

**ROUNDTABLE:**

**INVESTMENT INNOVATIONS FOR FOOD SYSTEMS TRANSFORMATION**

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*Roundtable Participants*

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<b>Howard W. Buffett</b>	Columbia University, Professor
<b>James C. Collins Jr.</b>	Chief Executive Officer, Corteva Agriscience
<b>Sara Eckhouse</b>	Executive Director, FoodShot Global
<b>The Honorable Ted McKinney</b>	Under Secretary, Trade and Foreign Agricultural Affairs, U.S. Department of Agriculture
<b>Dr. Purvi Mehta</b>	Head of Asia for Agriculture, Bill and Melinda Gates Foundation
<b>Dr. Ismail Serageldin</b>	Emeritus Librarian of Alexandria, Egypt
<b>Tony Siantonas</b>	Director, Scaling Positive Agriculture, World Business Council for Sustainable Development (WBCSD)
<b>Achim Steiner</b>	Administrator, UNDP (UN Development Programme)

*Roundtable Moderator*

**Barbara Stinson**

President - World Food Prize Foundation

Welcome, everyone, to our second roundtable of the International Borlaug Dialogue – Investment Innovations for Food Systems Transformation.

Since the onset of COVID-19, there has been unprecedented capital infusion mobilized globally for relief efforts, multi billion and trillion-dollar packages aiding those most affected, trying to boost employment, prioritizing resources for medicine. But we haven't seen that investment for food systems. This roundtable is going to look at the conditions and mechanisms most needed to fund the innovations we need to build resilient food systems. We're going to explore all of them, a lot of them.

I'm going to introduce our speakers now, but you can see all of their biographies just below in your Whova screen, so we'll just do short introductions.

First, Hilary Barry is here. She is founder, Secretary General of LadyAgri Impact Investment Hub. Welcome, Hilary. (Hilary - Hi there.) Beth Bechdol - Beth is the Deputy Director General at FAO, calling in from Rome. Welcome, Beth. Howard W. Buffett - Professor, Columbia University. Welcome, Howard. (Howard - Thank you.) Sara Eckhouse is here; she's Executive Director of FoodShot Global. Sara, thank you for joining us. The Honorable Ted McKinney - He's our Under Secretary for Trade and Foreign

Agricultural Affairs here in the U.S. at the U.S. Department of Agriculture. Hi, Ted. Dr. Purvi Mehta is calling in from India, head of Asia Agriculture for the Bill & Melinda Gates Foundation. Welcome, Purvi. Dr. Ismail Serageldin, Emeritus Librarian of Alexandria, Egypt. Welcome. Tony Siantonas, Director of Scaling Positive Agriculture for the World Business Council for Sustainable Development. Tony. (Tony - Thanks for having me.) Of course, Achim Steiner is the Administrator for the U.N. Development Programme. Achim, welcome. (Hello, Barbara.) And somehow in the course of this I missed Jim Collins, our CEO from Corteva Agriscience. (Hey, Barbara. Great to be here.) Thank you all so much for joining us.

We're going to start right into our first question and talk about how the mobilization of funds for food systems has shifted in the most recent disruptions that we've seen. And then what are some of the conditions and mechanisms that are needed to shift investment patterns and improve food systems, especially for our most marginalized community. Achim, can you get us started?

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### *Discussion*

Achim Thank you, Barbara. Obviously, with such a distinguished panel, a risky proposition to start off with – but I think to me the inspiring part of framing the discussion is food systems. And I think one of the biggest lessons we have been learning over decades is that when you look at food systems and then you then narrate down to food production, you're missing probably four-fifths of not only the value chain but indeed of the drivers that influence food systems in terms of their ability to produce, to supply, but also to sustain farmers and the farming economy. And I want to make a big plea for trying to look at the issue of investing in food systems as really being one also of farmers' economy, because farmers are ultimately custodians of the land, of the resources, of the ecological infrastructure, and ultimately of the scale, the produce.

And I think when you look at it from that point of view, then three or things stand out. And very briefly just to flag them: One, the distortions in our markets and economic policy systems, the \$540 billion in the subsidies every year. We all know that they are very often either not well-targeted, or the unintended consequences in terms of distortions actually create more problems. We need to revisit that.

I think we also need to look very much at the economics of society valuing within the purchase of the product from a farmer, that function which they play in maintaining what are often the ecological infrastructure and landscapes and biodiversity. And so often we have reduced the cost, or rather the price, that society is willing to pay for a product from a farmer simply through the output that is measured in tons or in kilograms. And I think that has been one of the perhaps long-term, corroding factors to a viable and sustainable farming economy.

Thirdly, let us look at food waste and food loss. Why is there a global economy today that, according to our colleagues at the FAO (and I'm sure they will speak to that in a moment) loses through food waste and food loss, more than one third of what is produced with all the effort, all the inputs, and all the economic losses associated. Clearly, we need to do something here and very often has to do with the kind of investments that allow smallholder farmers to actually have a far greater

opportunity to maintain their produce, be able to take it to market, and a lot that follows from it.

We also need to look in the production chain. I think the more we look at simply the farm in terms of an output and the market price that it fetches, the income, so to speak, equation of a farming household, either large farm or small farm for that matter, we miss out much of what makes actually a farming operation viable and ultimately also economically important. And I think here GDP is often distorting, because the budgets of a finance ministry are often led by the contribution of a sector to the economy. The farm economy is vastly underrated, therefore, vastly also underfunded in terms of investment by public budgets. And that needs to happen.

Finally, a lot of this points precisely to the picture that is behind me, the Sustainable Development Goals. They are central, not in terms of one goal, but in fact all the 17 goals, to the kind of investment propositions we are trying to make. Thus, an investment in a farmer, in food systems, immediately has multiple returns in other goals; and that is so often lost in development, planning development, finance and investment budgets.

So these are just a few pointers, perhaps, to where we need to look for a way of reframing economics of farming but much more important, to imbed the food system in our larger economic systems. And I think these are examples of where distortions and opportunities abound, and we need to fix them. Thank you.

Barbara Thank you so much. From the Gates Foundation perspective and your investments, what are some of these innovative mechanisms? Purvi.

Purvi Thank you, Barbara. Thank you, Barbara, and congratulations for taking this forward. Dr. Borlaug would be very proud that, despite of whatever happened to the world, we continue with this dialogue. So congratulations on that.

I wanted to build on what Achim just said. I think this crisis, and just to get it started, perhaps as we targeted it as a short-term, localized health crisis, has evolved into a very, very long-term, globalized economic crisis. Right? And the supply chain disruptions across the world have translated into some major food system challenges.

And when we look at the countries, about 85 countries so far have rolled out large food welfare programs. There are some very interesting common factors in those. Number one is, because you mentioned Gates Foundation and donors, one of the very common factors is most countries have relied upon their fiscal reserves to respond to this crisis.

The second very interesting commonality is that most countries, and to a great surprise, have gone to or looking at a long-term resilience and not just short-term response, which is a very, very new thing this pandemic has brought. So build back better, that sentiment, South Asia, for example, which holds two thirds of the half a billion people, were expected to be pushed into poverty, every single South Asian country, for example, has taken a long-term resilience view and are changing policies and so forth. So there are some very, very interesting commonalities that's coming up.

In terms of innovation, there are two things that have become forerunner, which again is a very unique feature. Number one is very interestingly, you know, the countries' data and ICT infrastructure have been directly proportional to their ability to effectively respond. And therefore the data, which was also seen as an unmet need, especially by developing countries, has taken a very prominent stage. And therefore how do we leverage on that is very interesting.

