

**Summary Farmer Listening Session Response to
Agriculture Innovation Agenda
Joint Effort of National Center for Appropriate Technology, Organic
Seed Alliance and the National Sustainable Agriculture Coalition
June 30, 2020**

1. Basic Data, WHO:

Registered: 342

Self-Identified:

Conservationists: 29

Extension: 28

Farmers & Ranchers: 85

Other (NGO's, etc.): 144

Researchers: 56

Attendees: 186

Self-Identified:

Conservationists: 18

Extension: 17

Farmers & Ranchers: 40

Other (NGO's, etc.): 82

Researchers: 29

2. On-Line Quick Poll of USDA Defined Clusters, ALL ATTENDEES Responses:

N= 186

Genome Design – Improving precision breeding to explore, control, and improve productivity traits of crops, livestock, and even possibly soil microbes. For example, using genetic engineering methods to increase crop resistance to pests.

- Is this priority relevant to your operation/research?
 - 60% Disagree
 - 40% Agree
- Would outcomes from these broad innovations improve your future livelihood? Why or why not?
 - 65% Disagree
 - 35% Agree

Digital/Automation – Develop and deploy precise, accurate and field-based sensors to collect information in real time in order to visualize changing crop conditions and respond automatically with interventions that reduce risk of losses, maximize productivity and economic viability.

- Is this priority relevant to your operation/research?
 - 51% Disagree
 - 49% Agree
- Would outcomes from these broad innovations improve your future livelihood? Why or why not?
 - 51% Disagree
 - 49% Agree

Software tools and data management *Prescriptive (how to) Interventions* – apply and integrate data with new software tools enabling advanced analytics for managing your farm and ranch.

- Is this priority relevant to your operation/research?
 - 39% Disagree
 - 61% Agree
- Would outcomes from these broad innovations improve your future livelihood? Why or why not?
 - 33% Disagree
 - 67% Agree

Systems based farm management – Use a production systems approach in order to understand the interactions among different elements of a farm or ranch that can increase overall efficiency, resilience, and sustainability of farm enterprises.

- Is this priority relevant to your operation/research?
 - 7% Disagree
 - 93% Agree
- Would outcomes from these broad innovations improve your future livelihood? Why or why not?
 - 6% Disagree
 - 94% Agree

3. On-Line Quick Poll of USDA Defined Clusters, Farmer & Rancher Only **Response:**

N=40

Genome Design – Improving precision breeding to explore, control, and improve productivity traits of crops, livestock, and even possibly soil microbes. For example, using genetic engineering methods to increase crop resistance to pests.

- Is this priority relevant to your operation/research?
 - 32.5% Disagree
 - 27.5 % Agree
 - 40.0% No Response

- Would outcomes from these broad innovations improve your future livelihood? Why or why not?
 - 35.0% Disagree
 - 17.5% Agree
 - 47.5% No Response

Digital/Automation – Develop and deploy precise, accurate and field-based sensors to collect information in real time in order to visualize changing crop conditions and respond automatically with interventions that reduce risk of losses, maximize productivity and economic viability.

- Is this priority relevant to your operation/research?
 - 40% Disagree
 - 12.5% Agree
 - 47.5% No Response
- Would outcomes from these broad innovations improve your future livelihood? Why or why not?
 - 30% Disagree
 - 25% Agree
 - 45% No Response

Software tools and data management *Prescriptive (how to) Interventions* – apply and integrate data with new software tools enabling advanced analytics for managing your farm and ranch.

- Is this priority relevant to your operation/research?
 - 27.5 % Disagree
 - 35 % Agree
 - 37.5% No Response
- Would outcomes from these broad innovations improve your future livelihood? Why or why not?
 - 20% Disagree
 - 35% Agree
 - 45% No Response

Systems based farm management – Use a production systems approach in order to understand the interactions among different elements of a farm or ranch that can increase overall efficiency, resilience, and sustainability of farm enterprises.

