of Georgia, College of Veterinary Medicine.

Harry Dickerson: [00:09:00] Good morning. Good late morning. My name is Harry Dickerson, and I'm the Associate Dean for Research and Graduate Affairs at the University of Georgia, College of Veterinary Medicine. I'm also the Director of the UGA Veterinary Medical Experiment Station. I'm making this presentation on behalf of the Council of Research for the American Veterinary Medical Association.

[00:09:30] The AVMA has a membership of just over 89,000 veterinarians, which is approximately 82% of the veterinary medical professionals in the United States, most of which you would probably fit in the football stadium over in Athens. Research that, for the first question ... And I apologize, I don't have a PowerPoint presentation, and I've got a script here I'm going to read through most of, but I want to stay pretty much on script because I've got quite a few things I want to cover.

Research that broadly [00:10:00] improves animal health is a top priority of the AVMA for the advancement of food animal agriculture. This includes research for the identification of new technologies to diagnose, treat, and prevent

infectious diseases of agriculture animals as well as pharmacologic and non-pharmacologic management practices to benefit animal health and well-being.

The end goal is to provide a safe, healthy, and abundant animal source of food and fiber. Of primary importance is the need [00:10:30] for continued and increased research focused on the health of livestock, poultry, and agriculture. Control of endemic diseases and the threat of transboundary animal diseases is critical. Research should target the development of new diagnostic assays for the earlier recognition of pathogens, as well as new vaccine strategies to control the transmission of pathogens from animal to animal and/or people.

Efficient food production, as well as [00:11:00] the welfare of individual animals, is optimized by good animal health. Management practices to promote animal health should be investigated with a special emphasis on the effect of nutrition on prevention of disease, correction of physiological imbalances, and efficient energy use. Research into other management practices, including sanitation and hygiene conditions, can lead to a reduction in exposure of humans to animal pathogens.

The American Veterinary Medical Association believes [00:11:30] that the use of data-driven methods to elucidate how changes in prophylactic and therapeutic management practices influence animal health, and productivity is the most promising opportunity for advancement of animal health and ultimately human health. It is critically necessary to make informed decisions going forward.

A specific example is innovation and data-driven methods that would allow monitoring of antimicrobial resistance in field situations and how changes [00:12:00] in management practices related to antimicrobial use ultimately influences animal and human health. It is important that changes of policy and practice are based upon strong scientific evidence before implementation.

The AVMA advocates for research to explore ways that promote increased animal production at decreased cost while protecting and enhancing animal welfare and minimizing environmental impacts. This includes, but it's not limited to, [00:12:30] research on the effect of subclinical illnesses on both food and growth efficiency in foodborne illnesses, research to improve diagnostic capabilities to detect subclinical disease and improve disease containment, research on gene expression designed to improve efficient animal production and health. Also, research to determine the impact of production practices on animal health, animal welfare, and the environment, also known as the One [00:13:00] Health concept that veterinary medicine is very much strongly bought into.

Finally, based on my own professional and personal experience as an academic veterinarian and a USDA-funded animal health researcher, I believe strongly that the NIFA foundational research and exploratory programs are key elements of the USDA competitive grants program supporting animal health. I believe that using funds to support investigator-initiated [00:13:30] research targeting basic

principles of physiology and biology and pathobiology can often be more effective in the long run than mandating research funds for specific diseases.

I'd also like to mention that these funds have been instrumental in the development of the careers of young veterinary researchers across the country for many years. Thank you.

Megan: Are there any questions?

Harry Dickerson: [00:14:00] Thank you.

Dr. Qureshi: Thank you. Great presentation.

Harry Dickerson: Thank you.

Dr. Qureshi: I'm wondering if you can expand a little bit more on what role do you see NIFA playing in transboundary type diseases.

Harry Dickerson: Yeah. I think transboundary diseases are a critical threat to our whole [00:14:30] economics, animal production system. For instance, the effects are multiple. If an outbreak of foot and mouth disease, for instance, came into my state of Georgia, it would have an effect not only on cattle in that state, but it would shut down everything. We have a huge poultry production system industry that would all be affected.

NIFA can do many, many aspects of it. We do [00:15:00] a lot of research on biocontainment research for facilities within which ... Not necessarily foot and mouth, that's limited to a specific area, but other select agent type organisms, funding for those types of research, funding for support of such facilities, and also training of individuals in the diagnostics of transboundary diseases and also, as I mentioned, the development [00:15:30] of vaccines. A lot of areas. I could get very granular on that, but yeah.

Megan: Thank you. Next up, we have Antonio Quinlan from the Hudson River Apiary Society. I'm not sure if Mr. Quinlan [00:16:00] was able to make it this morning. Okay.

Well, then we will proceed to the next speaker on our agenda. That is Thomas Kuhn from Oklahoma State University. Okay, I have a joke while he's walking up. What is the scarecrow's favorite fruit? Strawberries.

Male: [00:16:30] Really?

Thomas Coon: Yeah. That was better than the runway music, so I appreciate the attempt anyway. Thank you. I appreciate it. Again, I echo some of the other presenter's comments about the great appreciation we have for the agency asking for input and the own self-reflection that you've gone through as well. I really appreciate

that. I think [00:17:00] it's certainly meant to improve our ability to support food and agriculture and natural resource systems in the country, and that's in our intention as well.

I'm Tom Coon. I serve as Vice-President for Agricultural Programs at Oklahoma State University. I could have gone five hours away to Kansas city last week, but I had a conflict, and so I flew five hours away instead of driving to speak here today, but it is important to me.

I do want to say I'd like to [00:17:30] switch the order of the questions, if that's okay, because I see the second question really as being more of a framing question about the context in which we identify and pursue our research, extension, and teaching priorities. I want to talk about that framing a little bit more. The actual priorities I'll get to, I think, are more a reflection of our particular geography, Oklahoma being in the Southern Great Plains and having that transition from southeastern forests to [00:18:00] those plains. It'll be more specific as I get to those priorities.