Second, to Achim's point, very interestingly the shift and attention from a very, very production-centric approach by countries to a very market-centric approach and looking at the economics and things like that, I think those are some of the very, very interesting things. And we as an organization, we are focusing on some of these things to leverage upon and to be able to play that catalytic role.

Two downsides of these commonalities that I mentioned, I think, is worth talking about. Number one is – across all these countries that has rolled out food programs in the last six, seven months, they are all based on maximum food commodities. And therefore the whole diversification agenda, which also contributes significantly to the nutrition part of it, has somewhat been ignored. And that's a very striking thing.

And my second point, which is also worrying, is, while the countries have responded and all of that, there has been extremely limited amount of collective actions between the countries that we have seen. People have really, frankly, responded very much in isolation, so there is limited collective action between the countries and between the sectors. Agriculture has responded on its own, health has responded on its own, and there has been very, very limited sort of those cross leveraging that has happened, which has also brought in a lot opportunity costs.

So a lot of upside and commonalities but at the same time some very striking common downsides as well.

Barbara Thank you for those observations, very, very telling observations for what's going on at this time. Beth, let's turn to you.

Beth Sure. Thanks very much, and I think my comments will follow nicely on the previous ones. I do want to start with a little bit, though, unfortunately, of some of the more sobering, I think, realities that Purvi is also referencing, which is that right now the global COVID-19 response has really sort of been framed around a few key axes. I mean, first, obviously, for most countries is just making sure that they can stabilize their own economy and their own budgets. There's deep debt rescheduling and relief, and there's aid to their own health sectors to basically mitigate the impacts of the virus itself and build pandemic preparedness and then obviously humanitarian assistance and economic relief around that.

And what we are actually seeing, and I would assume others in our same kind of multilateral system are seeing as well, is that development donors, at least, are having, Barbara, to prioritize their investments in health systems and in social safety nets, which are obviously critical to each of their national country's strategy to combat the effects of COVID. And so as a result, funding to the health sector is increasing sharply as the most direct way to respond to the crisis. But some of this is starting to become redirected.

And so just as an example, Germany announced its emergency COVID response program in April, about three billion euros. And in that fresh funding of about 600 million euros will be made available for food security-related assistance. So a clear direction being given by one of our largest EU donors around food assistance and food security.

The UK, on the other hand, we are anticipating will likely cut by about 20% their development assistance budget, larger than we had expected based on their own national economic forecasts. And when they then have to reprioritize what's left, a national government has to sort of step back and kind of take the larger stage. And for the UK, they're likely going to be focusing on poverty reduction, climate change, and reversing biodiversity laws, girls' education, and then their own national COVID-19 response.

So again a bit of a sobering reality of what really is available, the global financing for these large COVID food systems responses. So the competition for funding, it's decreasingly fierce. It always has been between and among U.N. agencies and other NGOs and other organizations and groups that are out there all trying to elevate. We know that the resources right now are going to be increasingly challenged.

With that said, the glass half full reason for optimism is that investments in innovation have really taken off. And this is, I think, where we have a real opportunity to sort of reset the plane a bit. If you can look at innovations that are not only helping with containment measures and other restrictions that have been put in place but are having real impacts.

So, for example, the digitalization of transactions along the value chain, connecting consumers to markets; innovations in working conditions in the food and agricultural field; the use of the latest protective measures and equipment. All of these are just examples of innovations that came as a direct result of COVID. But because of support from IFIs, from the World Bank, from private sector partners, I think we're finding that innovation can really be one of those leading reasons to bring more support and to find unique and maybe differentiated tools of financing and funding to continue to support the overall farmers. Back over to you.

Barbara Right. Well, tremendous illumination of just exactly the proposition that we're facing and how do you build more of that innovative financing and what kind of mechanisms. And I know so many of you have so much experience in this area. Anybody want to respond to this? Hilary, you're managing an incredibly innovative new fund. We'll go to Hilary and then Ismail.

Hilary Okay, and thanks so much, Barbara. And, yes, I think as Beth has highlighted as well and what Purvi has spoken about is that, and COVID has really shown it's both in our supply systems, and I am specifically looking, and LadyAgri is specifically looking at women in the agrisupply chains in Africa, so Africa didn't show as many numbers in terms of COVID compared to the rest of the world. But what it is showing is massive food insecurity because of the disrupted supply chains.

But looking at the glass half full, what it has done for our women entrepreneurs, because imports are down, it's actually created market opportunities for them. And if we talk about agrisupply chains and we don't talk about women, we're really

missing out on those who are working hard from farm to forest, getting those food systems up and running and getting nutritious foods to the local populations at this time.

Barbara Thank you. Ismail and then Sara, and then we've on.

Ismail I think I agree with everything that's been said, but I would like to bring a little bit of the risk of an empty glass farther than the glass half full. And that is basically that we are being told very clearly by all the science that we are likely going towards a much higher level of climate change in terms of global warming, with the likely effect specifically in Africa. North Africa and the Middle East is going to be hotter, drier, and less food secure than it has been in the past. Sub-Saharan Africa will have much more erratic rainfall and will result of 95% of the agriculture being non-irrigated. You will have cycles of flood and drought. Now, this will require a much more resilient system and that patience should start from now. In fact, divergence of funds means the idea of investing in protective structures and other things, because five, ten years from now we expect to have some very serious problems. It's not happening. And the priorities, of course, of the health sector can be understood.

But at the same time we know that every time we are going to have one of these major climatic events, you are likely to have huge shortages, and you'll require humanitarian aid on a significant degree. And governments relinquishing thinking about greater resilience, buffer stocks, and other things of that nature and specifically how to assist farmers with more adaptation, not just in terms of talking of mitigation on the climate change side. That investment, I think, is not happening, and I'm hoping that we will be able to discuss ways of making it happen.

Barbara Thank you. Sara, a quick comment?

Sara Just quickly I think what everyone has talked about in terms some of the risks where money is being shifted maybe away from agriculture and towards health, I think, speaks to the need to think systemically about agriculture and how it connections to health and how it connects... How can you possibly address poverty without addressing, investing in agriculture? How can you possibly address challenges related to biodiversity without looking at agriculture and agriculture's role in deforestation and the rejection in biodiversity around the world? So I think we just need to... It just speaks to the need to position agriculture as a win-win solution in addressing all of these problems, and investing in agriculture has all of these five benefits that maybe aren't being considered in some places.

Barbara Thank you for that point. And, Sara, maybe just say one word about FoodShot Global and to use innovative mechanisms that you're putting forward through the program.

Sara Sure. Well, FoodShot Global is a collaborative investment platform, and we work with groups from around the world, from banks to universities to investment funds to foundations to catalyze innovation for a healthier and more sustainable, more equitable food system. And we kind of have framed these FoodShots or MoonShots for Better Food that we see as key leverage points to transform the food system. And the whole idea is that investing in these issues – one of the first of which was

innovations in soil health, of course, which aligns very well with Dr. Lal's work – will allow us to achieve goals in other areas. And so investing in soil isn't just about improving soil health, it's about improving human health and nutrient bioavailability. I think Dr. Lal said today that soil degradation is the cause of global malnutrition, and so improving soil health is really critical to addressing issues of nutrition. When you look at farmer profitability, that's a key. In poverty, soil health is critical to that. And then also of course ecosystem restoration, climate change mitigation and resiliency of soil health is key to that. So it's really identifying these key challenges that are also opportunities and using investment capital and also philanthropic capital through our Prize to create a transformative change.

