

PRESENTATION: HOWARD BUFFETT KEYNOTE
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Agriculture has been a major part of my life for the past 35 years as a businessman, as a farmer, a photographer, and a philanthropist. In this time I've had the opportunity to view agriculture from an incredibly diverse range of perspectives. I've observed agriculture from the boards of a number of companies, as an owner of a major agricultural manufacturer and from the seat of a tractor.

Presently I oversee about 14,000 acres of row crop farmland in the United States and in South Africa, and our foundation has supported about \$200 million of agricultural projects in over 40 countries, and a large part of those have been in Sub-Saharan Africa.

After traveling over a hundred countries and interviewing thousands of smallholder farmers, I found similarities between farms in the United States and farms, believe it or not, in remote African villages. But I can also tell you that I have found that on our farms in Illinois, which are only 15 miles apart from each other in some cases, dramatic differences. That's what makes agriculture so challenging.

From a philanthropic perspective, our foundation's African agricultural experience has been both encouraging and also at times disappointing. It's been incredible to meet some of the farmers that are eager to learn and they shake your hand with anticipation and enthusiasm, and they want to know - What's the next thing I can try? It's disappointing to find out that our efforts are changing very little with respect to the scale of the problems.

The bottom line is that we can't really solve other people's problems, no matter how much money we spend.

I see my primary job at our foundation as risk assessment. I'm constantly analyzing a number of factors to determine the value of our contributions. Some of our best investments have turned out to be failures - some more, some less, but failures. While some of these projects may have not met their primary goal in terms of what we set out to achieve, we've learned some really important lessons from them.

These lessons are included in the book, *The Hungry Continent*, which is our policy paper. There are enormous political, cultural and environmental obstacles to overcome. Many trace back even before colonialism. But with the right enabling environments, the right commitment, and the right policy, we can boost agricultural productivity. And we can do it in a sustainable manner. We can begin to make progress in addressing the food security issues that make Africa so hungry in so many places.

I believe our publication demonstrates this through 30 case studies as well as an extensive discussion about the critical paradigm shift that much occur among donor and development organizations, and most importantly, African governments.

Today I want to talk a little bit about some of my experiences, the lessons I've learned and how this positions our foundation in the current debate about agricultural development.

I believe in technology. Our Foundation is working with the Donald Danforth Plant Science Center to develop a virus-resistant, fortified sweet potato. We co-funded the Water Efficient Maize for Africa, a project with the Bill and Melinda Gates Foundation. We participate in the virus-resistant Cassava for Africa Project, which is an initiative that was funded and started by the Gates Foundation and executed by Danforth. And recently we just funded another project with a few people you're familiar with here in Des Moines, with Pioneer, which is a biofortified sorghum project.

I plant triple-stack and smart-stack seed corn on my farm in Illinois. I'm first to tell you that I'm totally hooked on technology, including auto track, swath grow and variable rate seeding.

But I don't think that advance Western technology is a universal solution, nor do I think it's appropriate in all situations. This is where sometimes I part company with some of the bureaucrats, politicians, academics, companies, other foundations that advocate high-tech, high-yield approaches as the ultimate solution to agricultural development, particularly in least-developed countries.

Seed is only one part of the system. I'll tell you that soil is more important. Simply distributing seeds without a sustainable soil fertility plan will eventually be a disaster. Additionally, you cannot correct low soil fertility by piling on chemically based fertilizers.

There are over 500 million small-scale farmers in Africa who do not know how to apply fertilizers properly. Oftentimes, they cannot access nor afford them.

I believe in improved seeds but they require the proper training, and their use must be appropriate for the circumstances. If initial yields are favorable, and they often are, farmers may convert additional land into a single crop. And when they do that, they actually put their family at greater risk because they sacrifice crop diversity for more of a monoculture environment. That crop diversity is critical to the survival of many of those farm families. It's an issue that we have to be very cognizant of as we look at places like Sub-Saharan Africa.

Although fertilizer will often provide initial and sometimes significant increase in yields, synthetic fertilizer by itself isn't going to fix long-term soil fertility problems. You can't just throw it on the ground and expect a miracle. I can guarantee you that none of the poorest farmers have ever had soil tests.

We continue to hear that technology is the solution and that it's the closest thing you can come to a silver bullet. It's a very important contributor but if viewed as a single solution, we're never going to succeed.

I believe that improved seeds and fertilizer must be part of any successful farming system, but they are only components of it. Without a biologically based, sustainable soil fertility management plan combined with education and training and, most important, a serious long-term commitment from government, seeds and fertilizer alone will not succeed.

