

CONVERSATION: VOICES FROM THE FARM

Panel Moderator: Gebisa Ejeta

October 15, 2015 -10:00 a.m.

Introduction:

Ambassador Kenneth M. Quinn

President - World Food Prize Foundation

I want to introduce the members of the panel, and first I want to introduce a wonderful friend of mine, the 2009 World Food Prize Laureate, but the man whose life exemplifies what's possible when you reach down into remote parts of a developing country and find someone whose mother sacrificed so that he could go to school, borrowed the money, who had to walk every day just to go to elementary school, miles and miles, kilometers and kilometers, to go to high school, and then one of those programs, one of those individuals who reached out as a mentor arranged for him to come to Purdue University. He gave up his spot on the Ethiopian National Basketball Team to do that, and with this, changed the world. Welcome, Dr. Gebisa Ejeta.

We have a new rock star at the World Food Prize who, in front of the audience as he received the Borlaug Field Award just blew everybody away with his remarks, his comments about his life and his work in remote parts of Rwanda and what he's doing there with the One Acre Fund. So welcome, Eric Pohlman.

A new friend but from a program we know well, Wanjiru Kamau-Rutenberg is the Director of the African Women in Agriculture Research and Development, or AWARD. We first learned of AWARD a few years ago. (Here she is. Come up here. Catherine will show you there.) and the amazing things they're doing about inspiring young women. They get started on STEM, and then they get interested, and then she's encouraging them, guiding them, so they're going for graduate degrees. They're going to become the research scientists that we know that are critical. Right? The countries that succeed will be those that educate their women and make full use of their potential, so thank you for being here.

My good friend, Jimmy Smith, who is the Director General of ILRI, the International Livestock Research Institute, here. Jimmy, how are you? Welcome. Thank you for being back. He's an old friend, so we're so delighted to have him.

And now, Eric, if you're a rock star, we have the rock star of rock stars in inspiring women as our final panelist. We were so thrilled when we were in communication with Her Excellency Joyce Banda, the former President of the Republic of Malawi, founder of the Joyce Banda Foundation. Her Excellency is a former president of that country from 2012 to 2014, Africa's second female head of state. And her mission in life is to assist women and youth to gain social and political empowerment through entrepreneurship and education. She's spent the last 30

years as a development practitioner, philanthropist, a champion for social justice and equality. She founded the Joyce Banda Foundation in 1998, and it provides integrated rural development services to more than 300,000 resource-poor beneficiaries. And she's an advisor to the Community for Zero Hunger, a multi-sectoral global initiative in response to the U.N. Zero Hunger Challenge, led by my very good friend, Nabia Ghazi. Where are you, Nabia? Over here, there she is down here. And she's got a program – I'll tell you more later – but this afternoon at 4:30, 4:20. Don't be late, and President Banda will be there as well, but thank you for being back with us. Please, let's give a welcome to President Banda and all of our panelists.

Panel Moderator:

Gebisa Ejeta

2009 World Food Prize Laureate

Panel Members:

H.E. Mrs. Joyce Banda	Former President of the Republic of Malawi and Founder of the Joyce Banda Foundation
Eric B. Pohlman	Rwanda Country Director, One Acre Fund & 2015 Borlaug Field Award Winner
Wanjiru Kamau-Rutenberg	Director, African Women in Agriculture Research and Development
Jimmy Smith	Director General, International Livestock Research Institute

Gebisa Ejeta

Good morning. The panel has been dubbed to the voices, the voice of the farmer. It was given this title by no one else but Ambassador Quinn. I think it's a very apt name, because we often try to speak for the farmer, but I think if anyone is able to speak for the farmer, these four people here, who have toiled on the side of the farmer on a daily basis, could speak for the smallholder farmer of Africa.

You all know that one third of the human population, about 2.5 billion people around the world, call themselves a member of the smallholder family of the world. They manage some 500 million smallholder farmer enterprises. Those in Africa produce some 80% of all the food consumed in the continent. Ironically, as you know, yet they themselves, the smallholder farmers of Africa, are largely counted among the most hungry in the continent. The reasons could be many, but this fact alone, perhaps irresponsible to the often-raised question – Can Africa feed itself?