I think the most promising opportunities are in the integration of scientific research and translation of that research through formal and non-formal educational programs that address the full scope of the value chain. There are critical needs for better understanding of soil and water sciences that affect crop and animal production systems.

There are critical needs for [00:18:30] better understanding of post-harvest storage, processing, and distribution challenges in the supply chain of food and other agriculture and natural resource products and services. There are critical needs for better understanding of markets in a current global climate and regulatory environment.

There are critical needs for better understanding of human nutritional needs and their relationship to human health management. There are critical needs for better understanding a farmer, [00:19:00] rancher, agribusiness operator, wholesaler, retailer, and consumer behavior.

The most critical need is for research and translation that is conducted within this system's perspective. Ultimately, this reflects the complex environment in which players in the food, agriculture, natural resource systems operate.

Even the most reductionist research into soil chemistry, plant physiology, animal genetics, foodborne pathogens, [00:19:30] all of those need to be framed by these systems' perspectives of being part of the whole supply chain, value chain from production to consumption. It's in the integration of these concepts that we have the greatest opportunities for discoveries and applications that can enhance profitability, environmental health, and human health.

In addition, I'd like to mention a little bit about infrastructure, [00:20:00] because that's typically not a part of the normal NIFA grants program, but I think it's important to recognize the unique role that NIFA and the land-grant universities and the non-land-grant schools of agriculture and natural resources play in strengthening our food production systems. It isn't sufficient to simply fund individual research and extension projects no matter how extensive or collaborative or integrative they may be.

Ultimately, [00:20:30] sound research that advances our food security and ecosystem sustainability relies on complex and expensive research and demonstration facilities. Whether they are biosafety level laboratories that allow investigations into pathogens or sophisticated tissue culture and genetic analysis facilities or modern animal production and crop production facilities, where we can experiment with the factors that influence animal and crop health and productivity, our public [00:21:00] research infrastructure is the foundation of our ability to advance agriculture, food production, natural resource management, and community vitality.

Two years ago, the Association of Public and Land-grant Universities contracted with a private firm to conduct a study into the status of research infrastructure at public schools of agriculture. That study documented a deteriorating infrastructure for the research that has provided for many of the advances in our understanding of agricultural productivity and security.

[00:21:30] Those advances that undergird some of the statistics that we saw earlier about how inexpensive food is relative to healthcare, the advances that we've made in food and food safety and so on. That study documented a deteriorating infrastructure for the research that we've talked about. In fact, those very advances that we talked about were conducted in facilities that were considered state-of-the-art at the time that that work was going on.

[00:22:00] The unfortunate fact is that for many of our public institutions, we are still using those same facilities to support our research, and they are no longer state-of-the-art. Indeed, the study documented a deferred maintenance debt of \$8.4 billion.

However, that's not simply a reflection of poor facility management. Nearly two-thirds of the usable space that was inventoried was built before 1990, and much of that was built before 1970. [00:22:30] Those facilities simply cannot support the kind of electronics, environmental safety, and environmental control needs of 21st Century research.

Certainly, there is room for improvement in the investments that institutions make into maintenance of their facilities, and we've called ourselves to task for that. However, there are two considerations relevant to the research priorities question that you raise.

For other agencies, the full cost of research that is the combination [00:23:00] of direct cost for materials, equipment, and personnel and indirect cost, the real cost of facilities, maintenance and operations, and administrative oversight and support are fully paid by the grants from federal funding agencies.

For USDA grants, that is not the case. We are paid lower than the actual cost of the indirect cost. I realize it's not the prerogative of the agency to change that. It'll require changes in legislation, [00:23:30] but if we want to ensure good stewardship of the facilities that support agricultural and natural resource research, we need to ensure that the full costs of research are covered by the grants that are awarded. In other words, the federally negotiated rate for facilities and administration needs to be authorized for USDA competitive grants.

The fact that so much of the research infrastructure is outdated means there is a need for new investments in that research infrastructure. I don't mean to suggest that this is strictly a federal role; [00:24:00] however, given the national interest in safe, secure, and sustainable food and fiber supplies, there is certainly a role for the federal partners to play to assist in financing the kind of infrastructure improvement that is needed.

The APRU has developed a proposal that would add funding for research infrastructure that is fair, competitive, and requires non- federal match. In fact, the authorization for the agency to do this already exists in the Research Facilities Act. What is needed is new funding in order [00:24:30] to support the federal partners' investment that will leverage state and private investments so that our research infrastructure can support the demands of 21st Century research at public agricultural schools.

As for the top priorities in food and agricultural research, I'll provide more detailed comments in the written, but, very simply, I think there are a couple of areas that we've already heard about today: plant breeding and genetics. I think there's a role for public institutions to play, especially in those crops that are not [00:25:00] in the domain of the large agribusiness enterprises in the world. Specialty crops, we've heard about those today. Organic, we've heard about that today.

I think the land-grant universities still have a really important role to play in fostering advances in plant breeding and genetics using modern genetic techniques as well as conventional breeding practices to develop varieties that might be resistant to whiteflies, for example, without the need of all of those heavy pesticides [00:25:30] that Dean Pardue was talking about.

I think soil ecosystems is another area. There's a lot of interest, and it's really been heartening to see the kind of interest that people have around the whole soil health movement. However, we need to make sure that we've got really good science undergirding that movement so that we're using the right



materials, the right methods, the right plant materials in particular as we try to strengthen the health of our soil systems.

Animal health management, [00:26:00] we heard about that already. I'm concerned that we need to avoid simply depending on pharmaceutical firms to come up with silver bullets. Rather, we really need to look at management practices and understand the herd health approach to managing animal health in our livestock systems.

