Research, Education, and Economics (REE)
National Agricultural Research, Extension, Education, and Economics (NAREEE) Advisory Board
Specialty Crop Committee (SCC)

MINUTES OF THE SPECIALTY CROP COMMITTEE MEETING

January 19-20, 2022
Virtual Meeting Via Zoom

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EXECUTIVE SUMMARY

The Specialty Crop Committee (SSC) is a permanent, statutory committee responsible for studying the scope and effectiveness of research, extension, and economics programs affecting the specialty crop industry and provides consult on the procedures and objectives used to conduct the relevancy review and the scientific merit review of the Specialty Crop Research Initiative (SCRI) met in public session on January 19-20, 2022 via a virtual zoom meeting. The meeting's main goal on day #1 was to provide the SSC members an update on the projects from the Specialty Crop Research Initiative (SCRI) Grant Project Leaders that were awarded in 2021. Project Directors presented their projects that address the critical needs of the specialty crop industry supporting research and extension issues by addressing key challenges of national, regional, and multi-state importance in sustaining all components of food and agriculture, including conventional and organic food production systems. The main goal of meeting day #2 was to learn more about the SCRI program and its job to promote collaboration, open communication, the exchange of information, and the development of resources that accelerate application of scientific discovery and technology to solving needs of the various specialty crop industries. Another major goal of day#2 is to obtain the SSC's input, feedback, and recommendations on the path of the SCRI.

DAY #1: WEDNESDAY, JANUARY 19

Welcome and Roll Call

Ms. Kate Lewis the NAREEE Board Executive Director/Designated Federal Officer (DFO) opened the meeting by introducing her colleague Ms. Shirley Morgan-Jordan and to have her kickoff the meeting.

Ms. Morgan-Jordan started the meeting by welcoming all on the zoom call to the official first SSC meeting of 2022 and taking roll. The following names of SSC members were called by Ms. Morgan-Jordan, and their response is given in italics:

(1) Donnell Brown – *present*
(2) Gregory Goins – *here*
(3) Marguerite Green – *present*
(4) Carlos Iglesias – *present*
(5) Shawn Peebles – *no response given*
(6) Nikki Rothwell– *no response given*
(7) Jim Tuinier - *present*

Ms. Morgan-Jordan announced that the zoom meeting was being recorded to capture the meeting in its entirety and if anyone on the call has any objections to let her know.

Day #1 Meeting Overview and Goals

The meeting was turned back over to DFO Lewis, and she reintroduced herself as the Executive Director of the NAREEE Advisory Board and gave the reason for having the meeting. DFO Lewis stated that the SSC makes recommendations by statute for the SCRI program, and the research grant projects in place for the current year, past year, and future years. Furthermore, DFO Lewis stated that the next steps and action items that come from the SSC feedback will provide NIFA and the SCRI program with information on how best to move forward on future grants.

DFO Lewis informed the SSC members that they would be hearing from 15 SCRI grant project directors and that the members should also have an excel spreadsheet that has all the research projects that have been in place over the past three years. DFO Lewis also welcomed the grant project directors and looked forward to their research summaries. Lastly, DFO Lewis asked if anyone had questions on the today's meeting goals or her overview and before moving along in the agenda. No questions were asked.

DFO Lewis went on to introduce and give a short biography on the Director of the USDA's NIFA Program, Dr. Carrie Castille who was charged with giving this meeting's opening remarks. Dr. Castille is a Louisiana native who has a broad 20-year background in rural and agricultural issues. Dr. Castille joined the USDA in 2017 as a State Director for Louisiana and served as chair of the NAREEE Advisory Board for seven years (2010 – 2017). She has received numerous awards one being an award from then USDA Secretary of Agriculture Ann Veneman for the development of Louisiana's Master Farm Program in 2003 as well as the Secretary's Award for Excellence in Rural Development in 2018.

Opening Remarks

Dr. Carrie Castille started off her remarks by thanking the SSC for inviting her to the meeting. Dr. Castille reminisced fondly about her appointment by Secretary Tom Vilsack as the Chair of the NAREEE Advisory Board. She found it to be a wonderful experience to be able to understand and appreciate the complementarity between the intramural as well as the extramural research that goes on at the USDA but also the valuable role of the stakeholders and partners who are looking at extension research and teaching functions, particularly in areas where certain challenges are affecting communities. Dr. Castille understands and believes that the SSC has real value and plays a critical role, and she thanked the SSC for their time and service.

Dr. Castille went on to state that since NIFA is an extra mural funding agency of the USDA and never really provides the Federal capacity funding to support agricultural experiments stations, as well as cooperative extension programs across the land grant university system including 1862 land grants, 1890 land grants, historically black colleges and universities, and lastly 1994 tribal land grant institutions. NIFA is proud of their very robust portfolio of competitive grant programs, including SCRI, Integrated Pest Management, Emergency Citrus Research, and NIFA's flagship Agriculture and Food Research Initiative (AFRI). Dr. Castille was pleased to