But I really think the story that you would hear this morning is the fact that much has changed in Africa in the last ten years to give us real hope. Investments in infrastructure have grown, opening doors to poor smallholder farmers to local, regional and national markets. Smallholder farmers are being introduced to modern agriculture, agricultural practices, proving that scientific technology can indeed be scale neutral. Governments, NGOs and civil society organizations are beginning to earnestly help the smallholder farmers to recognize their potential. Smallholder farmers are also realizing that they can benefit from technology, from

infrastructure, from markets, as well as from the broader support services that farmers elsewhere receive from their more wider, more democratic, and more benevolent government.

Smallholder farmers in Africa are also recognizing that there is more that needs to change in Africa, which has not yet changed for smallholder farmers of Africa, such as the thorny issues of land tenure, property rights, freedom to relocate or ways to growing farm size and farm operations at liberty.

There is a need for change in the broader access to technology, inputs such as seeds and fertilizers, broader access to markets or value-added market demands, broader access to key social support services, such as credit, finances and insurance, broader access to basic public services, such as education, technology, generation extension services, and/or water and power utilities. These are the most basic essentials to farming at all scales beyond subsistence.

So as we hope for smallholder farmers of Africa to move from subsistence to business operations, these changes will need to be forthcoming. And these are the basic drivers of successful farming in all economies, large and small, and in all nations, developed and developing. Yet these changes have not happened as broadly as they need to, giving greater hope and opportunities for the smallholder farmers of the world.

And the major bottleneck in all of this is that smallholder farmers do not have voice in developing countries. In much of the developing nations, local democracy is in its infancy. Even in the most progressive of these nations, the notion that smallholder farmer enterprise can benefit from incentives the same way that urban businesses do has not been realized.

Furthermore, as development agents, we sustain great empathy for the smallholder farmers. We tend to speak for farmers but not so clearly. We tend to speak for smallholder farmers but based on the little that we know and understand about the smallholder farming enterprise. It is often not data-based or properly contextualized.

That we continue to provide great advocacy for the smallholder farmer is really admirable. Yet the concern is that, in speaking for smallholder farmers, we don't recognize that we often have incomplete information, that we do not fully understand the mindsets of the independent, industrious community of smallholder farmers.

But this morning, as I said, it's going to be different. This morning we have the privilege to speak to a distinguished panel of Africans and Africanists who are either true-blooded farmers themselves or are those who have toiled alongside as close partner and associate of smallholder farmers of Africa.

So I'm delighted at this opportunity – and a particularly great honor for me – and if I may speak for everyone assembled here – it's a distinct privilege for all of us to have conversations with this esteemed panel and especially with former President Joyce Banda of Malawi. We are all honored to be in your company, Madam President.

To start our conversation, each of you has been now and in the past... out actually on the ground, directly connected and working with farmers and in rural areas. Each of you has served from distinctly different perspectives along the path of the impact pathway, ranging

from technology generation, adoption of improved practices, providing crucial support services on the farm and beyond.

As a conversation starter, would each of you take a couple of minutes and describe a particular sense of breakthrough interventions that you and your respective institution currently offer. And if we made add this, the goal of those interventions and particularly the premise or the theory of change behind this program that you are operating on. Eric, if I may start with you.

Eric Pohlman

Thank you very much, Dr. Ejeta.

One Acre Fund works with 300,000 smallholder farmers in East Africa, and the major challenge that we see is access – access to up-to-date information about the best planting practices or what agricultural innovations are available to them, access to the actual inputs, like quality seeds and fertilizer, and then access to financing and credit so that they can pay over time.

Farmers really need great rural distribution to solve these access problems. Right now the best in the business at rural distribution is Coca-Cola. If you can imagine a world where in every village that you could find Coca-Cola you could also find quality seeds, you could also find training or an expert that was able to teach you how to use them, you could also find some form of farm finance, that would be an awesome world to live in.

So to summarize, farmers need distribution, training and finance – that’s what the bundle of services that we provide at One Acre Fund. We’re just one organization. This is just one model. By our estimates in Sub-Saharan Africa, there’s about 50 million households that could use this type of intervention, so I’d encourage others to look out, other nonprofits, other organizations, other private sector to help us get these goods out to farmers.

