



**William Brandon, President, Industrial Ecosystems:**

While my area of interest as outlined on your website is Urban food systems, I am interested in a healthy dose of ‘Innovative Pathways to Sustainability’. My question is related to what appears to me as a bit of a contradiction in the Challenge areas. The preface to the four listed areas states “While many industry partners are focusing on the economics of vertical farms from the lighting and heating & cooling perspective, FFAR will focus on breeding potentially high value plants in this setting.”

- 1) While I agree that there has been innovation in the areas of lighting, nutrient control and over all systems control, I would like someone to point out to me any focus on improved heating and cooling approaches and electrical demand. This is a major area of concern that is not being addressed and is necessary to make these systems economically viable.
- 2) How does ‘high value plants’ address ‘reducing food and nutritional insecurities’? I am involved in CEA facilities design and recognize that many ‘urban farms’ exist because they command a premium price.
- 3) Why is there no reference to climate change (or for political reasons, extreme weather events)? This is a prime concern for future food production.

I think, from a conceptual aspect, it is wrong to lump urban together with peri-urban and maybe you haven’t done so. Preserving ‘farm land’ surrounding urban areas is often a stated objective of county governments but the economic realities of these relatively small farms cannot be met with traditional farming approaches. Agri-tourism and farm markets are just a ‘thumb in the dike’ for these operations.

Production systems for these peri-urban farms must change to preserve natural habitat and address other environmental concerns. Stopping urban sprawl starts with preserving farmland. This is what FFAR should focus on rather than ‘breeding high-valued’ plants.

I will submit a proposal to demonstrate integration of existing technologies, including biomass energy, to show how peri-urban farms can become profitable and relatively independent in the face of climate change and extreme weather.

I believe our food security in the face of climate change will be significantly dependent in developing EFFICIENT CEA facilities. I hope such proposals are included in your challenge area and not sacrificed to more breeding efforts which are presently being done by many people.

I have been exploring CEA facilities for over five years and am frustrated in falling between the cracks of traditional silos. The issue is integration of various existing and technologies that are now emerging (technical readiness of at least 7 to new commercial; otherwise known as the ‘valley of death’). It is a hard ‘row to hoe’ but essential.

**Florence Dunkle, Associate Professor of Entomology, Montana State University**

(Statement read by Sarah Goldberg, FFAR)

Thank you for hosting this today. My microphone is not working so I am submitting this on the chat. I can safely say that the Chicago Council Food and Ag Program is huge fan of the work of FFAR. In our most recent Annual Report on the importance of Engaging Youth into Agriculture, we recommended that “The Foundation for Food and Agriculture...should include an emphasis on the use of digital technology and data analysis in acceptance of future grants.” Can you please address the extent to which FFAR is doing this and can bolster this in the future?

**Kier Knolls, Coordinator, Good Earth Food Hub**

I'm from Jefferson County, West Virginia where I am trying to get a food hub started. In my mind, a food hub is an organization that aggregates, coordinates, and markets farmers. Last week, I had a meeting with farmers and institutional buyers in my area to discuss this. Benefits from this food hub would include a way to systematize interactions between farmers and buyers to properly meet both of their needs. It could also give farmers a way to market their product that may otherwise be beyond of their capability to do so.

I am looking at a new multi-stake holder model that will include both farmer- and public-facing sides. One of the constant problems I have come across with people who run farmers co-ops is that farmers tend to have a small vision – they grow crops and they want as much money as they can get for them. For famers, this model will include a board that involves institutional buyers to create an increased vision for what they are doing. On the public end, a non-profit will be established to declare a vision for the county in order to bring them in to the equation as well.

That is relevant here because there are a lot of wonderful things that are going on which need to be conveyed to the individual farmers. One of the goals of this food hub is to funnel best practices derived from all the innovative research that is taking place out here to the individual farmers in my county and area. Reaching them can often be difficult but, a food hub that has this mission will be a reliable way to ensure they are equipped with the best means of production possible.

I would also aim to develop white papers for each agriculture sector that is experiencing any sort of issue. These papers will include policy, organization, and marketing tactics for specific areas. These are farms of smaller size, and at that size, the industry tends to work against them when it comes to costs, technologies, and production. A plan for areas with issues will aid farmers decision making so that they can continue to do what they have done for generations.

I, personally, am also looking at the potential benefits of two other areas. I grow hemp on my own farm where I examine its function of soil remediation and its ability to extract chemicals such as arsenic and others. I will be looking at whether you can continue to use parts of a plant after it has extracted these chemicals for insulation. Bill had earlier mentioned air conditioning and cooling. I am currently looking at phase refrigerators which use an ammonium cycle. I want to create a cold cellar that utilizes solar collectors to heat up antifreeze in order to boil the ammonium.