share with the meeting attendees that in October Secretary Vilsack announced that the USDA made a 243 million investment in grants to support specialty crops. 170 million went to specialty crop block grants, as well as another 74 million from NIFA's specialty crop research initiative. Dr. Castille mentioned that the SSC will learn more about that from Dr. Tom Bewick the SCRI National Program Leader. She also remarked that NIFA funds over 70 individually funded program lines that support research teaching and extension. And NIFA is proud that they are a fast-growing agency that has close to 300 experts on staff, many of them joining for over the past year from our land grant universities and the agriculture industry across the nation. Dr. Castille hopes that the new NIFA employees are seen as an asset, and we hope that the meeting attendees will see some familiar faces and people that you can relate to hose that are going to support the customers and partnerships in the industry. NIFA according to Dr. Castille is constantly working to update their processes and systems to ensure that the programs are both, easily accessible, as well as serving the public's needs. Furthermore, NIFA is at the stage in their agency development where the public's input and feedback is critical according to Dr. Castille as well as absolutely invaluable and NIFA wants to continue to hear, not only from the role that the members serve on this very valuable committee, but also in roles that the members might serve on their day jobs. Dr. Castille went onto assure the SSC that NIFA is not only making sound user informed decisions today, but also listening and incorporating the SSC's advice for one continuous quality improvement across the Agency for collective success so again. And again, Dr. Castille thanked the SSC for their service on the committee and looks forward to hearing about the updates and the tremendous work that the SSC is doing.

DFO Lewis thanked Dr. Castille for providing such a comprehensive overview of NIFA and for her strong and positive opening for the meeting.

Statement by SSC Chair

DFO Lewis went on to introduce the SSC Chair, Dr. Gregory Goins from the North Carolina A&T University to make a brief statement.

Dr. Gregory Goins wished all a good morning and thanked Dr. Castille for her shout out to historically black colleges and universities where Dr. Goins has been working for the past 20 years as a professor and Chair of the Department of Natural Resources. Dr. Goins stated that he is honored to serve as the Chair of the SSC and knows that the SCC's charge is to stay the scope and effectiveness of research and extension economics programs affecting the specialty crop industry and he went on to say that he looks forward to providing consultation to the Board to help with the challenges of successful crop production.

Introductions of NIFA SCRI National Program Leaders

Next DFO Lewis gave the floor to the SCRI National Program Leads so they could introduce themselves.

Dr. Tom Bewick introduced himself as the SCRI National Program Leader with NIFA and he has been with the agency since 2000 and he works in the Institute of Food Production and Sustainability. He gave a big shout out to Ms. Morgan-Jordan, DFO Lewis and Ms. Megan

O'Reilly whom he acknowledges as the people who really done the heavy lifting to organize the meeting and to make sure the meeting is successful. Dr. Bewick also went on to than Ms. Summer LaRose who is backing up Ms. O'Reilly. He also thanked his colleagues from NIFA for joining us as he was really excited about having the meeting because the SSC hasn't met in a couple of years and the SSC meetings are an integral part of the process in making SCRI as good as it is. Dr. Bewick reminded the speakers that the presentation times are going to be closely monitored because of the very packed agenda, and he hoped that they have practiced their presentations and have the timing down because otherwise the mute button will be used, and the next speaker will be signaled to begin.

Ms. Megan O'Reilly started by sharing how happy she was to see the Project Directors who logged into the meeting. Like Dr. Bewick, Ms. O'Reilly also works with the Institute of Food Production and Sustainability and has been working specifically with the SCRI since 2010. She stated that she was pleased to see all the new SSC members and looks forward to hearing about the good research that's happening out there.

DFO Lewis noted that the first part of the meeting agenda had been completed its mission to provide overview, strategy, and providing context to all on the call. It in this moment that DFO Lewis asked Ms. O'Reilly to change the screen so the meeting participants could be seen. DFO Lewis more meeting participants had joined during the first part of the meeting, and she let them know that there will be ample time for them to introduce themselves. and had successfully completed. DFO Lewis turned the meeting over to Ms. O'Reilly who was coordinating the zoom screen share and tasked that the SCRI Grant Project Leader's presentations now begin.

Presentations by SCRI Grant Project Leaders

Ms. O'Reilly introduced the first three presenters, Steven Knapp, Joji Muramoto, Erin Rosskopf and Frank Louws for the first session. She also shared that these three presenters have 20 minutes to present and 10 minutes for questions. These three projects are from 2017-2018.

Steven Knapp, University of California, Davis presented a project entitled "Next-Generation Disease Resistance Breeding & Management Solutions for Strawberry (September 1, 2017 – August 31, 2022)". The project has five main objectives: #1: Understanding Economic Factors Affecting Stakeholders; #2: Strengthening Genome-Informed Breeding Platforms; #3: Developing & Deploying Disease Resistant Cultivars; #4: Predicting, Monitoring & Preventing Losses Caused by Plant Pathogens; and #5: Understanding Socioeconomic Factors Affecting Stakeholders. Dr. Knapp believes that the work with stakeholders needs improvement and has found that there are deep philosophical differences between scientist and stakeholders and that this tension could be felt in his project. On a positive note, what scientists can do with the strawberry over this past five years has really been transformative and they have had tremendous publications. Dr. Knapp also made mention that a lot of the funding for this project came from leverage matching with other grants to, but it was certainly the SCRI Program that had a tremendous amount of synergy in driving this project.