H.E. Joyce Banda

The Joyce Banda Foundation recognizes that when we received our independence in Malawi in 1964, Malawi had a population of 4 million. As we speak, Malawi has a population of over 15 million, the same land. I myself come from a matrilineal system of marriage and tradition, which means that if my mother has an acre of land and she has four daughters, then she has to split that acre into the four of us when we grow up. What has happened on the continent is that land has become less and less available for farming, especially for women and men that are peasant farmers.

That, therefore, requires that institutions like mine must ensure that they look at the same land and see how we can produce more on the same land. And looking at the challenges that small farmers have on the continent of Africa, particularly input, lack of training, and lack of technology... They’re still using primitive equipment; they are still using the hoe. And so the Joyce Banda Foundation decided that, in order to change and transform the lives of people in the communities, we need to take a holistic approach. And in trying to take that holistic approach, the first pillar is income into the household. So changing the thinking of grassroots people, particularly women, to look at agriculture as business but also to produce more on a small acre of land, to ensure that they have inputs – and that, therefore, means credit, means

training. But also the main challenge is that research has shown that 40% of our harvest is also lost post-harvest in handling and so forth. So to provide that support to small farmers to ensure that the little they produce is saved.

The Joyce Banda Foundation is work, currently working in South Africa as well as in Malawi, encouraging farmers to look at agriculture as business. So the question of finding a support, helping them to find markets but also value addition. I think at the moment let me stop there. To support farmers, to use the small plot of land they have to produce more, to look at agriculture as business, to provide training and credit to the farmers. And so the question of family planning also is part of the question. So let me stop at pillar one. I'll get to the other pillars later. Thank you.

Wanjiru Kamau-Rutenberg

Thank you for this opportunity. It's absolutely an honor to be part of this panel. At AWARD, *African Women in Agricultural Research in Development*, we believe in two things that we think are really important.

One, that African smallholder farmers deserve to benefit from the very best research, agricultural research, possible. And towards that end, we think it's really important that we build up a sustainable research infrastructure for the African Continent. And for us, that sustainable research infrastructure includes women scientists.

The second part of it is – we really believe that gender responsiveness and that a gender-responsive approach to agricultural research holds the potential to disrupt the status quo around agricultural research. We believe that, if you can develop research approaches that come up with innovations targeting especially poor women, smallholder farmers, those innovations will benefit everyone.

And so those are two things that are really critical to our work. And if you'll allow me, I'd love to share a short video, one-minute video of how we're making this work possible.

VIDEO

My name is Chapwa Kasoma from Zambia. I'm currently working in Mkushi, which is Central Zambia. I was sent there by the DuPont Pioneer and its production food supervisor for DuPont Pioneer. I'm in charge of seed production. Mkushi is the seat of seed production for DuPont in Zambia. I supervise the growers that produce seed. I'm working on a project that's funding by the USAID. This is on ground nuts. Most of the small-scale farmers there who are the main players in ground nut production have a problem with ground nut rust disease, which is affecting their yield and quality of their ground nuts. There have been some interventions before that have involved the use of fungicide, which is not a very environmental-friendly intervention. So I'm here to try and find means and ways in which modern technology can be used to develop a resistance towards ground nut rust disease.

The impact that I hope that my work will have will be, firstly, my research work. I'm focusing on the small-scale farmer, hoping to help the farmer improve their income as well as their livelihoods as a whole; because when we talk about certain problems in agriculture, like the ground nut rust disease that I'm working on right now, that work, I hope, will help the small-scale farmer to realize more from their

ground nut growing practices, because then they will be dealing with improved varieties of ground nut that are less effective by diseases such as ground nut rust.

In Zambia, I want to see a generation of young scientists that are working purposefully, who make informed choices to enter into certain agricultural disciplines and are working purposefully towards food security and nutritional security.

So Chapwa Kasoma happens to be here with us, and she's one of hundreds of women scientists that are part of the AWARD Fellowship Program. If I may ask some of the AWARD fellows who are in the room to stand up. I feel very proud to declare that the women who just stood up represent the future of innovation for Africa. And so often we talk about African in agriculture and have only one image, the image of the woman farmer, where as there's really a diversity of African women in agriculture, and these scientists represent some of that diversity.

So that's some of the work that we're doing with AWARD.

Jimmy Smith

Thank you, ladies and gentleman. I presume I was invited to the panel to bring the voice of the livestock farmers, more than one billion who depend directly or indirectly on animal agriculture for their livelihoods. And attempting to address this question about what innovations can be brought to bear on their demands, let me contextualize their situation a bit.