I think, finally, it's important to recognize the importance of community engagement in developing secure and sustainable food systems. We're fortunate that consumers and community leaders [00:26:30] are interested today. We need to take advantage of that.

What concerns me is that when people come to us and say, "Can you help us with the community food project?" we don't have a whole lot of research to fall back on. I think there's a need for advancing research in that. Again, an integrated approach that involves horticultural practices as well as community organizing as well as innovative approaches to markets, small markets, microloan programs and so on. There's more need for research there for us to be able to provide [00:27:00] the kind of information that's needed.

Let me close with just an illustration from Oklahoma that's unique to Oklahoma. The Choctaw Nation of Oklahoma is very much engaged in its own food sovereignty. It's been an honor to be able to work with them side-by-side as they pursue their own agricultural enterprises, both for economic returns and for cultural returns. In talking with the leaders of their agriculture department, I learned something [00:27:30] by hearing them talk about the return on investment that their beef and pecan production systems are meant to provide: jobs for community members and economic activity that spins off other opportunities.

But they also talk about a return on vision. They talk about how their agricultural enterprises, their natural resource systems are meant to return on the vision of their culture of their society. [00:28:00] I think we all have something to learn from that.

Whether there's a researchable question in there or not, I'll leave that to social scientists to come up with that, but I think there's something for us to recognize by looking at the broader systems and thinking about the community context for how people obtain their food, how they use their food, and how it maintains their health that can help us to have stronger and more sustainable food systems in the future. Thank you.

Megan: Thank [00:28:30] you. Are there any questions for Tom?

Thomas Coon: Great. Thanks.

Megan: Thank you so much. Oh, [inaudible 00:28:41].

Dr. Qureshi: Thank you, Tom. Very enlightening comments. If I could ask you to expand on how do you think we can enhance [00:29:00] our partnership with tribal colleges? You gave a great example of one effort in Oklahoma, but across our land-grant system enterprise that also includes our tribal colleges, how can we expand our partnership in terms of collaboration on programs, systems approach-based programs, and be a little more inclusive so that we [00:29:30] build capacity in that portfolio as well?

Thomas Coon: Well, thanks for that question, Dr. Qureshi. I think part of it is our own self-education and learning and greater awareness of what the unique needs are within each of those communities. For one thing, our native communities are extremely diverse.

That's really struck me since I came to Oklahoma. We have 39 federally recognized tribes there. Their cultural heritage goes back to many [00:30:00] different linguistic patterns and so on.

Understanding that there isn't one solution, I guess, is the point, but rather it takes continued engagement with communities to understand the needs, and then to participate with them. The thing I found is that across that diversity, there's a basic understanding or agreement with the value of what we do in cooperative extension. In other [00:30:30] words, having people embedded in the community, who are part of the community and understand, can understand, and engage with leaders and members to understand what those needs are, I think that's really a critical part.

Now it doesn't have to be an embedded Extension agent like the federally recognized tribe extension program, although that's one way, but there are other ways that we can facilitate that kind of embeddedness and then engage in conversation with them. I think [00:31:00] it's on us. It's on the land-grant institutions to foster that kind of engagement and certainly be a conduit and a partner with NIFA in better understanding those.

Dr. Ramaswamy did a phenomenal thing last year when he called us together. It was specifically in talking about engaging between 1862 and 1994 land-grant institutions. No one had ever done that. It was [00:31:30] an extremely rich conversation. I learned a lot and I was overwhelmed at the same time.

There are a lot of things that we can be doing. To be honest with you, it's more likely to happen at the grassroots, at the community level than it is with something that happens in Washington, on the waterfront. I applaud Dr. Ramaswamy's leadership for calling us [00:32:00] together. I look forward to continuing that dialogue not only around tribal colleges, but also in other ways of involving communities, tribal communities, in the work that we do. Thank you. Thank you.

Megan: All right. We are moving on. Next up, we have Joyce Perdue from Hixson High [00:32:30] School.

Female: [inaudible 00:32:37].

Joyce Perdue: Good morning. My name is Joyce Perdue, and I'm from Hixson High School in Hixson, Tennessee. Today I have some staff members that are with us and faculty members I'd like to introduce, and I've asked to introduce them. It's Mr. Lee Friedlander, he is our agrosience [00:33:00] teacher. Thank you, Megan. Renee Parker, she's our health science teacher, and Jill Moses, our business teacher. These three folks represent our faculty and staff, which are excellent teachers, motivators of students in our school. They're just three of the many teachers who work hard every day.

Let me tell you just a little bit about Hixson High School. Someone asked me this morning if we [00:33:30] were a charter or magnet school. I said, no, we are a public school in the community of Hixson. We are one of 17 high schools in our district. I do have to say that we are the only ag program in the district of 44,000 students and employees. It's a great thing to have at our school, and we appreciate all the CT programs that we have in our school.

[00:34:00] Also, our school is very diverse. We have many programs at our school that we enjoy. As our principal likes to say, Mr. Sims, he likes to say we all get along, and we get along well. If you're ever in the Hixson Community, please come see us.

Today we want to talk about some of the promising opportunities and top priorities, and listening to all the different things that you've said today just reinforces what we believe as high school teachers [00:34:30] that here's the gap that's missing, here's the piece that has not been tapped yet.

In 2014, Millennial Branding put out a study about high school careers. It was mainly about internships. When we read that, we jumped right on the bandwagon and started an internship program. Our goal is every senior in our high school will have that opportunity of an internship or work-based learning opportunity. [00:35:00] We're at about 159 a year that happened in our school.

One of the things that struck me in this study was that parents expect students in high school now to be able to know what they're going to do with their life when they leave high school, but they're not helping them. I thought that just struck me as an interesting fact, that we as high school teachers have even [00:35:30] a bigger responsibility to our students.

We took a survey in our school before we started to revamp what we're doing, and one of the questions was, "What can we do? What other classes could we have for you that would change your high school career or help you?" It was anonymous, but a student wrote, "Teach us how to live life after high school.