Dr. Carlos Iglesias asked how much of it is an issue are cultivars which affects genomic selection and the integration of different positive attributes in strawberries? Dr. Iglesias noted that he deals with sweet potatoes at North Carolina State. Phytophthora

Dr. Knapp answered that he understands that the strawberry also may have some issues with that and directed Dr. Iglesias to his first slide that he did on the transformational and enabling work. Dr. Knapp noted that what is incredible about strawberry is that there are several myths about the strawberry and people knew what they couldn't do, but in several strawberry researchers work they were shocked at their ability to navigate through the four sub genomes. Dr. Knapp continued answering that there are 50 million DNA variances discovered in elite germplasm and researchers could map short read DNA sequences for about 80% of those back to the genome. And with the technology Dr. Knapp and his team are just blessed by octoploid genetics because the researchers do a lot of work to sort out which genome they are looking at.

Ms. Donnell Brown had a comment and then a question. Ms. Brown's comment was on the social aspect of the project and that in her work at the National Grape Research Alliance public perception is discussed a lot in terms of how biotechnology and the ability to use modern tools or just dealing with what people think things are doing to their food or wine and that she feels Dr. Knapp's pain on that subject. Ms. Brown's question is what is the project's typical timeline for breeding to bring something to commercial viability?

Dr. Knapp answered that his research has produced a wonderful paper, where he and his team looked at breeding speed over the last 250 years and how it has accelerated, but the average time was 16 years but it's down to eight for Florida at UC Davis. But in the end Dr. Knapp believes that it is realistic to say eight years would be a typical timeline.

Joji Muramoto (with assistance from Erin Rosskopf – focus on FL), University of California, Santa Cruz presented a project entitled "Integrating Anaerobic Soil Disinfestation, Crop Rotation and Variety for Disease Management in Strawberry Production". The project involves five States across the country these five States combined cover combined cover 99% of the strawberry sales and production in the United States. Anaerobic Soil Disinfestation (ASD) was developed as alternative to methyl bromide in the Netherlands and in Japan independently in 2000. Dr. Muramoto presented the three steps of his project as follows: (1) Incorporate organic material; (2) Cover with oxygen impermeable tarp; and (3) Irrigate to saturation – Not Flooding – and maintain the fermentation process for three weeks. The projects overall aims are to (1) Improve the basic understanding of modes of action of ASD and environmental interactions; (2) Use this knowledge to design and test integrated management systems; (3) Work directly with strawberry growers who are testing and adopting the biological strategies.

After the presentation Ms. O'Reilly pointed out that Dr. Muramoto put a different website link than the one on the spreadsheet in the chat box. The corrected website is as follows: https://soildiseasestrawberrygroup.sites.ucsc.edu.

Dr. Steven Knapp had a question for Dr. Rosskopf asking what she thinks the prospects are for working with ASD on small farms? And does she see ASD working well?

Dr. Rosskopf answered "absolutely"! She also went on to answer that the researchers have found that it's much easier to transfer the ASD technology to small growers.

Dr. Carlos Iglesias had a question asking is there any information about the long-term effects, positive or negative of ASD on soil health, overall? And his second question was, has ASD and any biologicals been used in combination to explore the possibilities of getting even better synergies?

Dr. Rosskopf explained what her research has looked at in Florida and where they have seen fields where ASD has been applied for up to nine years and only beneficial effects are seen as well as cumulative beneficial effects, so the longer you treat the soil with ASD the better it seems to work. Dr. Rosskopf then specifically answered Dr. Iglesias' question on the combining of ASD and biologicals stating that there is some work being done with the project's Tennessee collaborators with some beneficial effects and stating that philosophically her preference is to utilize the native microbial community by selectively feeding those beneficial organisms that our facultated anaerobes. Dr. Muramoto answered on what he has experienced in California and that he has also seen a positive effect on soil treated with ASD. Also Dr. Muramoto's collaborator has done some research and after ASD is applied with biologicals there has been an increase in the early stage field of strawberries.

Dr. Rosskopf pivoted to who has experience with ASD. Dr. Frank Louws stated that some hurricanes came along and watered land that had 32 inches of ASD on the land as a whole and they are seeing really good results compared to methyl bromide alternatives and he also believes that ASD is good for small and mid-sized growers.

Dr. Bewick acknowledged that Dr. Rebecca Grummet had a question or comment, but she stated that her question had already been answered.

Ms. Donnell Brown presented a comment that she thought it was interesting that these are two (Dr. Knapp's project and the Muramoto/Rosskopf project) approaches to the discontinuation of methyl bromide and the breeding aspects and the soil aspect and how interesting it is to see one problem approached two different ways. Dr. Rosskopf responded stating that these two projects have some of the same team members and so as those cultivars become available, they are easily integrated technologies.

Frank Louws, North Carolina State University presented on the project entitled "Growing New Roots:" Grafting to Enhance Resiliency in U.S. Vegetable Industries". This grafting project also emerges from the methyl bromide loss and challenge. One of our key goals was to make sure that we included a lot of our industry partners, and we had many up to 75 that the project directly cooperated with. And they also worked with several international partners, most of them are robotic companies. They also brought on their team plant nursery experts, especially early in days of the project and they also worked very closely with their key stakeholders and growers. The project was partitioned off into five core areas. (1) Maximize Impacts of Grafting

Technology; (2) Advance Root Genetics; (3) Increase Capacity & Efficiency; (4) Economic & Environmental Metrics; and (5) Adoption, Education & Evaluation. The presentation ended with looking toward the future as the grafting industry matures in the U.S. there will be an expansion where rootstocks will be selected for cool seasons and hot seasons and different types of conditions that might be encountered an offer resilience to growers.