As already been said by the previous speaker, the CEO of Cargill, demand for animal source foods is rising very steeply in the developed world. Animal agriculture is already 40% of agriculture GDP, and livestock products in value terms represent four of the top five agricultural commodities. Only rice enters into that top five. Dairy is the number one commodity globally in value terms.

So no matter which commodity you pick, which region you look at, demand for animal-source foods is rising very steeply. How will this demand be met, for example, in Africa? Well, African countries can import from other parts of the world this demand, but certainly we don't expect the foreign exchange to be available to do so. So some of it would be imported, but not all of it can.

Another scenario is that large, big companies, large farmers can be invited to invest to meet the food demands; and this is happening, and I expect that some of this will be part of the equation. But a third scenario is that the smallholder farmers who already produce more than half of the animal-source foods in Africa and the rest of the developing world, can participate in this global market effectively.

So the interventions that I want to talk about is about those that can help the smallholder's participate in these markets. And there we find that, first of all, they must be connected to markets and all the interventions that are being made by governments and others, to facilitate their participation.

From a technology standpoint, which the organization I represent, works on, there are a number of policy interventions which have helped government to position the animal-source

food sector. For example, one can talk about the smallholder development in Kenya, where as a result of good policy, the government has been able to make Kenya one of Africa's most important milk producers.

Another intervention that we are talking about in Kenya and in Ethiopia is the use of livestock insurance for people who have not been insured, the pastoralist communities who have not been insured in the past. And the government of Kenya is about to roll this out across the drier parts of Kenya.

We have learned that, if you don't have a ticket, you don't have a chance. And the livestock sector have not been well planned in Africa, and we are working with African governments – Ethiopia, Tanzania, Uganda. And just next week the African Union and the Africa Development Bank is hosting a high-level commission on feeding Africa, of which livestock is an important part.

So technological interventions that you already said must be scale neutral, can help smallholders participate in these markets. And these include vaccines, feed, which has been so important in Latin America in transforming the smallholder sector, and of course other forms of disease control. More importantly and probably more dramatically, the use of new breeding and selection techniques are allowing smallholders to improve their productivity considerably in Africa.

So if I were to bring to this panel and to this gathering this morning the voice of the smallholder livestock producer, I'd like to say that they can contribute to meeting this global demand effectively. They can also respond to this demand in a way that reduces poverty and to do so sustainably. So the smallholder producers of Africa are not part of the problem – they're indeed part of the solution.

Gebisa Ejeta

Thank you very much. Maybe to build up on the comments that Dr. Smith had just reiterated – unlike the farmers of the developed world or in other parts of the world, African farmers largely operate with little or no direct support services from governments and non-government organizations. This does not bode well for aspirations we all hold for food security in the continent or for imparting agriculture-based economic development as fast as we had hoped.

What should, what could your institutions or your governments or organizations that you work with, could do to change this so that African farming is not gambling and yet it needs to be supported by policy that would enhance the likelihood of success of that business operation that we encourage them to get involved? Eric may we start with you?

Pohlman Sure. I would start by challenging a little the assumption that African governments aren't succeeding in this in some regard. I can think of a number of examples – the fertilizer subsidy scheme in Burundi and in Rwanda has been very successful. In your home country, Ethiopia, the fertilizer co-ops are phenomenal. I was out there two years ago visiting some farmers just north of Bahir Dar. And I'm actually a bit skeptical, so when every farmer I met told me that they had access to fertilizer, I was a bit curious. And so I asked them, "Okay,

can I go and see the stock? Where is it coming from?" and I go there and I see the ledger, I'm checking down and I'm finding their names and seeing what they bought that year. And then I ask that stock manager, "Can I see, where's your supply?" So we go to the regional office, and this guy in a really small room brings out his ledger, and he alone had distributed more fertilizer than the entire country of Rwanda. And this guy is in a back office somewhere north of Bahir Dar. It was just phenomenal. I mean, he's a rock star; he should be up here on this stage. So I think there are a lot of things that are working.