Just teach us that," because most of them are on their own even before high school, but, [00:36:00] for sure, when they graduate.

I'm proud to say that, over the past few years, we've had some changes and things are going fantastic. 80% of our students who graduated this year went on to higher education, 5% into the military or other areas like that, so we feel that what we're doing is working at Hixson High School. Of course, it's relationships and capturing students early.

What does that have to do with [00:36:30] NIFA and for all of you that are here? High schools, like I said, this is the time to capture them, to bring them in, to get them interested in what you want them to know. We believe, one of our foundational beliefs in moving forward is research, design, and innovation should be happening in our public schools.

We shouldn't be waiting until they get to college. That shouldn't be the first time they ever walk in [00:37:00] and have to do research or look at a lab that has million-dollar pieces of equipment in it. We should see this in our high schools. Our schools should be incubators and creative hubs of design thinking and problem solving, innovation, scientific research where we have thinkers and we actually produce prototypes and publishable research is produced.

What's going on right now to Hixson? Just some things to make you aware, [00:37:30] is this is Mr. Friedlander in his agrosience class with tenth and eleventh graders. Of course, yes, you have to teach them the research process, how to cite a publication. You work through all those things, but they're doing real world work.

Tenth and eleventh grade students tested the efficacy of grafting these heirloom tomato cultivators to highly vigorous F1 hybrid rootstock cultivators. The students' [00:38:00] research of existing literature ... And, yes, in a science class, they were told that they had to go to the library, and they were working on previous literature reviews and writing a review, that is happening. They wanted to know about the production benefits of grafted tomatoes in a high-tunnel.

Next, they developed a research question and they extended it to previous research to determine if the grafting also had benefits in tomatoes grown in a hydroponic system. [00:38:30] We do have a hydroponic system at Hixson High School. We have two facilities that were funded by grants in production. One has hydroponics and one is soil.

With the help of their teacher, they developed a double-blind protocol to remove experimental bias during the data collection phase of the experiment. This is a great experiment, but how much further could it have been pushed if we had an active partner in [00:39:00] a university with us? I know NIFA has some of those things, but I guess we're asking that active partnerships are easier

to find and to access and to come alongside. High school students, like Mr. Friedlander said, we have free labor. They're with us eight, nine, 10 hours a day, and we love that, but we put them to good use.

Another thing [00:39:30] that's happening in our school is some of our other eleventh grade chem students, since we have the hydroponic system, they developed nutrient formulations for targeted crops, which they will mix with recipes of ionic salts to meet the nutritional needs of these hydroponic crops. Then they're going to test the performance of those. Again, how interesting it would be if we had someone else working with us and helping us write this up, working with it, working with the students.

[00:40:00] I guess that what I want to say is ... I'm getting down to my minutes ... promising opportunities would be that we have research-based activities going on in our high schools and to tap into those research-based activities. Also, introducing them to your different pathways. You need people to come into colleges. We can do that in high school. We can make them aware [00:40:30] of the different possibilities in our high school classes. Students entering your universities no longer have to take a year to decide what they want to do. They can come right in and they can start working.

Also, we'd like to see a model created working with NIFA of how this would work in high school, if they came along and we went ahead and created a model of active partnerships, ones that could [00:41:00] help us with experimental design, partnerships of knowledge and expertise, linking our activities that we are already doing even further into the real world, giving relevance to classroom activities, creating connections with what comes next in the student's future, and then funds.

For instance, if there's someone in Hawaii that's doing research and it fits with what we're doing, or vice-versa, we might just have to have distance learning equipment, and [00:41:30] that professor then could be in our classroom at that time when we are working with them. Those are some things that active partnership could help. That's another promising opportunity.

You could also create a database that would be easier accessed if, as teacher in high school, we're getting ready to do a project. They can look at what was happening in the universities and maybe click and be able to instantly see who is working on the same things.

[00:42:00] We ask that you help us push science by taking a more active role in high schools and by providing the structure and funding to create those active partnerships. Thank you.

Megan: Okay, sure. Are there any questions?

Joyce Perdue: Questions? Okay.

Megan: Oh, there's one at the back.

Joyce Perdue: Yes, sir?

Male: [00:42:30] Cool. No, no, no [inaudible 00:42:32]. I think that's just phenomenal and wonderful, what you're presenting. I think that's a real ... It makes me feel great for our future that you are doing such a thing. I'd just like to ... One example, I have a colleague at University of Georgia who when he was at the University of Alabama in Birmingham, he had a program that was sponsored by the Howard Hughes Medical Institute. That program actually trained the teachers [00:43:00] to train the students.

It was actually they brought them in for summer programs into the labs at the university, gave them the equipment to do, in this case, it was biomedical and it was molecular biology type things, but they would train these high school teachers, which would beget a great amount of enthusiasm to them. Then they would go back into the classroom with the equipment that they got in their training and was able to bring that excitement into the classroom. It also made that partnership [00:43:30] connection very strong.

I think that model has worked and I think it'd be something to consider. It would be a possibility for NIFA to actually perhaps fund something for that in the agricultural science side.

Joyce Perdue: I think it would be a wonderful network. If you energize teachers, they change the world.

Male: Yeah, I think we all know that. I think everyone of us here knows that inherently, that we probably are on our career course [00:44:00] because of some high school teacher that did that for us.

Joyce Perdue: I do agree with the model, if you train the teacher and give them equipment and excite them and they get back into the classroom, and then stand along beside them as you go along is a great model, not just leaving them alone.

Male: Yes.

Joyce Perdue: Thank you.

Female: This is actually directed to Dr. Qureshi. Does the REEU program support this kind of model [00:44:30] that she's talking about?