Dr. Carlos Iglesias had a comment and a question. The comment being that he believes it looks like there is room for companies to complete combining abilities studies because it can be an exponential type of work. And Dr. Iglesias' question is having the researchers gained any experience from Europe in terms of grafting?

Dr. Louws answered that yes, I his research he and his team have interacted a lot with people in Europe and he feels that his whole team has been really intentional and strong about linking with international partners, including European partners, some of our robotic grafting partners are from the Netherlands.

Dr. Tom Bewick commented that that partnership that Dr. Louws is referring to where they built the robots has led to a great outcome because it created job opportunities in rural North Carolina.

Introduction of the SSC Members

At this time DFO Lewis and Ms. O'Reilly informed the meeting attendees that they were 15 minutes ahead in the schedule and they would like to use this time to introduce the SSC members and to give a little bit of their background. Ms. O'Reilly stated that she will just call out names.

Carlos Iglesias is professor of Horticulture Science at North Carolina State and he is also the Director of the Library Consortium. Most of his life her has worked in mostly raw crops and just recently started work in specialty crops. He brings industry experience and is happy to be a part of the SSC community.

Donnell Brown is the President of the National Grape Research Alliance for about five years now. The National Grape Research Alliance aligns the research priorities for table grapes, wine grapes, juice grapes and raisins.

Gregory Goins is currently the Professor and Chair of the Department of Natural Resources at North Carolina A&T University, and his background is in growing plants in space (he worked at NASA) and so he enjoyed Dr. Louws's presentation.

Jim Tuinier is a third-generation greenhouse grower in Michigan. His family has 30 acres of greenhouses that produce annuals, perennials, house plants, as well as long English cucumbers, in the summer and fall. Mr. Tuinier got his master's degree from Michigan State University.

Marguerite Green is the Executive Director of Sprout which is a farmer and technical service training organization and nonprofit. Sprout specializes in supporting small sustainable low

capital farms and bypass growers specifically farms that are just developing a more robust food system down here in the Gulf, where we have wonderful 12 month growing season.

Shawn Peebles is from Augusta, Arkansas where he owns and operates Peeble's Organic Farm, which is approximately a 2000-acre organic vegetable farm.

DFO Lewis navigated the meeting back to the Project Grant Leaders Project presentation portion on the agenda. She noted that the next eight projects would run a little bit differently than the first three because these next presentations will be five minute presentations and five minutes for questions and answers.

Andreas Westphal, University of California, Riverside presented a project entitled "Putting Phenotypic and Genotypic Tolls to Work for Improving Walnut Rootstocks". The objectives of the project are as follows: (1) Propagation: Two breeding populations with resistance to Crown Gall (CG), Phytophthora (PHYT), Nematodes (NEM); (2) Phenotyping for biotic and abiotic stresses and determine their interactions; (3) Develop remote sensing techniques; (4) Genetics of breeding populations discovery of resistance loci, gene expression, pyramiding; (5) Economic analysis of rootstock use and examine stakeholder attitudes; and (6) On-farm rootstock trials in different agro-ecological environments rootstock release.

Dr. Westphal went over time and Dr. Bewick directed people to put their questions for Dr. Westphal in the chat.

Jason A. Fischbach, University of Wisconsin – Madison Extension presented a project entitled "Overcoming Obstacles to Hazelnut Production in the Upper Midwest". The project is primarily a collaboration between the University of Minnesota and the University of Wisconsin along with many partners across the upper Midwest. Dr. Fischbach started his presentation with one question "Why Hazelnuts in the Upper Midwest?" And there are three answers; (1) the growers need their help; (2) woody perennials, especially the upper Midwest really have a role to play in solving many agricultural problems or research problems; and (3) there's a big economic opportunity that's continuing to develop us per capita consumption of haze and let's is very low compared to other hazelnut producing regions. The project has four main objectives: (1) Develop improved germplasm based on endemic American hazelnut (Corylus americana); (2) Develop nursery stock supply chains for a highly recalcitrant species; (3) Develop production protocols for a novel hedgerow-based production system; and (4) Support supply chain and market development efforts.

Dr. Bewick alerted the meeting attendees that there was no time for questions so if anyone has a question for Dr. Fischbach please put it in the chat.

Massimo Iorizzo, North Carolina State University presented on the project entitled "VacciniumCAP: Leveraging Genetic and Genomic Resources to Enable Development of Blueberry and Cranberry Cultivars with Improved Fruit Quality Attributes". The mission and objectives of the project are based on industry inputs that were collected between 2016 and 2018 through our planning grant funded by the USDA. The main challenge has been on the production side of blueberry and cranberry because they are inconsistent in quality which leads

to a negative perception of the product with leads to less revenue and less competitive industry. The project's goal is to (1) Develop and implement phenotyping and DNA tools to accelerate development of new cultivars with improved fruit quality and (2) Increase production of fruits that meet consumer preferences and production/processing needs. There are five main objectives of the project: (1) Establish – DNA tools; (2) Discover – Link DNA to fruit quality; (3) Deliver – DNA markers; (4) Assess – link to fruit quality and fruit characteristics; and (5) Engage – Transfer deliverables.