- Is this priority relevant to your operation/research?
 - 2.5% Disagree
 - 60% Agree
 - 37.5% No Response
- Would outcomes from these broad innovations improve your future livelihood? Why or why not?
 - 2.5% Disagree
 - 57.5% Agree
 - 40% No Response

4. What are the biggest challenges and opportunities over the next 10 to 30 years to optimize productivity and resilience, strengthen economic viability, and decrease negative environmental impacts of our nation's farms and ranches?

Farmer and Rancher Answers Responses (N=40):

Opportunities: agroforestry, permaculture. Challenge: transitioning conventional agriculture to sustainable & climate resistant

Soil health

Climate change (unpredictable seasons & spread of diseases and pests); crops able to be grown in new place/breeding new varieties

Challenges: regulatory capture by big ag, climate instability. Opportunities - Supporting localism provides good jobs/food, meets local needs.

Access to capital

Building soil and awareness

Supporting regional seed saving networks ensures success for local growers via variety adaptation to local micro-climates.

Research and demonstration for regenerative production and carbon storage; incentives and infrastructure creativity; economics

Access to resilient cultivars that resist disease. Weed control. Weather adaption and late blooming is crucially needed

Lack of capital and access to land, in combination with climate change and unpredictable weather events.

Challenges-climate change, opportunities, hemp products replace plastics the tensile fiber for construction, carbon sequestration.

Climate Change and Economic Equity

Climate change will be both our biggest challenge and biggest opportunity

Address climate change and soil health, need for available and accessible meat processors for small producers

Mitigating effects of climate change; habitat restoration; water and land access; pesticide and contaminated forage concerns

Cover crops and strip/no till have been great! Insurance kill deadlines.

The willingness to listen to consumers and adapt production practices accordingly vs business as usual and local marketing

Water is our main issue

Access to meat processors for small and very small growers. We already scheduling two years out. Only 1 USDA process in 200miles

Price and marketing

Perennial weeds, understanding inter cropping, figure out how nature communicate between plants, holistic approached to a farms

Access to markets

Focus should be in increasing nutrition by 40% - can be done with regenerative organic ag - greatest needs: research/info

A level playing field for small independent and corporate entities

Farmers need support-they can't afford to lose money as they transition to more environmentally friendly production systems.

Small scale farm viability; climate resilience; open-pollinated organic seed meeting changing market preferences; waste management.

Slow or halt climate change, buy organic grain grown in the US.

Letting people get away with bending and breaking the organic standards

Biggest challenge is lack of raw fiber processing mills for hemp and fiber flax

The lack of processing infrastructure for both vegetables and especially meats. No retail strategy. No regional strategy

Minimizing impacts of pesticide/herbicide drift; weathering climate change; responding to increased demand for local foods.

Open and fair marketplace.

Drought, labor, old equipment -too little cash to upgrade; transition to next generation.

USDA bad policies

Processing, state & USDA inspectors (numbers of &/or rules & regulations for)

We need more State and Federal processing plants to have ranch to consumer beef and lamb.

We need inspectors to be hired to open these

Fair market prices, COOL labeling

Disseminating information: how to profitably and happily produce market and production meat goats to help the U.S. feed citizens

5. Other challenges and opportunities that research and innovation can address for U.S. Agriculture that were not discussed?, Farmer and rancher comments only (N=40)

Supporting regional collaboration (ala NOVIC)

I'd love to see USDA prioritize research soil biology, such as plant/fungal interactions at the rhizosphere. Perhaps support an effort to sample and catalog the diversity of soil microorganisms?

USDA initiatives in the cluster are good, but in rural America (MS) those initiatives aren't applicable due to the non-availability of broadband or satellite access.

An accountability arm/independent auditor should be assigned to monitor the programs provided by USDA. A fair and equitable distribution of funds in some counties. In addition to clients receiving payments for services without validation."

While it was brought up briefly, I think challenges facing new and developing farms/ranches and encouragement/incentive for organic/nutrient-dense food production should be a topic of conversation. It is a clear need across the US (as well as the globe).

Additionally, the topic of waste and pollution vs regenerative and sustainable practices should be paramount.