To your question on what could we do – in Rwanda we've partnered with the Rwanda Agriculture Board, the Ministry of Ag there to support the National Extension System. So there's 14,000 volunteer farmer promoters who provide frontline extension to farmers. And we've taken the trainings that we've developed through our core program and now rolled them out through this team of extensionists. It's proven quite impactful in its first year. If a farmer receives training, average increase of income is \$26. This is based on us measuring harvest for someone that doesn't get the training, at a full scale, which is an awesome start.

So there's a lot more that we can do in extension, and there's a lot more that we could do in seed marketing and in access to fertilizer in other countries. The big challenge is changing a little bit how we think. It's not easy to scale an intervention across a country. It takes good performance management, it takes measuring the metrics day over day, it takes very simple and well-thought-through training modules.

Ejeta In my assertion about lack of support services, I was including supports for credits and finances and insurance and so on.

Pohlman Sure, yeah.

Ejeta That seems to lack.

Pohlman Absolutely, yeah. Yeah, credit is a huge issue, access to credit in rural areas. So microfinances have done amazing work in cities and in urban areas; access to credit is pretty ready. But if you're a rural farmer, you don't want to go to the city necessarily to access a loan; you don't necessarily have the collateral to do so. So there's very few products on the market that are available to farmers. To date, kind of the approach has been subsidies, so just lower the price, and that gets it out faster. But fertilizer and seed are great investments. The ROI on fertilizer and seed is phenomenal. So you don't necessarily need to lower the price, you just need to extend the window that someone can pay.

Farmers have very variable cash flows. So in Rwanda, for example, unfortunately, the time that you need to invest in your field with inputs is also the time that you need to pay school fees. If you have some sort of health emergency that you need in the family, the last on your list is going to be the

seed that you needed to invest in the field to get more harvest, and that is a cycle. So access to credit can be a big difference and in adoption.

Ejeta President Banda, your country, Malawi, is really one of the countries that early on bucked the trend in providing these kinds of subsidies, starting with Malawi farm input support supply system, even long before it expanded in Rwanda and Ethiopia and so on. If you would share that experience and just share how it started and how it ended and what we have learned from that experience in Malawi.

Banda I think what I must say is that what I have experienced as a government minister and president of a country is that much depends on political will. The head of state plays a very important and critical role in ensuring what programs come to their country. And I say this because the time that President Bingu wa Mutharika was sworn in as president, Malawi had experienced many, many years of food insecurity. And so I remember traveling with him to the World Bank to negotiate, but he wanted to implement the fertilizer subsidy program. The fertilizer subsidy program turned around our food situation in Malawi to an extent that we over produced and even started exporting food and even donating to countries that were in need.

So the donors... Lesson number one for me is that sometimes our partners must listen to what we think is best for our country, for our priorities. Because it wasn't easy for him to convince the donor community that this is the direction that we needed to take. But it turned out to be a very successful program.

What worried us as time went on is that it was donor supported. So at a certain time you need to begin to exit that program. So when I came in as head of state, I introduced an input and loan scheme so that farmers can borrow two bags of fertilizer a year. And we went from a year when two million people had no food to overproduction. Last year 2014 our production was 3.9 million metric tons of maize; 1 million of that was overproduction. So we know that with this political will, farmers stand to benefit.

But also I think we should not overlook the impact of climate change. And so in Malawi what we did was to introduce a second crop so that in October, November farmers can also grow a second crop so that by the time we get into the lean period, there have two or three bags to take them through that lean period.

I think I will keep emphasizing on the fact that there is post-harvest wastage in Africa, and the Malawi government introduced small community silos where their maize could be kept and then be saved from waste, from weevils throughout the lean period as well. So it is an aspect that cannot be ignored, because it's part of the protection of the crop that they have already harvested.

I think I should stop there.

Rutenberg When it comes to government and really in the space of R&D, which is where AWARD functions, African governments have made commitments to spending on research and development. And the data shows that investments in research and development have outsize returns, and we know no country really ever gets out of poverty without actually investing in research and development. So for us it's really about holding governments to account for the commitments they have already made. The 1% of their budget, I believe, they have said they would spend on research and development. I think it's also important to have collaboration within government, the ministry of agriculture coordinating with the ministry of education, for example. And sometimes when there's lack of conversation between ministries, some of that can result in challenges, and I think efficiencies there would be really helpful.