Barbara Great. Thank you, thank you so much. So let's shift and talk a little bit about a different component of all this. We have a wonderful media partner with us, Farming First, and they were able to poll our audience in advance about questions that they'd really like to hear from our speakers. And this set of topics really came up through those questions submitted by you, by our audience.

Just as Purvi was talking about how long-term response is elevated and people are, countries especially, looking out a bit further to try to figure out how to build back better, we need to also be thinking about how to increase our investment now for long-term research efforts and high-impact, long-term solutions. So what are some of those proven technologies, proven impacts for these long-term solutions? And I'm going to first go to you, Jim.

Jim Great. Thanks, thanks, Barbara. And you're right. This is the world at Corteva that I live in every day, is thinking about the investments that the previous panelists were talking about. Because those investments, that investment in technology is absolutely the source of addressing these challenges going forward. And that's what Corteva was kind of found on. Since our emergence from the Dow-DuPont merger, we've got 14 brand-new innovation game changing things that we've launched into the marketplace. But we don't stop there – right? Your question is – Are you looking far enough forward and bringing those types of ideas?

So I think about them in three areas: One, we're really excited around gene-editing and with tools known as CRISPR. And congratulations to the Nobel Prize winners for the acknowledgement of this incredible tool.

A great example of that is where we're working with U.S. Department of Agriculture. We're working with the Kenyan Agricultural and Livestock Research organization. We've parted with Bill and Melinda Gates and CIMMYT, and we're applying that tool to solve one of the worst diseases in corn in Africa, the maize lethal necrosis. And what CRISPR does is allows us to make very specific changes very precisely, but we can do it fast. And that's the importance here, is speed, I think as the other panelists recognize, that we're not moving fast enough. And you see a crisis like the pandemic and how quickly it can disrupt many of our food systems. So speed will be important.

Another area that we're really excited about is investments in environmentally friendly crop solutions. I think, as Sara was mentioning, that we have the opportunity to not only have agriculture play a role here in solving food security

issues but also in solving some of these climate issues that Ismail was also mentioning.

So things like changing rice cropping systems and eliminating the need for rice paddies and eliminating methane gas that comes off of many of these rice production systems. It's a huge greenhouse gas that we can reduce with newer technology.

And then the third area I would mention, and it's already been mentioned, is how important digital and data is. And we've been expanding our software solutions for customers and making those solutions readily available to millions of farmers all around the world to really put that powerful information in their hands.

So kind of at the core of it, we're thinking much more about circular or closed-loop farming systems where technology can play a role. And the idea is simple – let's keep more resources and materials that are on that farm in use on the farm as long as possible and to produce more outputs with less inputs. And farmers are already experts at reusing resources and reducing waste. And so we're going to announce partnerships with folks like Microsoft where we're exploring new technologies and tools that can give farmers that needed information so they can know where they can get more with less.

So I'm really excited about carbon sequestration technologies and the use of AI and cloud computing and some of the Internet capabilities out there to really transform these systems. So we've positioned Corteva to be an enabler of what I think are going to be some tectonic shifts from technology, and you'll be hearing about a lot more of those efforts in the weeks and months to come. Barbara, I'll turn it back to you.

Barbara Thank you. Thank you for those examples. Ismail, long-term research interest. This is such an area of interest for you. What are some of those important (cut off)

Ismail Well, first I'd like to say how much I agree with what Jim has said, that what the new science enables us to do much more quickly what we want to address. So it took us, for example, 15 years in conventional breeding to get the quality protein maize. We can now do this in two years, three years maybe. And what we need is to start thinking both in terms of a leap frogging effect that will bring about the kinds of plants that we need and also reduce things. So, for example, we want a plant rice that is - all plants, not just rice, but all plants - that would be more salt resistant, more drought resistant, have deeper roots, shorter growing season, more nutrition, higher yields. And we *can* have it all. I mean, that's the amazing thing - we *can*. And when you add that to systems thinking, which we need better management systems. We've seen that in actually with systems of rice intensification what has been done very effectively, plus we want greater storability, greater portability, because a huge part of population increase is going to be in cities. And in many of the poorer countries in the world, the infrastructure, the roads, is very poor, and the ability to move that. And we have lost about 35% in many of the crops after harvest. So we need delayed senescence. And all that can be done. The problem is to move lab to farm quickly and to move from farm to consumers and to think in terms of an integrated system that brings better efficiency in terms of per unit of land, per unit of water, per unit of

energy, and per unit of labor as well as the maintenance of the environment in the cases that we talked about before.

So this is a science program that requires collaboration, and we have instruments like CGIAR, like other international organizations that pulls together scientists. And the scientists are willing to work together, but we have to get this adapted to the local requirements of each country and to get it to the farmers. That was Norm Borlaug's last words, *Get it to the farmers, Get it to the farmers*. Norm, we listen to you.

Barbara We're getting there. We're all trying to get there. Thank you so much. Tony, from WBCSD perspective?

Tony Yeah, I mean from our side then we've heard a lot from the other speakers on this critical role of new markets, innovations and technologies. And I'm really pleased that that's come up from both representatives in the United Nations but also the private sector. The role of digital advisory services, just as one example, is being a critical enabler to keep farms running during the COVID crisis. And this is the socially distant tool that we have at our fingertips. Not all farmers, sadly, have it at their fingertips yet, so we need to make sure that we take those public/private partnerships approaches and to getting them out into the field where they're needed. And of course the winner of the Food Prize this year has dedicated his life to the role of soil health, and I think just within that space then we know that that's a key way to support agricultural transformation, that climate, nature and farmer policies. And we're going to need clear standards and ways to map data, clear markets providing proper carbon price that's going to work, that's actually going to incentivize that flow of finance that's needed into the system.

And so ultimately to get to real scale, this investment is the key enabler, and a lot of discussion is happening now around what those game-changing initiatives are that are going to help multiple actors and invest properly into this space in albeit difficult times.

One of the areas we know is key here is this food systems transformation piece about understanding how we can effectively bring the different constituents together; the actors are public and private but also many of our different groups. We've got groups of us who work with farmers, groups of us who work with sustainability in business, and we'll speak quite different languages. But ultimately we have to make sure that there is a just transition in all of this work that's going to benefit landowners and smallholder farmers and all types of farmers alike. And we know that those investments need to, therefore, need to adjust rural transition, if you like. And investors have huge interest in this topic. And we are doing a lot of work to bring investors together as part of an investor partnership network to make that happen. And, but they'll need the knowledge to meet the standards to understand what metrics they need to put in place and to incentivize this. And they'll also need to be acting regionally into the big project, the big regional country-level projects that are going to make a difference. We've had a bit on rice and work such as the Sustainable Rice Landscapes Initiative. That's another initiative which is trying to mobilize public and private finance with around nine country projects across South and Southeast Asia that's doing work with farmers on farm landscape restoration, bringing in value chains of all sustainable rice, get it into the consumers' hands as well.

So there's a lot of change in partnerships that needs to come from all of this progress.

Barbara Thank you, Tony. Just say a little bit more about "adjust rural transition" and the partnership related in the investments that's happening there.