Pollinator ecology- agroecology

Access to local meat processors all types Beef Pork Chicken Goat Sheep Rabbits

We need to change the way we currently are spending tax payers money from the "get big or get out" approach to a "balance and system based" approach where focus on human health is top priority

A challenge to be addressed is involving farmers and ranchers in research, rather than solely relying on the land grant institutions.

I feel the general public needs a good education on agriculture and how it relates to the consumer. I realize this is not the type of comment you are looking for. Having been involved in farming since I was a kid and having been certified organic for almost 30 years and after having a lot of contact with consumers, the public just doesn't get how feeding the world works. How can that be addressed I am not sure.

New products like wormers or organic wormers for sheep. Help with predation for livestock producers.

Direct marketing, COOL labeling, processing facilities, Canadian beef in the USA

6. Open Forum

Bob Quinn [organic farmer]: 4 points. 1) it's time to link food and health with the idea that food should be our medicine and vice versa. I would appreciate USDA looking at the potential of agriculture. 2) Focus on nutrition per acre rather than tons or bushels per acre, so we focus on the quality of what we're bringing off the line, not just how to get more for cheaper prices. It's time to change that. 3) Time to focus on paying farmers and all those involved in growing and processing food a fair wage which goes with increased value of what they're producing. We are raising good food to nourish people, not commodities. 4) Time to stop applying poisons as a solution to high productivity in agriculture. We're destroying our farms, small communities, and our planet. Glyphosate is falling with our rain now. The quicker we focus on regenerative and organic systems that focus high quality high nutritious food without pesticides, the better off we will be.

Brennan Washington [farmer]: I would like to see USDA take notice of their new focus on urban agriculture to make sure they are 1) getting a good perspective of what it is (not happy it's placed under NRCS, but it is what it is) and 2) through program encourage growth of urban ag and also the connection between urban and rural, so we're not just plowing a bunch of \$ into urban ag operations but also making sure urban growers are connecting with rural farmers.

Jean Schriffer [rancher/farmer/educator]: could USDA instead of looking at farmer rancher also look at the 98% of the population that are not farmers and ranchers and ask them what they want from agriculture? Do they want people returning to the farm? Do they want clean water? Is it just about cheap food or is it about environmental quality and rural communities too? We're abandoning Middle America and this is part of food policy. We need to think about not just building soil but also community. We need to figure out how to close the holes in our leaky bucket of nutrient management.

Jason Sidebeck [beginning farmer/veteran/Vermont]: Struck by biggest issue missing: impact that climate change is having on less traditional and predictable weather patterns. It changes when bloom cycles are happening and when insects are emerging - this has broad impacts. Another area I'd like to see addressed: a broader look at the impact of diversity. For a small farmer, I'm hoping to not have a large monoculture, I need to be growing multiple things at the same time. People agree that diversity is good, but there is not a lot of data supporting how much or all the benefits of it in soil health. It'd be great to see more research on human-centered technology - think about tools that keep the people in agriculture, tools that can be used in a small-scale. I agree with Bob in the intersection between food and health - that would be another broad area that would be useful at a small scale. Many of those priorities outlined did not feel relevant to where I see myself in the next 10-20 years, because they focused on large operation issues.

Molly Anderson [VT/educator/researcher/gardener]: discouraging this set of innovations is the best USDA can come up with. This is what we would expect the WEF to push forward, but USDA should be focused on the public good. Do not need to emphasize productivity. The co-benefits of food systems will suffer if we focus on productivity. Others' comments have been great. I would like to add a few things: 1) control over these technologies is critical, otherwise there could be greater concentration in agriculture. Need an office to assess technologies before they're released and who is benefiting and who is suffering from these technologies. Need to look at social innovations and how these can be encouraged to support healthy communities. 2) to the extent that we look at tech, need to look at appropriate tech for small and mid-scale enterprises. There are tons of things available in Asia and Europe available for small and mid-size farms that do not get over to the U.S. 3) the best innovation globally is agroecology. I'd love to see USDA investing in research and implementation of agroecology in our country in context specific ways that include circular economies, autonomy for producers, biodiversity, and resilience under the climate emergency.