Again, Dr. Bewick alerted the meeting attendees that there was no time for questions so if anyone has a question for Dr. Iorizzo please put it in the chat.

Paula Agudelo, Clemson University presented on the project entitled "Focused Investigations on the Distribution and Management of Meloidogyne Enterolobii". This nematode is important to specialty crops because it is very aggressive. It causes severe galling in roots and below ground and it also reduces yield and reduces quality of product. In above ground symptoms, it can cause anything from stunting to death. What complicates the matter is that all the known resistance for other Meloidogyne species is not effective against this strain of enterolobii. So, all the advances that that have been made with other vegetables is not effective with Meloidogyne enterolobii. The goal of this project is to reduce the vulnerability of growers to Meloidogyne Enterolobii while it still has limited distribution and maybe think of ways, where they can contain the nematode but also develop management practices, so that they can manage it once it spreads. There are five objectives, (1) Nematode Distribution; (2) Plant Resistance; (3) Management; (4) Economics; and (5) Education.

There was no time for questions so meeting attendees were again instructed to put any questions they may have in the chat.

Michelle Danyluk, University of Florida presented on the project entitled "CONTACT: Scientific Challenges and Cost-Effective Management of Risks Associated with Implementation of Produce Safety Regulations". The project's overall objective is to assess the health, economic and important risk impacts of food systems in consultation with the produce industry Regulators and a national network of extension specialists and world leaders and produce safety. The goal of the project is to identify important factors that drive food safety risks and produce safety and then to help the specialty crop industry to develop validated scientific support. The project also hopes to provide scientific and technological knowledge to develop metrics important to enhancing produce safety across the U.S. and to identify improved approaches and techniques that allow the attainment of metrics to be verified and cost effective. They we have seven objectives within our system that divide up between those and the Agricultural Systems and Stakeholder Engagement and Risk Management Tools.

One minute remained after Dr. Danyluk's presentation and no questions were asked.

Patricia Manosalva, University of California, Riverside (UCR) presented on the project entitled" Reducing Avocado Losses to Major Challenges by Improving Resistance Selection and Disease Management Using Next Generation Technologies". The purpose of the project is to increase the production and save the industry of avocadoes. The major challenges of the project are (1) Phytophthora Root Rot (PRR); (2) Laurel Wilt); and (3) Salinity. This project targets several short- and long-term goals. The short-term goals are (1) In-field pathogen diagnostic tools; (2) Registration of a new PRR fungicides (3) Release of five advanced UCR salinity and PRR resistant rootstocks. The long-term goals are (1) Selection of PRR resistant rootstocks; (2) Selection of resistant/tolerant LW rootstock: scion combinations; (3) Development of a remote sensor system for disease management; (4) Implementation of avocado genomics-assisting breeding platform. The project's objectives are (1) Assess P. cinnamon (Pc) and R. lauricola (RI) variability; (2) Select Phytophthora root rot and Laurel Wilt resistant material; (3) Multi-state, semi-commercial, and release of five UCR advanced rootstocks (Spring 2022); and (4) Develop and deploy new tools to improve disease management; (5) Generate avocado genomics-assisted breeding platform for future implementation of Manosalva and Bombarely (MAS); and (6) Facilitate the grower adoption of project outcomes by estimating their economic value and integrating research with extension, outreach, and education (all team members).

There was no time for questions so meeting attendees were again instructed to put any questions they may have in the chat.

Markus Keller, Washington State University presented on the project entitled "High-Resolution Vineyard Nutrient Management". The project's objective is to solve vineyard nutrient variability. Vineyards vary over space and time and the one-size-fits-all approach to fertilizer application is (1) economically inefficient (oversupply vs. undersupply) and (2) Detrimental to the environment (nutrient loses), you can see that in these two pictures. The project originated with the National Grape Research Alliance. The project has four focus groups to present a multi-disciplinary approach: (1) Sensors and Engineering; (2) Precision Management; (3) Plant Nutrition and Product Quality; and (4) Social Science and Extension.

Time remained after Dr. Keller's presentation and no questions were asked.

Marc van Iersel, University of Georgia presented on the project entitled "LAMP: Lighting Approaches to Maximize Profits". The project is focused on the profits made to light-controlled environments in agriculture and the reason that matters is that providing lighting for agriculture is expensive both in the initial expense to buy these lighting systems, as well as the operating expense to pay for the electricity. The project has six different disciplines represented, (1) Horticulture/Plant Science; (2) Mechanical Engineering; (3) Electrical Engineering; (4) Agricultural Economics; (5) Management Information Systems and (6) Impact Assessment.

Dr. Gregory Goins commented on how he likes the project specifically how one would reduce the pressure on LEDs that potentially has also mechanical making your lights stay at a high level

for a longer time so that's another added benefit that may be hard to calculate, but it does make a difference when you're driving a light source hard. Dr. van Iersel commented that at this day and age it's rarely that we drive led lights as hard as 2009 because in 2009 LED lights were expensive and that's no longer the case. Dr. Goins had one question wanting to know what you know kind of the" rights to repair issues" with John Deere tractor, what does a grower do if their led light goes out? Dr. van Iersel answered that the owner should look at the warranty and see if they can get the company to replace the light. If not, there are hundreds of lighting companies most of them will be in person.