Tony Well, I mean a lot of this came around because we realized in the strong movement of the environmental food systems transformation space. We've heard about soil carbon group, for example, which this has come up time and time again, and the markets for soil carbon. And then around the world we've also seen that there has to be an equitable role that all farmers and landowners have in terms of how the changes take place.

So in other words, if we want to shift the food system toward a more sustainable future, what can we do to effectively invest into the types of jobs that are needed to get farmers there? We've seen this in the energy environment and in the Green New Deal. And what we're seeing now is investors and across the world integrating just transition metrics into their project so that this can actually happen. A lot of this has happened in the past with public money and from the likes in particular, for example, the UK government and the SCDO there previously did this, has done a lot of work in that. But we want to see this at a greater scale, and these types of metrics and standards that are being used by the public sector need to be adopted by the private sector as well if we're going to get to this is just transition at all the rural masses out there.

Barbara Thank you. Thank you so much. Others to respond on this. Howard?

Howard Barbara, thank you. I really wanted to build on Tony's comments, because I think there's a couple parts that are very important to pull out. First is, Barbara, you really opened up the panel talking about how we get to innovative, impactful solutions. And I think just as much as a research and technology challenge, this also an issue around information asymmetry. So Tony's point about better need for data and having the right metrics and to help that increase the flow of finance, I think, is spot on.

And so as we think about companies or foundations or development agencies and their work – and they're all out trying to improve the world, of course – there are some common questions I hear from these organizations over and over. First is how do we know if our programs are high impact? And then second, what data goes into our analysis to support our evidence base? And I think addressing these challenges really centers around three questions.

First is, what are the metrics that organizations are using? – not nearly anything that can be measured, so we have to make sure we're measuring the things that matter the most.

Two – what data do organizations actually have access to in order to support their case. And this is where a lot of groups I work with struggle, because getting the data is either too costly or time-consuming or just complex to do, for whatever reason.

And then third – how do organizations analyze the information and then use that to inform their actions and report out correctly? So I would argue that we absolutely

need new technology solutions, and that could include improved data, standardization of measures, better options for analysis, and so on. And hopefully this is something we could talk more about in the next part of the Q&A. Because I think that it'll help drive – as Tony was saying – the capital that's needed in order to bring about a lot of the solutions that the other panelists are talking about.

Barbara Thank you so much. Sara, did you have any thoughts you wanted to offer on this, just more on the mechanism? Okay, great. Others? Let's open it up. Anybody else? Purvi.

Purvi So, Barbara, just a quick comment on what Jim and Ismail and Tony, all three, said on the - and Howard said as well about that - the information asymmetry and the need for innovation in technologies. I think we must realize as a world that one of the biggest asymmetry lies in the post-harvest part of the food value chain, the connections to the market. We know so much more – I'm not saying enough – but we know so much more about the pre-harvest part in the production, and most of the innovations have been focused towards that. Farmers farm because they're interested in markets. Farmers don't farm just because they're interested in higher production. And therefore any of these innovations we talk about, I think, the second part of the food supply chain needs so much more attention from the world.

Barbara Others? Ismail, then Achim.

Ismail Very quickly, I just wanted to add that one of the best tools to get the new technologies to poor farmers is the seed. So if you are in fact transforming the seed – and it's technology that is not dependent on scale of landholding like mechanization or anything like that – it goes very directly.

Transformation of that must include really the food content. The nutritional content can be increased dramatically, and I think we discovered that. Sometimes we run into obstacles such as vitamin A rice, for example, that has been having difficulty in being marketed. But most of the time these things like quality protein maize, a former World Food Prize winner, as well. We have the technique here where it's not just the amount of production but it's the quality of production, and that is very important for the nutrition of the children and the mothers and all the poor people. Because we know that chronic malnutrition is not, is partially about quantity but also about quality.

Barbara Achim?

Achim Thank you. If I may for a moment say – In your decision for this year's winner of the World Food Prize, Dr. Rattan Lal, soil fertility, if there's one thing that determines whether we can produce, it is really the soils. And as Beth will confirm, for a number of years now, the way that we are producing and intensifying food production, agriculture production is actually resulting in a net loss of arable land. And this is an equation that it doesn't take much imagination to realize it's going to lead us into an ever more intense problem. So I think around the whole notion of soil fertility lies a key area.

The second point I would plead for is – who are the users that we're actually conducting R&D for. There is a very strong tendency because of the global R&D and

economy of ever-greater economies of scale and the corporate dimension of it. And I don't know if Jim would agree or disagree with me – we need to find a way of balancing the intensification of agriculture through R&D that serves a certain agricultural market economy model but actually leaves out the backbone of food production in the world, which is smallholder farmers, or puts them into a very difficult economic, a very constraining economic space.

And I would argue that we need to learn to work more with nature rather than trying to replace nature in the food production process, which is to some extent the paradigm driving the frontiers of research over the last, well, 50 to 100 years. What do I mean by that? Well, Ismail spoke to adaptation and climate change. We need to figure out how on earth are we going to create greater resilience in food systems, but it's also us going back to something that has been remarkable in its absence. Why are we not looking more at, for instance, perennial food crops? They have completely disappeared except with a few pockets from the research agenda. Much of the genetic material on which we draw and also where food comes from, is actually from perennial food crops. And yet agriculture is increasingly premised on turning everything upside down once a year, twice a year, three times a year.

And finally on technology, I don't want to in any way argue that we need to go back in R&D. On the contrary, the 21<sup>st</sup> century frontier is extremely important, digital and others. But I think it is for whom we conduct research with what paradigm. We work with that material, that capital of soil. And how we develop also from here in terms of agriculture intensification. On all three fronts there has been a lot that has gone wrong, and it is in part an explanation of where we find ourselves in today's food systems and agricultural production system. Thank you.

Barbara Yes, Sara.

Sara I'd just really like to kind of echo what Achim said and especially today is Indigenous Peoples' Day, and so I think there are things that we can learn from generations before us in how to manage land. Much like in California the management of the forests went from being managed by indigenous people who did controlled burns, and then as it transitioned to kind of a more commercial management, we now have these massive fires that are incredibly destructive. There are things that we can learn, and we really do need to think about – who is this for? – and equity in addition to kind of the sustainability and regenerative aspect of the environment and improving nutrition, who is benefiting in terms of...and this goes back to poverty as well, poverty reduction and also the empowerment of women and girls in agriculture. So I just really appreciated what Achim said, and I think it's especially relevant on Indigenous Peoples' Day.

Barbara Thank you, thank you. Beth, you're muted.

Beth Sorry about that. I would just say that again on this area, I again feel a little optimistic that there is a bit of a turning tide, it seems, than maybe where we have been in perhaps the last maybe ten or twenty years with a very polarized, I think, sort of reality in agriculture of just... I mean we can say it – it was biotechnology and GMOs versus agroecology. And we got stuck in that. FAO got stuck in that, our members got stuck in that, private sector, and sustainable agriculture interests got stuck in that. And I don't sense that we're at that place any longer. As we put the

Food Systems Summit together, as, Barbara, you have a panel like this one bringing so many different perspectives and opinions and backgrounds and skill sets together, I again have reason, I think, for optimism to think that we are all beginning to think about this in a much more systemic way than any one-size-fits-all way that perhaps we had previously around technology.

I think the private sector, you know, I even have here inside my own hallways at FAO, colleagues that oftentimes I feel like I have to sort of introduce them for the first time to people like Jim Collins to the kind of work that Corteva does, to the shared mission that a company like Corteva might actually have. But they actually know what the Sustainable Development Goals are, and they hold themselves equally accountable to that. That was not a culture that, frankly, existed in an organization like ours in the not-too-distant past. And I think that is shifting and is another reason for us to stay positive and connected with each other on these bigger conversations.