Dr. Qureshi: Thank you. REEU is a four-year college level. I'm so glad you asked that question, but, first, before I answer that question, let's give a big hand to the high school teachers who are here because there's tremendous [00:45:00] data available, which tell us that if you wait until master's and PhD level to attract people towards agriculture programs, it's already too late. Even if you wait until high

school, you're still too late. You need to start very, very early. There are more jobs folks in agriculture than the graduates we produce. There's no question the relevance of this talk to NIFA's mission overall.

Answer to your question, there are several [00:45:30] programs in NIFA's education and workforce development portfolio, which are actually geared to exactly what she was saying in her slide: curricula development, professional development of teachers, partnership with two-year colleges, four-year colleges, articulation programs between high school and two-year and four-year colleges.

These partnership ideas which she has, they [00:46:00] are already in works in some of NIFA's programs, but more so I think we need to do a better job at my level to promote the opportunities which we currently have and also use some model partnerships which are currently working so that they can be amplified or replicated. I'll give you one example.

[00:46:30] We funded a project at North Carolina State University a few years ago, and I'm forgetting the high school name where NC State developer ... It was on the coastline. That partnership actually resulted in developing a biotechnology lab in high school.

Male: Bertie Early College High School.

Dr. Qureshi: There you go. What's the name again?

Male: Bertie Early College High School.

Dr. Qureshi: Bertie Early College High School. In fact, [00:47:00] I was so impressed that those students are actually cloning genes, transforming bacteria, expressing those jeans and transform bacteria, developing those purifying proteins which are being expressed by those bacteria. Actually, they have established a business, that that expressed protein is now being soared back to NC State. [00:47:30] What a great model for us to actually replicate.

But you are absolutely right. We need to do a better job in NIFA to actually promote these type of activities because no question that if we don't start at her level or even lower level, we will miss the boat. Again, my thanks to high school teachers. You made our day by coming here. Thank you so much.

Joyce Perdue: Thank you for having us. [00:48:00] We appreciate it.

Male: I have a question.

Joyce Perdue: Oh, next question.

Male: I have a question. How do you see these activities being incorporated into programs? Do you see them as being part of your standard curriculum or added to the standard curriculum or done after the standard curriculum? What's effective?

Joyce Perdue: Can I choose D, all of the above?

Male: Okay. Thank you. That is a great answer.

Joyce Perdue: No, but, truly, part of the curriculum is the integration portion. [00:48:30] We also have an amazing fine arts program. I mean we have an orchestra and a band, 90 strong in each one. It adds to the creativity of what our students do in the school. You could across, you could have ag business.

We have our health science program, who produces CNA students when they leave and personal trainers [00:49:00] by the time they leave our school. They also put projects into their classrooms of how can we do this surgery better? They're out asking butchers to get pigs and tendons so they could actually show a new tool on how to do this surgery. All of those things are incorporated into the classroom. Thank you. Any other questions?

Megan: [00:49:30] Thank you so much, Joyce. Next up, we have [Jay Russell Washington 00:49:41]. Are you here today? All right. I don't think he was able to make it. Our last scheduled speaker is Michael Newman from Mississippi State University. If [00:50:00] you have an interest and you're not on the schedule to speak after Mr. Newman, can you just raise your hand? All right. Well, we'll give you another chance after our final scheduled speaker here. Thank you so much.

Michael Newman: Sure.

Megan: Just use the green button to advance yourself.

Michael Newman: Thank you, Megan. It's been my pleasure to hear from colleagues at the University of Georgia this morning, but I'm a bulldog of the maroon [00:50:30] variety. Glad to be here.

I'm the Director of the School of Human Sciences there, which also contains our program in Agricultural Education, Leadership, and Communications. I really appreciate the work at Hixson High School. I have to say I'm concerned. We have a school district with 44,000 students and only one high school has agriculture. That's something that we've got to improve on.

I'm here [00:51:00] today representing the American Association for Agricultural Education, also the Council of Administrators of Family and Consumer Sciences. I had the privilege of wearing both of those hats and certainly support and acknowledge many of the good things that have been said here this morning. I will confirm some of those in my talk as well.



Huge proponent of education and extension, [00:51:30] but the primary area that I want to share today is about social science research and its relation to agriculture. I think Dr. Pardue talked about grant challenges. It's something that we've heard Dr. Ramaswamy talk about.

I guess one of the things that I'm always reminded of is the concern that one of the reasons we have a lot of these grant challenges is simply [00:52:00] the distance at which our population is becoming further removed from the farm. We have a huge population of people who are concerned about where their food comes from, but because they're so removed from the farm, they no longer have that innate trust of the agriculture system.

The big problem is when somebody [00:52:30] has a position based on emotion, it's very difficult to show them enough science to change that position. Of course, there's a lot of these grant challenges, but that's where we find ourselves.

I'm recommending that because of this wide spectrum of stakeholder perspectives, we need to have skillful interventions that get us to solutions for these challenges. [00:53:00] We promote multidisciplinary scholarship ... Not the first time you heard that today ... integrating the tripartite mission of the American agriculture system, the land-grant universities, USDA, the teaching extension and research mission that combines bench and social sciences.

Yes, technological advancement is important. You've heard some of that today, [00:53:30] and it's necessary. Our top priority, though, is human capacity development. Human capacity development is planned, integrated, and embedded in these NIFA research priorities. These are essential to us getting to where we need to be.

In a nut shell, we need to increase scientific-based knowledge. [00:54:00] You all have heard some other examples about that today, obviously. Now it's about food production and its relationship to all of the areas about which we're concerned: human health, economic well-being, social stability, energy production, environmental sustainability, rural communities, and all that that involves.

That would be what we encourage NIFA to focus on [00:54:30] is human capacity development within all of these other areas. Thank you. Oh, wait. Megan, you said I could everybody else's time? No. Anyway, any questions?

Male: Can you talk a little bit more about your association, please?

Michael Newman: Sure. I could talk about a couple. [00:55:00] The American Association for Agricultural Education is made up of professionals in agricultural education, extension education, agricultural communications, community development. That's the group, that's the overall group.