Wes Henthorn [rancher, Montana]: clusters we discussed earlier, all the focus seems to be on efficiency and very little on resilience. We've seen the effects of creating highly efficient food

systems that have no resilience in the last few months. Some of us have worked a long time in having a secure and resilient supply chain and we're doing well amidst the pandemic. I wish we had a more localized and resilient food production system and less emphasis on constantly increasing yields without thinking about costs. I think Bob Quinn's points were great and like what everyone else is saying: needing to consider society and health.

Benita Martin (farmer, Virgin Islands): the food that you eat is very vital and farming is very important and plays a role in good health and our immune systems. Water efficiency and water quality (having clean water): because of climate change, the water supply has shifted in many areas. In the VI, we're surrounded by water, but we have problems during our drought season which has extended and is more intense now. How to make water use more efficient? EQIP has an irrigation practice, but many times these practices require farmers to put funds upfront. We need to look at that. USDA and local governments should partner up to buy equipment and reimburse the local government rather than the farmer. Any reimbursement program is very difficult for small farmers. Another thing is subsidies. Subsidies in grain areas to not grow and paying out large sums to farmers in the commodity area. Some type of subsidy needs to be paid to organic farmers. The inputs we have to use in organic farming are totally different than traditional farming. If we have to charge our customers for the cost of what we produce or make a good living, we won't be able to charge them that much or they wouldn't be able to pay. The subsidy system needs to be revamped for organic farmers, so they can charge a decent price and make a decent living based on how many crops they produce.

Blake Cothran, [KY/farmer, vegetables and nursery]: we need expanded breeding programs, really not focusing on genetic engineering but using traditional breeding techniques for better disease resistant, pest and insect resistance, and extreme weather conditions. This year we saw in many areas of the country that we had a double freeze in the spring and local growers lost all of their crops (fruit trees). One thing we did on a small scale, tested out putting out misters to freeze the blooms and buds to protect them from the frost and it worked. We need education and studies and resources to help farmers understand how to protect their crops. It'll be easier to empower farmers to protect their crops rather than insurance and paying them for the crops they lost. Things like misting systems, row covers, high tunnels, etc will need to be expanded and a lot of studies need to be done on how to implement these. Need to focus on resilience rather than yield.

Michelle Koreo [HI/farmer]: future of humanity depends on farmers and ranchers. Everyone depends on farmers for food and fiber but also clean water and air. Everyone is relying on us to develop systems and leave a bank account to build resilience. 1) healthy soil/ tilth alive and rich able to produce without synthetic crutches - no till, minimum till, etc. need to learn about healthy microorganisms through biodynamic and organic methods. 2) Supporting seedsmen and women for localized and regional seed development. 3) animal husbandry - need to support ranchers implementing holistic grazing systems that are building healthy pasture and soil, need to support these farmers, rather than those bred for mass production. 4) Clean air and clean water - the ag practices we rely on to feed people must be clean and regenerate the environment.

John McNamara [VA/CSA farmer]: expand on the idea of focusing on health as the predominant element - this seems to lack in our conversation. One of the primary things we were growing was community. We were focused on the social element of food production. In VA, I've shifted my focus to continue growing people - this can't be overlooked when we look at our world. We can see the disproportionate death rates in minority populations due to COVID, and they're at the mercy of food deserts which have left them more fragile. We need to bring the intangible benefits of farming into the conversation.

Bruno Borsari [MN/former educator/passionate urban gardener]: would like to see USDA taking a leadership position in trying to become a multifunctional, multidisciplinary arm of the government. As many people have said, there are so many implications: food and nutrition, food and community, food and developing a way to sustain healthy soils. A keystone component of all these connectives is also education. Before agroecology became a very established science, which I support very much, the directives/support USDA has been providing to land grants and other universities have been linear - increasing productivity, automation, efficiency, etc. it has come at a cost that is unsustainable, particularly the human loss in our rural communities. Why can't USDA support establishing kitchens in our schools? Young generations are not consuming food at schools and universities. We need to start planning with a much longer timescale as we try to develop more sustainable agriculture.