Barbara We certainly hope. We are in the midst of a paradigm shift, and the kind of cooperation and mutual support for different kinds of work going on at all levels continues. And we'll be taking that up throughout the week. Let's shift our conversation just a bit to talk more specifically about some of these innovative, truly innovative and newly forming financial investment mechanisms that are coming to the fore. I want to turn first to you, Ted, to talk a little bit about diversification of the finance investment. What's going on at USDA, and how are you, how is your agency in the Foreign Agricultural Service investing in all of this?

Ted Well, sure, Barbara, and it's great to see everybody. Boy, far be it from me to try to instruct how financing of new technologies around the world should go, when we've got an august panel like this. But I'll make some comments here.

The first thing is, yes, we must recognize today is National Indigenous Persons Day in the U.S. It's also National Farmers' Day. And a great deal of what gets me up every morning is to lift up farmers, not only like my dad brother and that which I grew up with, but farmers around the world. And I've been on many, many, many of those farms. And so today I celebrate National Farmers' Day.

And I also have to do a big, big congratulations to our World Food Prize recipient, Dr. Lal. I was just in Northwest Ohio where you have done so much work on trying to protect Lake Erie and the Great Lakes, as did I when I was in the Department of Ag. And all is going well. Attention to this, good technologies and perseverance is making a difference. And so my congratulations to you.

Barbara, just two or three things. First of all, I wanted to take on and talk a little bit about what I think Achim said. Achim, I think you were suggesting that we have to be careful where we go, and I think I agree with that. But if that was in any way hinting that we should stay away from industry, I just have to call that out and say I think that is exactly the wrong step. I come from the corporate world. I cannot tell you how many times I—and I have a lot of the societal responsibility for those companies—wanted to, attempted to reach out to parts of the world, offer technologies for free. Try them out, see how they might work. And not rejected because the country didn't want to but rejected because the country was afraid that

some seed might get in the ground, be exported to certain regions of the world, and then they would be cut off. And this is a very real problem.

I was with my very good friend, Jim Morris – and congratulations to the World Food Programme – Nobel Prize winner. My gosh, the Nobel Peace Prize, no less. Jim told me the story about being in a port as head of the World Food Programme. A load of corn was being unloaded. Women were there to gather that corn to go cook the food. And the president of the company said, “Jim, can you guarantee that this is non-GMO corn? And Jim said, “Well, we ordered that. We identity-preserved it. But if you’re asking if I can guarantee that every kernel is non-GMO, I cannot.” And the load was promptly reloaded and sent back. And that wasn’t because he was concerned about health for his citizens, as Jim described – it was because there was a concern that some seed might get planted, find its way specifically to Europe, and they would be cut off from exporting. Now, that, I think, is also wrong.

A couple of things: I believe that finance investment has got to come from all sources, and many of them are here on the screen and in the program today. My goodness, some of the greatest innovations have come from farmers themselves. Now, they may not have the money to scale it up, but if they work with companies like Corteva or Angel Funds or Investment Funds, many of them on the screen here today, wow! The opportunities are fantastic. And I have seen that on our own farm. As a boy, I remember seed trials, hybrid seed trials on our farm. It quite happened just by chance to be with Jim, your Corteva Pioneer brand. And that helped our family tremendously. And I know that such practices are helping the world in many different ways when they’re allowed to.

So all this talk about finance and investment is great, but if you’re not allowed to apply the finance and investment to new technologies... Yes, they must be proven as safe – no doubt about that. But they have been, and I think we know that. And if they’re not, there’s plenty of time to make sure that the regulatory systems around the world, Codex being one of them, makes sure that they’re safe.

So we in the U.S. are very, very proud of our contributions to the World Food Programme, to all these kinds of investments, but we are working - we’re doubling down, particularly focused on Africa, who have come to us and said, “Look, we would like to be trying some of these. We have not been allowed to.” I can’t tell you how many discussions I have had with representatives of the African Union that want to try but in many ways are deterred or denied, or there’s a myth among their members that some of these things are bad and we must let that happen.

I happen to believe that small, medium and large size companies are a terrific source of innovation, certainly governments like ourselves. My good friend, Scott Hutchins, is doubling down on our Ag Research Service, dialing that in on the needs of people. The same goes for all of those funds, like all of you have, such terrific work; and it’s in all of the above strategy. But my goodness, we must allow for and accept certain amounts of risk. If we don't, who are we? We have done it for decades. And I, too, am a fan of Dr. Norman Borlaug. I knew Norm. Certainly know the granddaughter Julie who’s probably listening in. And, boy, if there’s anything that he taught me, it is, *Take it to the farmer*. They are the world's first environmentalists. *Take it to the farmer*. Ismail, you said that as well. I've said it many times. There will be risks,

people. There will be risks, but we have to allow some of that, provided some of the base work is done. And only then, only then will we progress.

So my friend, Beth, I hope you're right that we really are coming together. I frankly am a little worried. This Farm to Fork initiative out of the EU is very, very troubling. For the first time we're seeing an entire continent say, "Reject technologies," all which have been proven as safe. So we'll be working with them. Much of the Farm to Fork I like a lot. Those are things we've practiced on our farm and many around the world have practiced. I'll be the biggest cheerleader on some of those. But when it comes to banning, I think that is very wrong-headed, and I think it's contrary to all that we're talking about here. Technologies, I think, can be discovered by the financial community. Let's let them fund it, and let's go try it out. Thank you, Barbara.

Barbara Thank you, Ted. You're certainly provoking us with some good, some good challenges there. We appreciate it, and others are going to have a chance to respond. Howard, let's go to you? Talking about some of the venture capital and other kind of social impact investment strategies, you have so much. You've written so much, and you have so much experience.

Howard Well, Barbara, thank you. First, I wholly regret coming right after Ted. I'm not nearly as eloquent as he is, so hopefully everyone can forgive that.

So, Barbara, in this question – and I know what you've been thinking a lot about is around funding mechanisms. And you've talked about how we're seeing a massive amount of funding falling right now. So really the challenge to solving a lot of these issues that we're facing isn't the lack of funding – it's getting into the right place. And so I just wanted to take a different perspective, I think, in these remarks and talk about some of the missing ingredients that are there.

And I think one is really the ability to effectively understand the results that socially oriented or socially focused financing is trying to bring about in the world. So in a lot of these investments, a lot of the projects, a lot of the things that the organizations represented on this panel are working on, how do we know when they're working? So first of all, we all know, I'm sure here that there's some three to seven trillion dollar funding gap of investments that's needed per year to sustain the Sustainable Development Goals. Achim was speaking to this very specifically, and I'm sure he could add to that.

But one primary reason for this is market failures in those capital flows. Now on one hand this is probably not unsurprising, because we're facing economic turmoil or we've got a world pandemic and a lot of other things going on. But on the other hand, these capital failures are, I would argue, somewhat surprising because we have ongoing signaling among U.S. and European capital markets and investors globally, really, who wish to combine social and financial returns when they're making their investments.

And so one question is – Why is there this supply/demand gap? And your research at Columbia has really found three key impediments. So the first is that investors need to have a better understanding of the form, function, risk and the utility associated with socially oriented financing vehicles. So these could be social impact

bonds, they could be first class capital pools, hybrid grants, or some other type of blended finance mechanism.