It is at this time that Dr. Bewick informed the meeting attendees that they were over a time and directed the meeting back over to DFO Lewis. And after a break the meeting began again with the last four presentations that were 10 minutes in length and 10 minutes for questions and answers.

Carl Rosen, University of Minnesota presented the project entitled" Enhancing Soil Health in U.S. Potato Cropping Systems: SCRI Project Update". The project's objectives are to improve soil health in potato cropping systems. Some key principles are (1) Keep soil covered; (2) Minimize social disturbance; (3) Increase crop diversity; (4) Keep living roots in the soil; and (5) Integrate livestock. The four project objectives are (1) Evaluation of management practices the optimize soil health (small plots); (2) Determine spatial variation of on-farm soil health-based indicators associated with potato crop health, yield, and quality (grid-sampled fields); (3) Identify the incentives, impediments, and determinants of adopting practices and technologies that encourage practices to improve soil health in potato production (economics of soil health); and (4) Facilitate adoption of soil health best management practice systems by the potato industry (extension and outreach).

Dr. Carlos Iglesias asked what are the incentives for farmers to apply some of the most beneficial practices? And is there a marketing potential?

Dr. Rosen answered that that is what the economists are trying to find out. Dr. Rosen believes that perhaps there may be some government incentives to adopt some of these practices.

And he also said that there was a survey, and they didn't have quite enough respondents yet and part of the reason is because of the lack or in-person meetings last year. Dr. Rosen speculated that perhaps going forward now that there are more in person meetings that they will be able to hand out those surveys and gather more information.

Carolee Bull, Penn State University presented on the project entitled "Integrated Management of Emerging Seedborne Bacterial Diseases of Cucurbits and Chenopods". Seed can be infested and there are two different crops: the seed crop and seed industry are impacted and then the food crop where crop growers are impacted. The projects objectives are as follows: (1) Develop

specific methods for pathogen detection and quantification; (2) Development of novel Integrated Pest Management (IPM) practices for crop and seed production; (3) Develop seed testing protocols and treatments; (4) Identifying novel resourced of disease resistance; and (5) Cost benefit analysis; and (6) International seed health extension. Training, and mentorship.

Dr. Bewick stated he had two comments: (1) the cost year is a legislative mandate it's not something that we choose to do, in fact we hate it as much as everybody else, because it it's a an administrative burden for us the other thing is that normally SCRI projects can only last for five years, but we have a because of coven we are able to extend them for six years and (2) I will reach out you when you get to your fifth year and let you know how much money you have remaining in your project and then, if you think you're going to need an extension we will do that before the project terminates.

Dr. Bull responded that she will absolutely need it just because she has all overseas sampling that her research hasn't made plans for and she believes that this committee will be talking to you know as an advisory group, and so I think it's good for them to think about that.

Julie Urban, Penn State University presented the project entitled "Biology, Management, and Reducing the Impact of the Spotted Lanternfly (SLF) on Specialty Crops in the Eastern USA". The spotted lantern fly is an invasive insect from Asia, primarily from China. The SLF was first detected in eastern Pennsylvania in the fall of 2014, but it was an invasive passed in South Korea, starting in 2004. And in South Korea it did significant damage to tree fruit, stone fruit, and forest trees. The U.S. were on the lookout for the SLF and it wasn't until 2017 that the populations blew up and that's when researchers realized it's going to be a significant problem so that's when this project started organizing. The objectives of the program are: (1) Quantify SLF impact on at-risk specialty crops and immediately develop management tactics to reduce the damage in areas where SLF are established; (2) Perform essential fundamental research on SLF basic biology, ecology, behavior and biological control tactics contributing to long-term sustainable solutions; and (3) Deliver immediate SLF management solutions to specialty crop stakeholders and the general public via the Extension networks of the partnering land grant universities, USDA agencies, and Northeastern IPM Center (NEIPMC).

No questions were asked.

Rebecca Grumet, Michigan State University presented the project entitled "CucCAP2: Harnessing Genomic Resources for Disease Resistance and Management in Cucurbit Crops – Bringing the Tools to the Field". This project involves crops produced in the United States there's including watermelon the different melons, cucumber and a surrogate squashes and pumpkins. Even though we're dealing with a variety of different crops that are grown all over the country under a range of environmental and climatic conditions consultation with industry (i.e., growers, shippers, and processors), regardless of the crop and location identified resistance to diseases as the highest priority for crop improvement. The project's objectives are to (1) Develop advanced bioinformatic, pan-genome and genetic mapping tools for cucurbits; (2) Utilize genomic approaches to identify, map, and develop markers for resistances to priority

diseases identified by cucurbit industries; (3) Introduce and pyramid/stack resistances into advanced breeding lines; and (4) Provide state-of-the-art disease control recommendations, perform multi-location, multi-isolate trials of resistances to improve integrated disease management, assess economic impacts.

Dr. Carolee Bull asked Dr. Grumet to let her know if she wanted to include the bacterial diseases at some point? Dr. Grumet answered that they are busy but that she is aware of the many people involved in our project and have been involved in several of the other projects here. She gave ab example of the development of the Carolina strong back rootstocks that we heard about earlier. And even though these tools may not have been necessarily developed for our project, they were developed using the tools developed by our project, and so I think there's a lot of synergy going on, among the different projects.