The reason I'm here today comes from a group of administrators and agricultural education that are part of the North Central Advisory Committee, NCAC 24. [00:55:30] I'm pleased to be an officer in that group. We had somebody there at Kansas City last week and we'll have someone in Sacramento and D.C. in upcoming weeks.

Male: Thank you.

Michael Newman: I would also say I represent the Council of Administrators of Family and Consumer Sciences, which is a similar group of people who are administrators at the university level and human sciences, human ecology, family consumer sciences, whatever you want to call those programs nowadays.

Female: Thank [00:56:00] you for your presentation, Dr. Newman. One point that you made that struck me was the importance of science communication. As you point out how folks are getting further and further away from agriculture and from where their food, fiber, and other things come from, what emphasis on science communication, what do we need to be doing? I don't mean you or I, but the system. Then, from a university point of view, [00:56:30] what are you doing at your university and across the system to focus on the importance of science communication?

Michael Newman: Now that's a great question. Thank you for allowing me to elaborate a little bit. The science communication aspect, like I said, when you deal with peoples and they have emotional attachments to some idea, then one of the things you have to be very careful about is how you construct your messages and what points need to be made [00:57:00] to help people understand where we're coming from in agriculture and natural resources food systems.

There are some neat things going on at universities right now dealing with that. I want to say Bill Hubbard maybe and Dale was here earlier, and they were talking about how do you get people who have smartphones, they have Google, they think they know everything, [00:57:30] but they get their information from somebody who has some hidden agenda about which they're unaware. As we start looking at those messages, the research has to be about how you deliver those messages.

As a quick example, in ag communications, they have some retina scanners that judge people's visceral reactions to messages, [00:58:00] not what they want to tell you, not what they want to tell you they felt about that message, but what they actually felt about it as they were watching it. Those are the kind of things that we need to get together and accomplish. Sure, sure. All right.

Megan: Thank you.

Michael Newman: Thank you, Megan.

Megan: Thank you. Well, [00:58:30] that brings us to the end of our scheduled program, but, as you know, we have more time. We're here to listen as long as you want to speak to us. Wonderful. We have a couple additional comments from the audience. Fabulous. Why don't you just come up here? As folks are finishing their statements, the next speaker can come up. [00:59:00] We'll keep the day going. Thank you.

Charles Hall: [inaudible 00:59:04]. I was afraid that [inaudible 00:59:07] she was going to call on me anyway, so I ... My name is Charles Hall. I'm the Executive Director of the Georgia Fruit and Vegetable Growers Association. I want to, first of all, thank NIFA for having this listening session here in Georgia. We appreciate the opportunity to be here and be here. I listened with great interest with all the comments and things that were being said and talked about here.

For our growers, our [00:59:30] fruit and vegetable growers in Georgia, research is the life blood of our farms. Being able to take research that's generated through grants and programs by NIFA back to the farm and applying that at the farm level is very, very important for food and agriculture production.

But as I listened today, I heard everyone talking about new programs, expanded programs, things that we can do, and all that cost money. Dean Pardue, [01:00:00] I've never heard it quite put the way Dean Pardue put it. He was comparing agricultural production to the medical and health industry of the US. As I sat there this morning, I looked back in the very interesting program that NIFA put together. If I added this together, this is a \$1.4 billion program. It might be a little off, but I did a Google on the National Institute of Health, [01:00:30] and that's a \$32 billion program.

I mean that goes to show the difference between what we have in agriculture, in food production and what we have in the medical field. Nothing against the medical field, we all want to be healthy, but we have an opportunity in the next six months to help affect what's going on in Washington, and that's called the Farm Bill. Right now we're fighting to maintain [01:01:00] just what we have. We want to see that increase.

As citizens, I know some of you are governed by your jobs and you can't go and "lobby", but you can educate. You can go to your congressman, you can go to your legislative aides that work with your congressman, and make them aware of what we're doing within agriculture and what we're doing in research, because if we don't get to that \$32 billion level of those kind of grant programs, [01:01:30] we'll always be on the backend of trying to get ahead within our grants and within agricultural research. Keep going and keep working keep. Keep moving on. [inaudible 01:01:44].

Billy Mitchell: Hey, you all. My name's Billy Mitchell out of Atlanta. I work at a group called Global Growers. [01:02:00] I'm a little unprepared. I was laying inside this morning, so sorry I was late. But sitting here, I just wanted to talk about we're a NIFA-funded program this year. It's just cool being in this room.

We work with Georgia Fruit and Vegetable Growers Association, we work with Fort Valley University, we work with UGA, we work with the Carolina Farm Stewardship Association ... Trish Tripp is the best ... and we work with a bunch of buyers in Georgia like PeachDish, Common Market Georgia, [01:02:30] the Committee of Farmers Market Association, we sat down with Whole Foods. All our work is around food safety education with a focus on small and medium-sized growers.

For me, I think food safety is real cool for a bunch of reasons, but you get people talking about growing safe food and then you get them talking about where they can sell the food. We have a safer food supply, but then we're also increasing opportunities for sales for the smaller and medium-sized farmers.

The biggest hurdle for [01:03:00] us is there's all this incredible research, but it's confusing. I go online, I read about sanitizing wash sinks or read about keeping produce at proper temperatures. This is my life. I love it, and I'm super confused all the time.

A lot of our funding this year is taking these concepts and bringing them to a level that the small and medium-sized farms can understand, but they can also afford to implement, because if you have all this education but you can't do anything with it, what's the point?

[01:03:30] We just really want to encourage NIFA to continue to fund this work where we can go to the small, medium-sized farms, the farmers that don't know about these listening sessions, the farmers that are in the rural areas that might not have internet, or they can't afford a three-compartment stainless steel sink, but they could build a food-safe sink out of a 50-gallon food-grade barrel. We want to teach them that these concepts are accessible to them.