Two, social entrepreneurs need better tools and training to access additional funding opportunities. So for a minute picture an entrepreneur somewhere in the world. She wants to improve her community's access to food, take her cottage industry and expand it out. Well, think about how well equipped is she to access the capital she'd need to do that – now, for most parts of the world and under most circumstances, you could probably argue, very poorly equipped. There's just not a lot of opportunities for someone like her to get the capital that she would need.

And then the third problem is the one we spoke about earlier – information asymmetry. And really that's between investors who will prioritize social returns with their investments and then profit managers or social entrepreneurs like I was mentioning who really struggle to provide adequate, measurable social performance results to those capital allocators. I'm going to spend 60 more seconds on this, because I think it's really critical.

So something I've been working on for a few years now is to really try to address this issue of information asymmetry. And so I have an approach. It's called "impact rate of return," and it's designed to help organizations, regardless of their size or type, to be able to measure, analyze and report on impact of any kind and to do so in a way that's uniform and rigorous.

And to do this, organizations really have to look across a number of key attributes of impact. One is the type of impact they're trying to deliver – so how is change being delivered? Two is the quantity of impact – so what's the magnitude of change that they're bringing about? Three is the quality of impact – so how meaningful is that change? The fourth is the cost of impact – so how cost-effective is it giving investment or a grant in bringing about change? And then the fifth and final one is the time of impact – so how long does it take to deliver the intended change that these organizations or investors really want to bring about?

I would argue that organizations have to analyze all five of these attributes to get a comprehensive perspective. And the goal here within that rate of return, at least, is that anybody, whether they're a student who's graduating and launching a social enterprise or the head of a small NGO or an investment professional at a pension fund, that anyone can engage in this type of rigorous evaluation and then provide a kind of impact reporting that investors and grant makers, and, I would argue, potentially the shareholders at this point are coming to expect and then all of that without being too onerous. Because I think that's what it's going to take to help address this really big gap in the marketplace that's needed.

So I'm happy to discuss more of this in the Q&A; but as you can tell, I get a little excited about it, because I think it's really something that's needed.

Barbara Well, I appreciate you bringing it so clearly to the fore, because I know you've written about it; in fact, in the resource section I think we have one of your articles, maybe a couple of them. So we're going to let others respond and ask questions about the impact rate of return formulation. Sara, before I go to you, I want to go to you, Hilary, because I know that these kinds of tools and access to capital,

particularly for women, particularly from women in Africa, this is the heart of your work.

Hilary Absolutely, Barbara. Thank you for letting me follow Howard, because I think it gets us right down to the issue about understanding – how can we create more equity in terms of access to capital? And when we talk about, again, when I mentioned earlier, we talk about agrifood systems, we can't ignore the fact that women are there from... I won't say farm to forks – it makes a connection to the policy and mentioned by Ted McKinney earlier on. But really looking at those distribution systems and seeing how we can actually get food to the markets.

That means we need to be also gender smart about our investments. And what LadyAgri has done is that we've taken on almost the Goliath, David and Goliath task as such, which is linking the investment community, so right from development banks right through to the commercial banks so that they start looking at women as a clientele and women agri-entrepreneurs as a clientele. And, because what we've seen for so long is that, as such, this clientele have been ignored. And they run up against the issues of collateral when they want to have access to financing, and that is something very systemic and culturally present in a number of countries, just the fact that land is not in women's names.

So what we are trying to do is actually get the banks to look at the businesses and how profitable those businesses can be. And on the other side, we work, as Howard just mentioned, in really equipping and building up the capacity of those women-led and SME's (Small to Medium Enterprises) so that they can speak the language of banks, so that they can be confident in actually going in, presenting their business case, and speaking out, saying that they have a number of contracts with uptakers, and getting the bank to take a closer look at their business, as opposed to just stopping and saying, "We can't give you a loan because you don't have the traditional collateral".

And I'll give you a very clear case study. So we work with different clusters of women SME's across Africa. This morning I was speaking with our cluster in Blantyre in Malawi, and they came up with the issue, "Hilary, we're looking for a loan at the moment, two-year loan, that we can actually buy by processing equipment." They're working in the sweet potato supply chain. They are a thousand women producers behind them. They have serious contracts with farms and supermarkets. However, they don't have the traditional land ownership or because the bank will not take equipment as the guarantee, they can't access a \$50,000 loan. And this is what is needed in terms of access to patient capital to develop agribusiness systems.

Often when we talk about women in finance, women are relegated to the microfinance category. It is impossible to grow an agribusiness on the interest rates that are practiced by the microfinance community. And that's not a criticism, it's just a mismatch between the needs to actually develop the businesses and the financial projects there.

So LadyAgri is about holistic investment, equipping the women in terms of technical assistance; it's about access to appropriate agribusiness financial projects. And thirdly – and I think that's very important to our discussions today – it's access to the

equipment and technology right through to packaging to get a quality project to market. That's how you can inspire confidence in the finance system to invest, also in uptakers who will order on a regular basis from you and thus create a rising tide; because these women entrepreneurs are sourcing from women farmers.

So LadyAgri is all about gender-smart investment in building the sustainable food system.

Barbara Thank you, Hilary. Thank you for that great example. Sara, I want to go to you for any comments that you have, and then we're going to open it up for just a few minutes for folks to comment on each other a little bit and some of the various great comments that we've heard. Sara.

Sara Thanks so much. Yes, so I mean I mentioned a little bit about FoodShot Global earlier and the integrated platform that we have with philanthropic capital through our half-million-dollar-plus groundbreaker prize and then investment capital through our equity partners. And I'll just kind of, I think, in response partially to what some of the other people say, mentioned why we've structured ourselves in that way.

One is that we want to move things more quickly, like Ismail said, from the lab to the farm to the consumer. And you need that philanthropic capital often to get things started out of the lab when before there is..., when it's early stage research and it's higher risk and higher reward that might not be quite ready for an equity investment, but you can jump start it with some prize capital or grant. And then, because we have this partnership of different equity partners, then to provide the type of investment that can help it get to actually the market and into the hands of farmers.

And also I would just mention, we're being driven by the science in all of this. And so I think what Under Secretary McKinney said is really critical. We cannot be afraid of new technologies. I think the work Jim Collins talked about in terms of CRISPR and the digitalization, these are really critical tools, and it's in all of the above. I think this was also mentioned – you know, we need an “all of the above” strategy, we need all hands on deck. One of the reasons we're structured as the collaborative partnership is that we don't think that any one – you know, philanthropy, foundation, bank, university, investment fund – alone can achieve the kind of transformation that is needed. And so that's the opportunity that having the collaborative structure saves, is that you can not only provide the seed stage, the very early stage investment, the later stage investment, but even supply chain connections so that you can provide market access and product validation.

And then the other thing is, on the patient capital side, one of our hopes also is that these are long-term commitments. When we identified soil health as our first food shot, we're not letting it go. We've identified another food shot this year, which is precision protein and really looking at protein in a more rigorous and scientific way. But we're continuing our investment in soil health. And so it's identifying those long-term, meaningful solutions.

So that just brings together a little bit of what I heard from other people, and I think it is something I think we need more of that type of collaboration and long-term view to achieve real change.

Barbara Thank you, thank you, Sara. Others want to reflect on what you're discussing so far?

Tony I can say something quickly.

Barbara Sure, Tony. Go ahead.