Richard Foucher [farmer/ME and MH now in VA/ veteran/subsistence farming]: hemp and meat processing. We have an awful lot we can learn from other countries. I don't see USDA doing that. USDA has linear thinking and it needs to get broken. I went through Armed to Farm and went to another veteran's program in VA. We've got an ecosystem and the pandemic made it clear how broken the ecosystem of Agriculture is in the US. We're living in Earl Butz's legacy - it's a mindset that is in place and we need to fix it. In supply chain, when a certain system didn't work, something new was created. What's happened now, people demand localized agriculture and the small farms that went out of business when I was a kid are coming back. Hemp can be one of these pieces. Europeans have refused plastics and non-renewable paper products - hemp can help with this if it is smartly regulated and implemented, as long as it's not made a commodity and grow from fence to fence. I process ducks in VA to sell locally. Europeans managed to maintain these product lines and not always industrialize them. That mindset needs to get snapped in half and merged with traditional methods. Pay attention to what you can do and how you can drive agriculture and the packaging industry. What do we need to do to correct monopolization of the meat industry in the US - need to have USDA make a pledge that they will not maintain that singular linear method of thinking that encourages this type of meat processing?

Robert Boettcher: need to get someone at USDA that knows what agriculture is. So many people get put into the Secretary position without having a clue of what agriculture is. We were doing all our experimenting with organic and it was really difficult. We tried to push ARS to do some research on organic farming - I'm not sure where that went. There are so many things happening that we should be aware now - you should put a listing together of resources people

can utilize in systems stuff. Years ago, we did outreach on NCAT and ATTRA and people are still not totally aware of them. There are so many things that could be of help. Some people from U of Maryland and Delaware and they were talking about resilience, but pricing was never mentioned. If you can't get a price first, how are you going to be resilient?

Ashley Conway [family farms/researcher on silvopasture]: pleased to see response on systems-based research. Emphasis of efficiency in systems-based research: the goal is optimization rather than efficiency. When looking at overall system, the overall productivity and benefits of the system are improved when using optimization lens. Applicability of systems-research for producers: looking at interactions of all these components. When I design research projects, I design something that looks at all of these components at the same time. If I change how I manage my cattle, how does that impact soil health, pollinators, etc? I want to be able to seek funds that focus on systems-based projects. What others have shared today is what I hear in my work. Reach out to your institutions, particularly land grants, because this research is happening and researchers need to hear from you.

Steve Williams [GA/water conservation]: actively trying to promote water conservation in Atlanta. NRCS has some programs but not much. It's disappointing. We had a major drought 10 years ago. The landscaping industry was decimated back then. I'm trying to get people to do rain harvesting, but there's been little interest. I see what has been brought up and hopefully USDA will take advantage of those technologies there as well.

Jim Worstell: I like the stuff lady from University of Missouri had to say about silvopasture. Emergence is the most important quality of systems. Other people have talked about important of MIG and carbon sequestration, silvopasture is the best way to support climate mitigation - so really support that. No one has brought up the issue of CAFO - methane they produce, liquid manure lagoons, etc. The smell is horrible for quality of life, it's horrible for environmental quality, and climate change. Need to incentivize MIG.

Marty Mesh: all comments have been excellent. I believe farmers need to be compensated for the environmental services that we make and have been making. I've heard great comments on the agronomic and economic part and the emphasis on rural communities. I want to reiterate that besides the environmental services, we need to be more sensitive to the social components. We all relate to the environment, but caring for people that work for you and that get your product to consumers, etc. Let's be sensitive that we need social criteria and reward farmers that are implementing those social steps.

M.K. Williams [agronomist/NE]: Worked with conventional farmers for 25 years. I flipped over to organic producers - we are profitable particularly when we use 4-5 crops, we're improving the soil, using natural fertilizers vs feeding the corporate source of those things. We get nutrient-dense foods. We are a dynamic, growing industry. We serve 65% of the demand for organic food, so there is room to grow. MOSES and PFI conferences give tools to organic farmers on practical knowledge. Funding for organic research is dropping - the amount of \$ is decreasing

and the \$ that goes into land grants is from corporate America - they're focused on profitability, not sustainability, nutrition, or values.