We also just want to keep strengthening those small farms because this is no secret that the small and medium-sized farms are disappearing. [01:04:00] We want food safety to be a tool that they can use to continue to sell and grow and not a barrier that makes them get out of growing and selling vegetables. That's all I got.

Male: How can you reach those communities that don't have internet?

Billy Mitchell: Well, we're very lucky. Everybody knows how busy Extension is or Georgia Fruit and Veg, but my funding is to go out and meet farmers. I get in my little '95 Nissan red truck and [01:04:30] we just drive and we ask everybody who they know who we should visit and then we go and we visit them.

Sometimes it's a little dicey just showing up on somebody's farm, but I used to be a farmer. I feel like I'm not very threatening, and dogs like me a lot. When we get there, we just talk. I'm just very lucky to have grown vegetables and

managed small farms for about eight years, and so just building that rapport with those growers.

Last [01:05:00] year, for the sake of overusing a metaphor, it's very much planting seeds with people, letting them know that they could trust us. We're not there to catch them doing something wrong, but celebrate what they're doing well and help the growers teach other growers their best practices. I don't know if that answered your question. Sorry.

Male: You did. Thank you.

Male: [inaudible 01:05:20]. What recommendations would you have for the current Extension infrastructure? You mentioned they're really busy. It'd be great to replicate what you do [01:05:30] in other parts of the south, their country, but I think working in partnership with the universities, as you mentioned, would be great. But I worry that your concern is that Extension is reaching their capacity to be able to help with these kinds of things. I think ...

Billy Mitchell: I mean that's definitely a concern of mine. Extension has the passion, the knowledge, and the resources, but I feel like they're stretched real thin. It's something that Charles touched on, is just funding for these [01:06:00] programs so that Extension agents can spend less time in the office and more time on the farm.

I wish that there is an easier solution, or maybe money is the easiest solution, but all the Extension agents that we work with are so thankful that we're able to take their knowledge and take their connections and spend time on the farm with the farmers, because I mean we talk to these guys, like Josh [Fodder 01:06:24] out of Cherokee County, and he loves GAPs education, he loves small farms. He started an urban [01:06:30] farm, but he spends a lot of his time getting picture text from people in his county being like, "What's this bug in my house?" Extension is just expected to do so much with so little, and they do an amazing job with it.

Male: Have you ever worked with the master gardener program, or is there a potential for a master food safety program where Extension could work with the university research and extension and teaching faculty to create a volunteer program to train others like you, [crosstalk 01:07:00]?

Billy Mitchell: Yeah. [01:07:00] I've never thought of that, but I think that's an incredible idea, because growers are very interested in food safety, and then buyers are very interested. School districts want to know that they're getting safe food for the kids, groups like PeachDish, which is this meal kit company out of Atlanta that is just really helping the small farm community thrive. They want to know about things that are food-safe. Having people that can go out and assist with that education would be incredible. People just like to talk, like me. [01:07:30] They want to be out there and help. Cool. Thanks, you all.

Male: Thank you.

Male: Thank you.

Megan: All right. It looks like we have a few more interested folks.

Female: I want to ask a question.

Megan: Okay.

Female: I want [inaudible 01:07:51].

Megan: Can I get you the mic so folks that are streaming can hear this?

Female: [01:08:00] Along the issue of funding, has NIFA considered partnering with NIH? At the University of Kentucky, one trend that we've noticed is that our agriculture faculty, some of them are getting awards from NIH. It's people in pathology, people in entomology. I just wondered, there a lot of collaborative NSF-NIH. Has NIFA explored that at all?

Megan: Thank you.

Dr. Qureshi: [01:08:30] The question is if NIFA considering or has considered partnering with other federal agencies, particularly the National Institute of health? The answer is absolutely. Obviously, both agencies have their very specific missions. NIFA's mission, as you know, is our center of gravity is production agriculture [01:09:00] as opposed to the National Institute of Health, which is most human health and public health.

However, there's no question there is a nexus between these two agencies in terms of some convergence and some programs. One Health was mentioned, for example. One health is animal health and human health all mixed together. NIFA has quite a few programs where we actually have a collaboration. [01:09:30] There's a program, for example, and I might be-

Male: [crosstalk 01:09:34].

Dr. Qureshi: I'm sorry?

Male: Vaccines.

Dr. Qureshi: Right. There's a dual purpose, dual use where after the genome sequences, for example, were developed to a level where we can truly call them as reference sequences, NIH and human medical research is actually using a lot of animals for their disease models. [01:10:00] We actually have a program where we provide funding to that type of collaboration. That's just one example.

In addition to NIH, we have several partnerships with NSF. There's a recent program ... Not quite recent, evolution and ecology of infectious diseases, for example, where we are mostly interested in the disease aspect; whereas NSF and other [01:10:30] agencies are more interested in the fundamental ecology of the microbes or pathogens. It's a great marriage of evolution and ecology of infectious diseases type programs.

Answer is absolutely yes. We are also collaborating with our federal partners through our federal STEM strategic plan, for example, where we're looking at K-20 pipeline. NIFA, [01:11:00] as part of USDA, is actually in each of these working groups, where we have K-12 working group, we have an undergraduate working group, we have a graduate program working group. I think we have a diversity and inclusion working group. NIFA is actually a lot more active than you probably would know in how to be a player in the common vision of education [01:11:30] and workforce development also at the federal level.

Yes, points earlier, if you look at the comparison between NIFA's budget line, \$1.5 billion versus NIH and others, certainly our primary priority is towards production agriculture. As we said, that's really our bread and butter. We, I think, do a very good job [01:12:00] in listening to you and then framing our prioritization in terms of where NIFA to be spending based on what you want, but point well made. Anybody else who would want to come and provide some additional input? I think I see some legs moving. Come on up.