Public Comment Period

DFO Kate Lewis opened the floor for public comment. No comments were given.

Recap/Set Stage for Day #2

DFO Lewis set the stage for Day #2 noting that either Dr. Bewick or Ms. O'Reilly would provide an overview presentation about the SCRI program including some brief history and some recent changes, this will provide the context for the members of the SSC to engage in DFO Lewis believes an organic and engaging discussion relative to the committee's next steps.

DFO Lewis thanked her colleague, Ms. Morgan-Jordan, the six members of the SSC who've been able to join us today and all seven members will be on the call tomorrow. She also thanked the grant project leaders and her other USDA colleagues.

The meeting is on the same zoom link and DFO Lewis encouraged people to join a few minutes early.

Adjournment

DFO Lewis opened the floor to accept a motion to adjourn the meeting and a motion was made by Dr. Carlos Iglesias and seconded.

DAY #2: THURSDAY, JANUARY 19

Roll Call and Quorum Determination

Before DFO Lewis opened the meeting she had Ms. Summer LaRose, a new program specialist that is serving as Ms. O'Reilly's backup introduce herself.

Next DFO Lewis asked Ms. Morgan-Jordan to take roll and establish the quorum. Also at this time DFO Lewis asked Dr. Nikki Rothwell to introduce herself to the SSC members and SCRI.

The following names of SSC members were called by Ms. Morgan-Jordan, and their response is given in italics:

(1) Donnell Brown – *present*
(2) Gregory Goins – *present*
(3) Marguerite Green – *no response given*
(4) Carlos Iglesias – *present*
(5) Shawn Peebles – *no response given*
(6) Nikki Rothwell– *I'm here*
(7) Jim Tuinier - *present*

DFO Lewis asked new SSC member Nikki Rothwell to introduce herself.

Dr. Nikki Rothwell is in Traverse City, Michigan where she works at a research facility that's privately owned by growers and then it's leased back to Michigan State University which makes her a Michigan State Employee. She also has a split appointment between research and extension and then also administration over our small Research Station located in Traverse City. She commented that she mainly works with commercial tree fruit growers so apples and cherries.

Recap of Day #1

DFO Lewis noted that Day #1 of the meeting was primarily information sharing from the project directors from their SCRI grant projects that were awarded from 2017 to 2020. An overview of 15 different presentations were heard.

Day #2 Overview and Goals

DFO Lewis stated that Dr. Tom Bewick will provide an overview presentation about the SCRI program and then after we have a screen and brain break to prepare for what DFO Lewis hopes will be an engaging robust discussion that will happen towards the latter part of the morning.

DFO Lewis broke down the discussion for Day #2 down in three goals: (1) have SCC discussion on research grants; (2) comments from the committee and others on the grants awarded in the SCRI program and (3) discuss the relevancy and review process.

SCRI Presentation

Dr. Tom Bewick gave the history of the SCRI and the recent changes that have taken place. The foundation of SCRI started back in 2001 with the Specialty Crop Competitiveness Act. In 2018 the Farm Bill's legislative focus areas expanded and authority to waive matching requirements was eliminated. And in 2018 funding was made available for two years. The current process of the SSC ensures that a relevancy review is completed at the pre-application process. Full applications are reviewed by a panel of scientific experts from academia, government and industry and the results of scientific merit reviews are combined with results of relevancy review to develop funding recommendations. Dr. Bewick spoke on the importance of specialty crop committee recommendations and if there is something that the SSC likes about what the SCRI is doing they can recommend continuing the process or suggest that the USDA change or add something.

Dr. Carl Rosen believes that matching requirement detracts from the science, because the researchers are now spending a lot of time training for how we are going to do the match and Dr. Rosen goes on to state that he has been involved with three SCRI projects and the project leader on one of the projects and fortunately we didn't have to get a match on that, but the project where we had to get a match I found that we spent most of time trying to figure out the matches. In the end, Dr. Rosen commented that it would be good if the matching requirement could be eliminated.

Dr. Carlos Iglesias had a question regarding the conflict of interest since he is on one or two pre-proposals and serves on the SSC. Dr. Bewick answered that Dr. Iglesias was not making recommendations about which projects SCRI funds therefore it is not a conflict of interest.

Public Comment Period

DFO Lewis opened the floor to public comment. No public comment was made.

SCC Discussion on Research Grant Presentations

DFO Lewis asked Dr. Bewick why the matching requirement is so decisive.

Dr, Bewick explained that the funding must be matched dollar for dollar with non-Federal funds. So, if SCRI awards $76 million in Federal funds, it must be cash or income contributions equal to what the Federal award is. He went on to say that changes in knowledge, changes in action, and changes in condition, cost more and SCRI really wants its teams to be able to focus on that, and that requires larger projects and larger funding.

Dr. Nikki Rothwell had a question as well. Sometimes she feels like from the SCRI's that she has been involved with regarding the evaluation it is sometimes perceived that it is taking a lot of funds. And she realizes that the project must show the impact and its hard and within the different universities even if they have people who do cost analysis its expensive, but there's

always a heavy cost associated with them, and she wondered if Dr. Bewick had heard that before and could comment on that briefly.