Tony I just look to build upon all of the investment examples that have come up. I mean again looking at- we've heard the social side, at the environmental side, just one classic example with the banks that we are working with, a lot of the agricultural banks who are lending into, and farmers and agribusinesses around the world. And there isn't currently the means in the banking portfolio to know how much carbon you hold in your banking portfolio. And if you don't know that, then you don't have the tools at your disposal to know how to incentivize that shift.

And so we are now working with some of those big agricultural lending banks, like Rabo Bank, but we want to include many others and to create the types of tools that are needed to make this happen. Because ultimately, if you can get these types of requirements, it doesn't have to just be on greenhouse gas emissions. It can of course all be these social requirements that we're talking about. But if you can get those underwritten and put into the loan books of these banks and integrated in that way, then you have the means to really address the system from that perspective, from the investment finance side. So we really find that as an important innovation that needs to be brought in. And we hope that many other finance players in this space can come on board to think about these sorts of issues.

Barbara Isn't it incredible to hear how much is really going on? We understand that the technology has to move so quickly, that it is moving so quickly, and to bring the science to the fore, that just transitions are going to be crucial in mobilizing our rural communities, that new technologies must be embraced, and the kinds of tools, such as impact return on investment, to analyze where the investments, the risky investments might be best directed and collaboration, that the level of collaboration and partnerships that are going on in all directions and all around the world, are really striking, early investment and patience, finding that patient capital. These are all things that we know are necessary. And what do we hear, gosh, from almost everyone? You have to bring it all; you have to do it all. And really "all of the above" is the position of a safe, affordable, nutritious, sustainable food system, and that's what's going forward.

So with all of that, we have great questions coming in from the audience. I want you to know that we're recording all those questions, going to return them back to all of you all as our speakers. And also they're going to stay live on Whova, so you can come back and take a look at them yourself as well as speakers. So thank you for all that.

This group wanted to do a lightning round of closing comments, so we're going to give each person just one quick moment for a final comment. Jim, can we start with you?

Jim Great. Look, I just appreciate the dialogue. I think both Ted and Beth raised some really good comments – from a partnering perspective, the opportunity to collaborate and just having access. So we work hard from an industry side. But I will

second Beth's comment, I have seen a huge shift in the willingness and openness now with FAO, with USAID, others, of inviting industry in to be part of these solutions. And as Ted says, he's exactly right – there's no more willing partner that wants to be out, involved, especially in rural communities with small-order growers, helping them continue to dramatically improve the resiliency of the food systems that are out there. And I believe in my heart that technology will be absolutely at the core of that.

And we have some amazing tools right now today that could be deployed to change this trajectory. We've just got to have an open shot at it, and we'll show you what we can do. Anyway, thank you so much, Barbara, for the opportunity to participate with the group.

Barbara Thank you, Jim. Purvi?

Purvi Yeah, thanks, and I will pick it up from Jim, and again reiterate the need for collaboration that all speakers have said. I like the way Beth talked about the culture change and all that. One thing for sure, COVID has changed many things; but one of the things it certainly has changed is that it has taken away the luxury for us to work in isolation. We have to collaborate together, because there's absolutely no other chance. And I feel that, you know, "necessity is the mother of all partnerships," so I think this is the time that we have to partnership. It's no more a choice.

In terms of innovation, let's really remain aspirational. Let's remain ambitious, but let's not forget to remain grounded as well.

Barbara Achim, your final thoughts.

Achim Yes, thank you, Barbara. Let me perhaps offer - I mean just to say one thing to Ted also, let me reassure you I'm actually a bona fide son of agronomists and plant breeders. So that has been part of my upbringing. But today as head of the U.N.'s Development Programme, that's what I've tried to bring to the discussion today is, looking at the future of food systems not just in terms of the production but really in terms of who is involved and who is able to access. And that's why I think the discussion is so critical, because we are seeing a bifurcation in the agricultural economies of many developing countries – three-quarters of the labor force is still dependent, for livelihoods, on agriculture. In Germany today it is 1 in 100. So there is a pathway that can leave virtually hundreds of millions of people without really a viable livelihood. So the way to shape an agricultural economy is critical.

And I just offer one last remark on digital, because I think it will – as you already heard from Sara and others, and, Hilary, your example as well – I think it will transform access to finance in a critical way. You already see in the midst of COVID-19 the artificial intelligence people being able to - in fintech - borrow and enter into a relationship with financial markets that was simply closed to them just a few years ago. They had no collateral and no credit record. And today we see millions and millions of small- and medium-scale enterprises – and that includes farmers, by the way, I mean the private sector of farming begins with the farmer and then goes right up to international research or seed companies and so on. But I think for that small-scale farmer, fintech is going to be critical in terms of access to finance.

I think that's one way in which you can invest more to the next level that we all talked about.

But it also comes to, I think, a change in the **link between** producer and consumer. We invested with digital technology in Peru for a chocolate bar production that connects each of the buyers somewhere in the world with a producer, and you can connect directly on the Internet today in the way that you buy that bar of chocolate. But there can also be transparency - where does a product come from? I think we are seeing a radically shifting marketplace, and, Ted, yes, I think we will run into a number of these. Some of these are science-based, some are driven by other issues. The freedom to choose the product you buy will also shape the agricultural economy – what we produce, how we produce it. And so digital, I think, is a very interesting and very transformative technology from here both at the small scale but also at the large scale end of our farming economies and one we all need to watch carefully, mostly with largely very positive benefits.

So great to be with you today, Barbara, and thank you all for a fascinating panel.

Barbara Thank you, Achim. Thank you so much. Howard, one quick minute.

Howard Great, thank you, and it's really an honor to join the panel. I'm guilty as a repeat attendee of the World Food Prize, and of year after year. I'm glad to at least be here virtually. It's really - it's a pleasure.

Seed technology came up multiple times in the course of this conversation. And, Jim, you mentioned this year's Nobel Prize winner in chemistry. And I think the award and technology that won the Prize really embodies the type of innovation and collaboration that was discussed by this roundtable. And one of the prize winners specifically I wanted to mention, Jennifer Doudna. She sits on the Scientific Advisory Board for a company that's called INARI Agriculture, and I want to just share this as an early success story. Because if you're aren't familiar with INARI Ag but you are interested in what the next 10 to 20 years seed technology looks like, I would suggest that you check them out. I think it's really worth the time.

And so with that, Barbara, thank you again for having us. It's been just a real pleasure joining everyone else on this panel. Thank you.

Barbara Thank you, Howard. Beth?

Beth Thanks very much. I would just say that I know, because I know a number of the panelists here from a few years back, that you have a group of us assembled who have been in this for a long time, meaning that we've poured everything we have personally and professionally into upgrading and amplifying the food and agriculture story and the system. But we still have a marathon ahead of us, despite, I think, this optimism and these opportunities that we see ahead of us. We may be getting ready for a sprint right at the moment, but the marathon still lies ahead.

And one of the things that I think I would just again close on is that, while COVID, to Purvi's point, is bringing us that opportunity to transform so many things, I also want to make sure that this group helps us publicly in delivering a message that we can't lose sight of the long-term gain that is here ahead of us. We see right now,

whether it's with national governments, with politics, with just the way society is kind of culturally looking for instant gratification, that there is this interest very much and rightly so in the emergency humanitarian response tied to COVID. But we've all heard, and we use this phrase together, all of us, that "building back better" doesn't happen in a six-month window. It doesn't happen with a small donation or a quick win to get some capital infusion into a particular area of need. This is a long game. And so I hope that everybody who's on this panel sort of goes home feeling extra motivated but stays in this, because we've got a lot of opportunity ahead of us, but we still have a lot of work to do.