And finally this question of gender responsiveness, for me, is absolutely critical. A lot of our governments have made commitments to gender, towards gender goals; and it's really about delivering on those commitments and actioning those commitments. And that then comes back to accountability and whether our heads of state are able to hold their cabinet accountable to the deliverables in line with the commitments that have been made. Again, I just think it's tremendous what the data shows us about what happens, that gender-responsive science is good science and the outsize impact of using a gender lens in research and development and what you get out of that and how many more people you're able to reach if you pay attention to the question of gender at the beginning of the research journey.

Smith What can be done? While the sphere of the influence in which my organization operates is essentially in the technological and institutional environment, fortunately or unfortunately, we don't work on helping governments to get elected and so on.

But one of the things that we have found that, after lamenting the neglect of the animal sector, the livestock sector for so many years, as you know, we would come in years gone by to an event such as this and wouldn't hear very much about animal agriculture. That has changed considerably in the recent past. And one of the things that I think is helping to lift the voice of the animal sector is that we did not plan the sector as well as the crop sector has been planned. So I took a page out of my good friend Per Pinstrup-Andersen's book during his time as the DG of IFPRI. His institution spent a lot of time helping governments plan the development, particularly of the crop sector.

So we are working – taking a page out of his book – we are working with many governments to look at the livestock sector and do sector plans which estimate demand for animal-source foods and then look at how you might supply it. And these are costed plans by sector, and we talk about livestock, but of course you know the livestock, there's many commodities in there. So by having a good costed plan, governments are able to see the value or the contributions the sector can make to employment to nutrition to poverty and so on and therefore commit

to the investment in these plans. They're also able to bring their other development partners, donors and others, to the table around these plans. So I think this new wave of planning that we are doing with governments to help orient the livestock sector is going to produce real benefits. And of course in that context we can see what are the technological needs of these plans in order to attain them. And that I see as a very attractive thing that has happened in Africa in recent times, and many governments are responding to these plans; and as already been said, governments are committed. Ethiopia, for example, commits huge amounts to improving the agricultural sector and in its new plans are including animal agriculture as a very important part of that.

Ejeta Jimmy, if I may direct this question to you. Your predecessor, Carlos Seré, sensitized me to the fact that we get together in a dialogue such as this to speak about African agriculture, and then we end up talking only about the crop commodities and not livestock and the role they play in African agriculture, whereas by and large African agriculture is a livestock crop, homesteads in many places. But then also we have this situation that we speak about a smallholder farmer. But the largest keepers of African livestock don't even have any holding. They are nomads, herdsman that move around from place to place. It doesn't allow the opportunity for interventionists to engage with them, and yet they remain to be not beneficiaries of the changes and signs that have touched some communities of Africa so far. What can be done to change that trend? And what kinds of policies and governments and also what kind of transformative visions, perhaps, in organizations such as ILCA that you may have in mind to change this picture for African livestock?

Smith Yeah, well, a couple of things. One is that you're talking about the pastoral sector, which is between two and three hundred million people. The people who depend on animal agriculture is over a billion, directly or indirectly. So the pastoral sector is not the dominant sector; it's a big part but not the dominant part. Yet in parts of the world such as Africa, it is still a very important sector.

If the perception is that this is a backward, outdated, outmoded sector, nothing could be further than the truth. In terms of input/output, pastoral systems are as productive as the most productive ranches anywhere in the world in terms of input and output – note those points. Because pastoral systems occupy lands that are not usable for anything else. Without that system, those dry lands would suffer extremes, will not be productive for anything else. So the resources they use, they are making maximum contributions out of it. I agree with you that it is a hard sector; because it's nomadic, it's hard to intervene in. But as I mentioned earlier, we have just developed livestock insurance, which would protect pastorals from drought situations. The current situation in Africa is that every five, six years there's a big drought. Animal populations are decimated. That's the only thing people can depend on. And so you have to go back in with aid money to restock the animals. So insurance has not been possible because these people move about; you cannot find them.

So we worked with many partners to develop an index-based livestock insurance. What it essentially says is that you're using an index of availability of forages and correlating that with mortality. And based on an index, you provide a payout. This is proving to be quite successful so that farmers in this system can buy the insurance; and if there were catastrophic losses, they can restock their animals themselves rather than...