Dr. Bewick answered that he probably has heard of that. But he views it as an important aspect of doing the science is to have the value independently evaluated.

Dr. Rothwell further commented that on the very drastically different projects she has been involved with where it takes a huge chunk of "X" and then maybe have less time for another project. Finally, she asks "is there a way to streamline that economic or that social piece"?

Ms. O'Reilly answered by giving a history of it starting with the 2014 Farm Bill, and the SCRI was trying to pull together impact stories from the projects that had been funded and we were finding that we weren't we didn't really have that many good impact stories and we realized that a lot of project directors did not put much effort into writing impact stories because they didn't think that anyone was reading the reports that were going into the NIFA of reporting system. So, we did a big push on impact stories and it was embraced by NIFA. And to be able to write an impact statement you need to have some of that evaluation piece. Ms. O'Reilly agreed that this is probably worth more discussion because the professional evaluators have a very high price tag.

DFO Lewis worked through what the SCC responsibilities and after having the day and a half meeting, she opened the floor to recommendations. Dr. Goins being new to the SSC deferred to the veterans on the call which Dr. Bewick informed him that there were no veterans on the current SSC. Dr. Goins did comment that he believed the presentations were a nice mixture, of forward-looking research, but yet practical and other avenues can impact the economics of a small specialty crop industry.

Ms. Donnell Brown suggested that having a standard schedule had been helpful when it comes to the RFA.

Dr. Carlos Iglesias suggested that more projects on crops that relate to nutrition are funded. More research on nutritionally related illnesses and food deserts that exist in America meed more through supportive research.

Dr. Nikki Rothwell made a comment about those universities that don't have strong extension programs. She feels certain institutions that maybe don't have that extension component, perhaps are left out in the cold, and do not have that access to help find a match. She asked Dr. Bewick does the SCRI ever go back and look at those different categories? Dr. Bewick answered that the categories are in the Farm Bill and he admits that the five original categories haven't changed but there have been qualifiers added.

DFO Lewis acknowledged Ms. Morgan-Jordan who had a question from Dr. Bewick. Her question was is there any particular area that SCRI is not receiving an equal number of applications for? And does SCRI think that it needs to solicit in certain areas more than others to reach a broader audience?

Dr. Bewick answered yes, and that is one way the SSC can help by spreading the word about the opportunity for project funding through industry and academia.

Ms. Morgan-Jordan also had a recommendation that to increase applicants in food safety as well as there being a need to help those people out there with the application process remembering that at one time workshops were held in underserved communities.

DFO Lewis acknowledged all the great discussion, but she was wrestling with what the SSC walks away with after having met for eight hours. DFO Lewis noted that the SCRI already has pre-applications for FY22 and noted that they will be turned in on January 21, 2022. Ms. Megan O'Reilly stated that the recommendations from the SSC are more for 2023. Mr. Bewick added that the minutes will be circulated, and the committee will approve them, and the recommendations will then go to NIFA and therefore, its best to look into the future (FY23). If the SSC thinks that there are things that could be improved, it might be minor tweaks, or they may be more substantial those recommendations can be given at a date later TBD.

Ms. Lewis thanked everyone for a great discussion, but she admitted that she was still wrestling with what does the SSC committee walks away with. Ms. Lewis ensured the SSC members that they will be provided with all the information from the meeting (ppt slides and reference materials).

SSC's FY22 Next Steps

- The SSC is to provide some comments back, however, general, or specific on the 15 presentations or the process. And the timing for these comments is TBD.
- Ms. Shirley Morgan-Jordan will send the recommendations from the 2017 Michigan SSC meeting as an example for the new SSC members.
- Ms. Lewis will update the SSC on the program status and process for 2022 and will keep the Committee engaged.

APPENDIX A: LIST OF MEETING ATTENDEES

DAY#1: WEDNESDAY, JANUARY 19, 2022

SCC Members Present: Carlos Iglesias, Donnell Brown, Gregory Goins, Jim Tuinier, Shawn Peebles and Marguerite Green

NAREEE Advisory Board Staff: Kate Lewis and Shirley Morgan-Jordan

Other USDA Staff: Tom Bewick, Megan O'Reilly, Summer LaRose, Dr. Carrie Castille, and Catherine Bohnert

SCRI Grant Project Leaders: Andreas Westphal, Carolee Bull, Erin Rosskopf, Joji Muramoto, Julie Urban, Markus Keller, Patricia Merced Manosalva, Rebecca Grumet, Massimo Iorizzo, Steve Knapp, Frank Louws, Jason A. Fischbach, Lois C. Braun, Michelle Danyluk, Paula Agudelo, Marc van Iersel, and Carl Rosen

Members of the Public: Amer Fayad, Suzanne Thornsbury, William Hoffman, Lori Gula and Tene Toure

DAY #2: THURSDAY, JANUARY 20, 2022

SCC Members Present: Carlos Iglesias, Donnell Brown, Gregory Goins, Jim Tuinier, Shawn Peebles, Marguerite Green, and Nikki Rothwell

NAREEE Advisory Board Staff: Kate Lewis and Shirley Morgan-Jordan

Other USDA Staff: Tom Bewick, Megan O'Reilly, Summer LaRose, Neerja Tyagi, and Catherine Bohnert

SCRI Grant Project Leaders: Carl Rosen

Members of the Public: None were present.