Thank you all for listening.

**Barbara Leach, My Rural America Action**

I have been an Iowa farmer for 17 years, and I go back to Iowa for every election. For every issue on this board, think about how do we talk to local producers about these issues in a way that benefits them? We need research to look into what triggers local producers' interest, how to get them to care/educate. Think about issues from the standpoint of the producer. We can produce food in Iowa, but there's nowhere to sell it. These challenges must appeal to family farmers. How can we talk to these challenge areas in a way that gets their attention? Think about our science messages in a way that appeals to this.

I am also interested in how to improve crop insurance so that its growing standards meet the need to assist agricultural producers to take better care of the land, and how to change our language used in persuading producers to understand climate change, etc.

**Liz Sanders, Strategic Partnership Manager, Food and Friends**

The Food and Medicine Coalition is a national group of organizations that provides home-delivered, specialized meals to people living with chronic illnesses. As part of its mission, the Food and Medicine Coalition promotes research on the efficacy of medically tailored meal interventions on health outcomes and cost of care. Medically-tailored meal interventions are meals that are approved by a registered dietitian and reflect appropriate dietary therapy built on evidence-based practice guidelines. Research on these interventions is growing rapidly and shows positive impacts on participants including a decrease health care costs and hospital admissions as well as increases in medical adherence.

We are here today because despite the growing number of promising studies, there is still a lot of research that needs to be done to understand the efficacy of these interventions and their effect on food systems in the communities that they are based. The Food of Medicine Coalition supports the inclusion of a medically-tailored meals pilot in the Farm Bill, as well as other research that tests these interventions on vulnerable populations who are suffering from nutrition related acute or chronic diseases. This pilot would provide the opportunity to test the effects of these interventions while improving the health and nutrition of the communities. Evaluation is a critical part as it would assess the impact of these interventions on health nutrition and associated behavioral outcomes. It would also support local food systems where these community-based medically-tailored food suppliers are located and help provide business opportunities for local farmers and producers.

Thank you again for the opportunity to provide comments on the behalf of Food and Friends as well as the Food and Medicine Coalition, nationally.

**Ricardo Salvador, Director and Senior Scientist of the Food & Environment Program,  
Union of Concerned Scientists, Advancing Agroecology, from Soil Science to Social Science**

Good morning and thank you for the opportunity to comment on the scope of work at the Foundation for Food and Agriculture Research.

At the Union of Concerned Scientists, we have been pleased to see FFAR's support for many urgent areas of food systems research, and we agree that there is a continued need for cutting-edge research on topics such as sustainable water management; soil health benefits; animal production systems promoting sustainability and welfare; and solutions considering the full food system, from production to affordability and waste.

In addition to these continued areas of research, we are pleased to see several newly envisioned focus areas. For instance, expanding water research to include the food-energy-water nexus and agricultural diversification could spur multifunctional innovations. Likewise, broadening soil health research to consider barriers to adoption of best practices could accelerate growth in this critical area. On your proposed Challenge Areas, we agree that a deeper exploration of Next Generation Crops, particularly ones that deliver diversity, resilience, and nutritional quality, could be key to maximizing limited natural resources and realizing healthy food systems. Finally, we see the proposed Healthy and Urban Food Systems areas as excellent opportunities to facilitate research that highlights the critical linkages between agricultural systems and equitable access to nutritious, health-promoting foods.

Overall, we are encouraged by FFAR's research directions, which can enable much needed interdisciplinary, transformative research. To optimize outcomes, we urge FFAR to support research that advances not only sustainable, but also regenerative and ecologically-based food systems, which likely requires practices such as diverse crop rotations, perennial crops, agroforestry; as well as social science that recognizes the importance of embracing social justice and racial equity in deciding research approaches and priorities.

Thank you again for the important role that FFAR has played in food systems research, and for the opportunity to speak today.

**Russ Webster, President and Founder, Grow to Market**

I wanted to make a brief comment about the importance of ongoing R&D to address the problem of food safety, food loss, and food waste in emerging economies, and to encourage FFAR to expand its challenge area on food loss and waste a bit further up the value chain. I understand from the website that UC Davis and WWF are working on two programs - one food drying, and the other on maximizing farm resources/edible food rescue. The large volume of food in developing countries that doesn't get to consumers (over one third of total produced in Africa, for example), combined with the large number of cases of food borne illness and even death (137,000 people die each year in Africa from food-borne disease, and 420,000 globally), warrants, I believe, a shift towards more investment in this aspect of the food system.