What has militated against the pastoral system is that there have been essentially large policy biases that say that they're backward and therefore we need to settle them. And every effort to settle them has failed. I think what we need to do is to work with that sector so that their traditional lands that they use for grazing animals can preserve, and so on. So we need to work with the sector rather than against it.

Ejeta Oh, I would particularly want them to raise the sensitivity that there is, that particularly in bad years, in drought years, they take the brunt of the damage that comes with bad weather and they don't get any support services, and there are not you know enfoldes that they could go to to keep some of their animals at least to save.

Maybe other continuation of that – What is the vision and maybe the trajectory for a blend of smallholder and large-scale farming in African agriculture in the years to come? Madam President, if you may start that question.

Banda We have experienced in Malawi on this issue where large farmers or large corporations and companies come into Malawi, and they engage in contract farming with the small farmers, mobilize them into maybe cooperatives, provide technical support, extension service, better seed, input, and also provide the market. At the end of the day we have found that that has worked very well, in cases where the crop is developed, then we encourage donors and organizations to also support the same farmers grow enough food side by side with the cash crop.

I would want to see this go beyond just the growing of the crops and getting to value addition. But we also done the same tobacco and legumes

Ejeta Anyone who wants to chime in.

Smith Well, the blend of large and small scale – I spoke about many things which we can do, but there are many more things which need to be done. Dairy, for example, which is the fastest-growing animal-source food, widely demanded, is a highly perishable product. Therefore, the infrastructure you need for an effective dairy industry is very important.

It is, therefore, necessary to provide a kind of infrastructure, rural roads and so on, that can make that happen. But one of the ways in which smallholders and large holders can be blended is that large holders who can afford milk-cooling facilities and so on can be the means like a nucleus where small farmers can sell

their milk or bring it to be cooled and chilled. If you look at the development of the dairy sector in India, widely touted on something called “Operation Flood,” one will see that at first the intervention was not technological, it was institutional – how to collect the milk from smallholder farmers scattered over large areas. And what was done there is to put cooling facilities in proximity so that small farmers can bring their milk and collect supplies, such as beds, medicines, feeds and so on for them.

So two things happened in India. They helped to organize farmers and cooperatives and other mechanisms and to provide cooling facilities in proximity in rural areas. And by connecting smallholders to market in that area, there was a huge technological pull by the smallholders to produce more milk with a better breed and feed and so on and so on. So that’s a possibility for private/public partnership to facilitate in this case just the dairy industry. But there are many examples. I don’t want to monopolize the time. I see we are running out of it.

Ejeta No, I’m not running out of time. I was talking about support services and policies that need to be in place in addition to the infrastructure issue you raised. Are we ready, or are there discussions along those lines to enable these large operations to work in harmony with the smallholder agriculture in the continent? Are there regulatory issues that are being handled, policies that are being put in place, and then investments that are being made in infrastructure to allow the demand of food generation that you talked about to encourage daily production of poultry and so on and for large operations to succeed in the African context. Anyone want to take a crack at that?

Smith Well, let me, if no one is grabbing that question. I mean, the policy in milieu here is very important. If you want the local industry to develop, you cannot undercut it by subsidizing imports. So what is the balance between a competitive price on the local market and supporting relatively cheap imports? And that is an important policy balance which must be struck. But there are also some areas in which traditional thinking on how you develop an industry does not work. Let me give you the example of Kenya.

It is felt that when a dairy sector is being developed, one should drive the milk production and sales into an official market – it should be taken to a milk processing plant and so on. And so the policies which are imposed are to stop smallholders from selling their milk to households. If that’s done, you cut off the opportunity for smallholders to sell. And the reason that that is done is because there is concern about wholesome product being sold. And we have shown that you can introduce policies which allow smallholders to sell their milk as raw milk to households in the community without jeopardizing the quality of the product. So training and certification of smallholder farmers to provide wholesome milk to rural communities... Many of us are old enough in this room to remember when the milk supply used to come by delivery of milk in a bottle outside your door. Well, that’s still possible and has been possible in Kenya and allowed smallholders to try it, because they were able to continue to sell their

milk on the certification and training skills that allowed them to sell a wholesome product to the consumer. In any event, the consumer who bought that milk boiled the milk before they consume it, as is the tradition.

So simple policy interventions in things like that. Most of the animal-source foods are sold in informal markets and not formal ones.

Ejeta Thank you. Eric.