Barbara Thank you, Beth. Ted, your quick minute.

Ted To follow Beth is difficult. Well done, Beth. Thanks. Listen, first of all, you're a humble person and your team is humble, but were it not for the World Food Prize in this fora, I'd rather be shaking your hand in person. Were it not for this fora, I would not have learned as much as I have just in this panel, and I'm fairly deep in this, so I intend to reach out to many of my panelists and others. So thank you, thank you.

Very quickly, it's appropriate that we have this theme of finance and investment, because my own experience tells me, without it, no matter your type of production, you really can't produce. You have to have it, no matter your technologies or not, etc. So I applaud that, and I'm going to double down on my learnings about that.

I would still say, though, that we have gotten where we've gotten – the records that the World Food Programme can claim, even though hunger has risen through COVID, we have made great progress. Norm Borlaug demonstrated that – that semi-dwarf wheat variety, which I have held in my hands when I was at CIMMYT are demonstrations of how we can achieve and address hunger over time – marathon, Beth; you're absolutely right. Over the long term, we can. But innovation is what's got us there, innovation at just about, not all, but just about every turn. And so not only should we be encouraging innovation through all these people who can provide finance and investments – small, medium, large companies, governments, foundations, microloans, large loans, women's loans to you as well – we're not gonna get there. And right now – I don't know if they've released the GAP report, but if the trend continues, it will show that we're widening, we're not keeping up with what we have to produce by 2020. And largely it's because... Well, there's food waste, and I'm so glad that there's a lot of people addressing food waste – well we should. But fixing food waste will not do it. We have got to innovate, and, yes, that means a bit of risk. And so I hope that, just as we're attentive to finance and investment, we take on and challenge those who simply choose to reject proven, safe technologies. Certainly, I will be. Thank you, Barbara.

Barbara Thank you, Ted. Sara.

Sara Thanks. Well, it's just been an honor to be here with all of these distinguished panelists. I would just say the cost of investing in the changes that we need, the innovations, the transformation of the food system, is going to be far less than the cost of not making those investments. And so when we're looking at the opportunities in front of us, the risks of those investments, we need to think about the cost of not making those changes and not investing and not really addressing

hunger, addressing food security and nutrition security, addressing ecosystem damage and loss of biodiversity.

So we need to increase that investment. We need to do it in a more collaborative and coordinated way, and the risk of not doing it is something that we should all keep in mind.

Barbara Thank you very much. Excellent challenge. Tony.

Tony Yeah, it's been a real honor to be on this panel. I think the diversity of the panel demonstrates the types of partnerships which are needed going forward and to really get this right. From an investment perspective, there is a huge opportunity that needs to be yielded, and I think that needs to be supported by strong CEO-level actions; and it's great to have CEOs on this call to demonstrate that they are behind this. And this must accommodate for a just transition so that people are at the heart of this change. We are going into difficult times. We're already, of course, in them, but we know this is going to be a difficult decade as we work together.

And ultimately from the investment side, I think if we see that collaborative agenda that is co-created, that will help build trust among all stakeholders, that everyone is aiming for the same target. And I think Achim's background summarizes very well what those targets should be under the Sustainable Development Goals. So thank you again for having me.

Barbara Thank you, Tony. Hilary, and then, Ismail, we'll give you the last word. Hilary.

Hilary Thanks so much, Barbara. Yeah, I would just like to repeat that this is about long-term, patient capital. Going on with what Sara said, there is no alternative. The people need the planet. The planet doesn't need people, if I can say it like that. If we're looking at issues of climate change, if we're looking at issues of peace and stability. If we're looking about a counteracting migration, then we need to be investing in making sustainable jobs at home. And there is no country in the world which has developed without their agribusiness and agrisector developing. So we need to have patient capital. Our motto is clearly if we start investing in women, we will get clear impacts. At the producer level, our yields will get higher. If we want to deal with nutrition, it's through the mother. If we want to deal with child labor issues, which are upsetting some of our members, the World Business Sustainability Council at the moment, it's through the mother. If we want to be investing locally, women are more sedentary; they stay and they invest where they are. So I think long, patient capital, if we want sustainable food supply systems and gender smart at every stage of the way, so start linking our policy, our trade and breaking those silos between the gender issue and all of these other big issues. If we put them together, we'll actually find that a lot of the solutions are there in front of us by working through women. Thank you.

Barbara Thank you, and to you, Ismail.

Ismail I couldn't agree more with what was said by Hilary. Absolutely the gender dimension is central, not just for the food issues but also for the entire Sustainable Development Goals. But I would like to add something that was not said – 144 Nobel laureates have cosigned a letter to GreenPeace saying clearly - Stop attacking

biotechnology. It is a hundred percent safe. In other words, what counts is the protein structure and the DNA of the final plant, how it got there, whether it was by natural mutation or conventional breeding or by trans-genetic transfer, that doesn't make any difference. And that is supported by all the academies of the world. And when we people tell me – "But how do we know for the long haul?" – I say, "Well, the United States has had in its food system GMOs for the last 15 to 20 years, and we haven't had a single case, a single case of food poisoning as a result of that.

So the process itself is absolutely safe. What you do with it, which is true of almost any technology, that's another story. But fundamentally the process itself is absolutely safe. So let us go forward and use the new biology as an evolution, the new ICT as an evolution, and the new social awareness, specifically the role of women, as a contribution. And all of that together is what will bring us the kind of resilience into the food and nutrition systems that the whole world counts on. And we will be able to do it in a way that is still compatible with the Sustainable Development Goals.

And, finally, thank you, Barbara, for leading all of this. You are magnificent, and so is the team at the World Food Prize. And actually many of them are women! Thank you.

Barbara Well, thank you all so much. What a tremendous group, and I know everything just is so enriched by everything that you said. I want you to know your panel and all the panels are going to be available as recordings live right there in Whova shortly after this. So you can refer back to each other's comments, and I hope you are able to connect.

This has been just a tremendous morning and launch to the 2020 International Borlaug Dialogue. It's not the same as being all together, as hopefully and still an opportunity for making those connections, networking with each other, and learning more, and realizing, oh, my gosh, the amount of progress and work that's going on is substantial.

I want to invite everybody to tune into the upcoming side events – there's a whole series of them. Overseas Cooperative Development Council has a side event. Land O'Lakes has an innovative program; they're offering more discussion on Venture 37. The Equal Exchange and National Cooperative Business Association is also there, and a side event by Corteva Agriscience – I think Jim was referring to some of it. So join for the rest of the afternoon or evening for the series of side events. And we start early tomorrow with even more side events. You can find them all at [www.worldfoodprize.org/sideevents](http://www.worldfoodprize.org/sideevents). And tomorrow tune in at 9 o'clock Central Time as we offer the fabulous Borlaug Field Award Ceremony, prerecorded. She's a fabulous... Oops, I did reveal it there. Fabulous awardee. Tune in, enjoy it. There will be some discussions with one of our Council of Advisor members. And just continue to enjoy the dialogue for the rest of the day, the side events. Post on social media, and look this afternoon for our Daily Digest. Every day every one of our main stage days, our media partners Farming First will be posting their Daily Digest. So thanks for tuning in, and look forward to your next side events, and let us know how it's going. Bye.