Lee Friedlander:

[01:12:30] Hello again. My name is Lee Friedlander. I'm the agriculture teacher, one of two, at Hixson High School. We are a school system with at least 79 schools, about 44,000 students. Before the fall of 2011, we do not have a single ag program. Historically, we had had some, [01:13:00] but like many other vocational programs, they were pushed aside and they were forgotten because they ceased being relevant in an urban and suburban community.

We say Hixson. Hixson is part of Chattanooga. We're not a big city, we're not a small city, but my kids are not farm kids. Most of students have never grown their own food, they've never spent much time in production agriculture. Most of them [01:13:30] truly will not go on to careers in production agriculture. That's not what I train them for. I train my students to be science literate and to be ag literate.

It's a great job, it really is. It's a job I have a lot of fun. I think what makes, and I say this all the time, my job to be the best job in Hamilton County is that with my high school kids, [01:14:00] sometimes for the first time in their life, they get to do something real, something with consequence.

At the university, especially at the upper level undergraduate classes and truly for graduate students pursuing master's and PhD-level degrees, they are doing real research. They're answering questions that matter, they can see a connection. They are personally invested in their work.

I worry so much of what we do [01:14:30] in middle school, elementary schools, and high schools, it's fabricated, it's not real. In an agriculture classroom, especially we get to do things that are real, that matter. They get to see a connection between the knowledge, the skills, and the outcomes.

Speaking about my co-worker, Renee Parker, she trains health occupation students. Her students, when they leave our high school at [01:15:00] 17 years old, are certified nursing assistants. They are certified by the State of Tennessee, licensed by the State of Tennessee to go out and work independently in healthcare fields.

Now the agriculture field does not have that. I don't know if we ever will or ever quite should. It doesn't fit our model. But what I want to do is make sure that when my students leave my ag program, or leave high school in general, whatever pathway they should choose, they come out [01:15:30] science and agricultural literate.

I'm constantly looking for tie-ins to what is happening in the real world, real world research. I teach, that's tough. I am not a plant expert, although I pretend to be. I'm not a small animal expert, although I can fake it. Soil scientist, a little bit, but I'm far from the expert that many of the university professors can rightfully claim to be. [01:16:00] I'm a jack-of-all-trades, but to really dive into the scientific method, to really dive into processes and knowledge, you need some of that expert advice.

I think Miss Perdue, in her call to action, I think what she really wanted to hammer home, and actually I know this because we helped prepare it together, was the need for collaboration and partnership; not just collaboration in the loose sense between land-grant [01:16:30] universities and schools, but very, very focused collaboration between researchers tapping specific questions and high schools doing one small part of it.

Not just an activity in a chemistry lab where you burn some compound and you say, "Oh, look. Green light. It must be this," and then it goes in the trash, not producing some poster or some paper that you turn in to the teacher, you get a grade back on, you're happy or sad, and it goes in the trash.

What I'm looking for is the opportunity [01:17:00] to show my students that what they're learning and what they are doing is real and that they can extend this into the real world, whether it's an academic pursuit or a career pursuit. I'm looking for relevancy. If I can find that, then I think, for my students, I'm doing a really good service.

I hear what you are doing at universities, I hear the priorities you're talking about, and all I could say is, "Yes, yes, yes. I want that for my students." What I'm [01:17:30] asking for is to help in the infrastructure, and the funding, to be honest, to get them there.



Thank you for your time. Thank you for the work that you do. I can't wait to see my students become a part of the big picture, real world stuff that you all spoke about, these priorities you guys spoke about. Thank you.

Male: Thank you.

Megan: All right. These extra comments are really [01:18:00] great. Any additional comments? Okay. Well, I wanted to thank everyone, on behalf of NIFA, for coming out today. These listening sessions are one part of a two-pronged initiative. You can still provide comment online.

We have a stakeholder input form that is on our website. I encourage you all to share those [01:18:30] with your producers, your grassroots cooperators, all the small farmers, your colleagues at universities, so we can have as robust and as much input from our stakeholders as we move forward. Dr. Qureshi will finish up with a few closing comments, but I just wanted to thank everyone for coming out.

Dr. Qureshi: Well, [01:19:00] thank you, Megan. Let me first thank my NIFA colleagues who really have put in a lot of time and energy and effort, and especially Megan. We could not have really done all these listening sessions and continue without Megan. Thank you so much, Megan, for doing all of this.

Also, our agencies, a sincere thanks to you all for taking the time and coming [01:19:30] and sharing your fantastic ideas with us. That really was our intent, and I think we have been very, very successful. We have covered a huge territory today in terms of feedback. Several areas, and I'm not going to list any. I've been taking notes. We are recording these, and these recordings would be available on NIFA website, along with the presentations for you all to look at, too.

Where do we go from here? [01:20:00] As I said earlier, this is our second external stakeholder listening sessions, and two more to go. We've already had our internal listening sessions from our internal program staff and program leadership.

Once we have all these inputs in place, we are going to, believe me, read every single word and every single line of these inputs. Using both our own intellectual capital and capacity, [01:20:30] along with certain text-mining software, we hope to synthesize some of the leading themes or overarching themes which come out from these external as well as internal listening sessions.

Our eventual hope is that we want to make sure that if our scientific emphasis areas or if our portfolio lack some [01:21:00] of these ideas which we get from you, we want to make sure that we insert those ideas into our programs. At the same time, we also want to make sure that we do our best to best align your

ideas with the funding, which we provide as a federal assistance agency, to deliver our mission which encompasses research, education, and extension/outreach.

With that, [01:21:30] I will say that you please be in touch with us through several portals. As I said, these presentations and the analysis will be available to you online through NIFA. We will also continue to communicate with you through emails and all.

If no further comments, let me thank you on behalf of NIFA, on behalf of our senior leadership, and at the department level [01:22:00] that we value what you do and you truly make a difference. Thank you and safe travels.