Pohlman On the question of small versus large farms, I think the majority of our focus should be on smallholder farmers. If you look at the birth rate in Africa over time, land pressure is going to get higher and higher over time, and it just makes sense that that's where the area of focus needs to be. It's hard to think of a blended model, in my opinion. Large farms would displace people – that moves the poverty problem into the city, which is a whole 'nother issue.

I think a healthy approach is you make the small farm more productive, kids get educated, kids go to school, learn new schools. Then they get a job in the city, then there's some sort of land consolidation over time that way. But that puts the farmer kind of in the driver's seat as opposed to some outside force in the driver's seat.

Rutenberg If I may take the question in a slightly different direction, but I think it'll still answer. But looking at the same question but in the research, the agricultural research and development landscape. And perhaps some of the tensions around national research systems and the role of international research centers such as my colleague runs, as well as public... the private sector and the role of private sector in helping to build national research systems. Because I think you can use that lens to also look at some of these tensions. And I think at the end of the day, what we've experienced at AWARD is a lot around bringing in private sector and international research institutions to help build the capacity of researchers who are working in national systems, which I think is part of the continuum of this conversation. So as you saw in the video, when you have an African scientist who is gaining valuable skills at a CG Center, in this case ICRISAT, who's working with DuPont Pioneer and gaining valuable research skills – and those skills remain on the continent – I think that's a net gain for the continent in terms of research skills.

Ejeta Looks like we're running out of time. If there are a couple of quick questions from the audience, we could take them.

Q Hi. My name is Matthew Choy. I'm an undergrad at Penn State, and I also am an urban farmer in Philadelphia. And my question is, from the One Acre Fund perspective and then also maybe from a national government perspective, is: How are smallholder farmers in Africa tracking like their soil fertility and their quality after production? Because it seems like from today we're really focusing on production but not your long-term sustainability of like your soil or your water. Thank you.

- Ejeta Is there any other question? Okay, go ahead.
- Pohlman Matt, a great question, a super important one. At One Acre Fund, what we're currently doing is a long-term soil study for our interventions, so we sample about 2,000 farmers' fields, take that to a soil lab, check for organic content, nutrient levels. And we want to see over time that what we're doing is improving soil fertility. From a farmer's perspective, you're going to see that primarily in yield and the health of your crop, but we want to make sure from a scientific perspective that everything we're doing is lining up. Right now we're seeing increased organic material in the soil due to composting practice that we teach alongside with our intervention. It's a really important question.
- Ejeta Go ahead.
- Q Thank you. Zen Honeycut from Moms Across America. I really appreciate this information about smallholder farming. And I'm wondering if what you're looking at as well when you're introducing new technologies in Africa and many other places around the world is organic farming. The U.N. report just stated that one of the only ways to feed the world, actually, is through small organic farming. And I'm wondering if these seeds that you're bringing and the technology, you know, is organic farming. And is anyway this because here in America 75% of our food is GMO, and one out of two of our men are expected to get cancer. One out of three of our females are expected to get cancer. And the World Health Organization just deemed glyphosate a probable carcinogen, and it's sprayed on much of our food, 160 of our foods. So if you're bringing GMO technology that incorporates glyphosate into your communities, I would urge you to reconsider the health risks. As a mother, I just urge the mothers around the world to reconsider. Are you bringing in organic farming into your communities?
- Pohlman That's also an important question. I'll quickly respond and then accede the floor. Currently, One Acre Fund is not providing any GMO seed in East Africa. It's not legal in East Africa. But I think to frame the question is – if you're a farmer and you have four kids that you need to feed and you have a quarter of an acre of land, how are you going to do that? Right now there's technology that can help, and that can make a big difference, and it's a life or death decision. So I think it's a nontrivial question, but from my perspective every day, having quality seed, having great hybrids that are domestically produced, having access to fertilizer, having access to lime, composting in your home – these are important practices. And I want to put as much of these tools in the footsteps of the farmer so that they can produce enough food.
- Q Can I just suggest that you look up *Advancing Eco-Agriculture* by John Kempf. He teaches people how to grow crops that completely resist pests and weeds without GMOs or toxic chemicals, just by looking at the soil. Thank you.
- Ejeta Thank you for your intervention, and our time is up. Please join me in thanking the panelists for excellent conversation.