An example I want to give you is one that tells you that, rather than asking if technology can provide immediate production increases, it's more important to ask if those increases are environmentally and financially sustainable.

In Liberia I visited a woman on a farm, and she was upset over what was happening with her cornfields. When she took me over to her current field of maize, there was honeycomb in the stalks. Size was erratic and the crop was already starting to fail. And it was clear that her family was going to suffer as a result of this.

There were two main problems. She had planted a single cross-hybrid variety of corn that was developed for a high-yield system – that was obvious from the ear of corn that she gave me from the year before. By doing so, it depleted the nutrients significantly in the soil.

And then she planted this hybrid seed a second year in a row. Through tests, we found that you can have a loss of 38 to 64 percent between the first year and the second year of planting hybrid seed

What was her solution? She's going to go out and clear more land to have more fertile soil. The unintended consequences of the use of this hybrid seed were pretty significant – significant on her family, the environment, and her future.

The usage of hybrid seed means millions of farmers will need to change their methods; they must be able to afford to purchase the seed every year. And again seed is only one part of that system and we have to address the other issues, such as distribution and maintaining the integrity of the technology and building up the soil.

And if you think about the expense of this technology and what people can afford and what they have access to, none of this exists at a large scale in the majority of countries in Africa – that's the challenge. A really important point when considering what technology is appropriate is the cost benefit ratio and a clear understanding of what those benefits provide. For example, a GPS system alone is twice the lifetime earnings of a farmer in Liberia. Different farmers need different solutions.

The Inter-Academy Council Report actually states that a green revolution is not the answer for African agriculture, but yet people are still calling for one. They qualify this by saying that we need a uniquely green revolution. But I'm going to tell you that a green revolution is what it was. We all know what it was. Everybody in this room could probably define it in terms of irrigation, high-tech, improved seeds, infrastructure, particularly government commitment.

We don't need a unique green revolution – we need new thinking. We need to be smarter. We need to be willing to think outside the little box that we've created for ourselves. Otherwise, the problems become systemic.

We have the money, we have the knowledge, and we have the will. Agriculture is sexy today, and we need to take advantage of that. We can't lose that rare opportunity.

We have to spend money differently. It requires research that's not based on a commercial return but rather on providing answers for poor farmers who have often been overlooked in the equation of big R&D dollars.

Helping small-scale farmers only counts if there are results and if those results transform their lives. It shouldn't be about rhetoric or what's sexy. It should be about the results. While the rhetoric has been pretty strong, the results have been few.

This isn't about getting rich. It's about solving hunger.

As our publication, *The Hungry Continent*, documents, we face an uphill battle. The lack of enabling environments, poor infrastructure, lack of land rights, and corruption make our efforts pretty difficult at times. We have to be open to new and start farming systems differently.

There's a lot to learn. The old saying, "You don't know what you don't know" couldn't be more true in agriculture.

Every farmer in this room understands how important nature and biological activity is to their livelihood. From pollinators to beneficial nematodes, we could not be successful without them. And they're also free, but somehow a lot of this gets lost in the conversation about solutions.

There's a tendency instead to place enormous faith in our current system. If we do not change our thinking, agriculture may become a zero sum game. Food security has been a contributing factor to pushing a country over the edge. If people get hungry enough, politicians have problems.

And I believe that combining biological farming techniques and new technology will provide the most dynamic and successful systems. And of course hybrid seeds, synthetic fertilizer need to be components of that. But we need to start from the right place.

Solutions have to be context-specific. And I think we've failed at a lot of things because at times we've assumed that what works here at home or somewhere else will work in Africa or Central America. It's the wrong assumption to make. We need to be smarter than that.

There's a great debate about what Africa needs, but one of the most important things is soil. Africa has some of the most weathered soils in the world. There's nothing anybody can really do about that immediately on any big scale. And most estimates will tell you that 75 percent of that soil is further degraded from human activity.

So we have to look at a systems approach and at systems that may not look very much like ours. Thirty years ago, Brazil was not on the radar screen of a U.S. farmer. Today the first thing we want to know is what the soybean crop was in Brazil.

Sometimes it's difficult to be optimistic. I am pretty pessimistic, but I never feel that the answer is to quit. We have to keep going; we have to find ways to solve it. It's a big problem. And in the end we have to work together. It will be agriculture that either helps solve our global and largest environmental problems or will be a serious contributor to it. It's going to be a choice that we make as farmers, as policymakers and to some degree it'll be a choice that's made in the private sector.

As Dennis Avery said to me 20 years ago – *No one will starve to save a tree*. That actually changed my thinking at our foundation. But since that time, I've learned an even more important lesson – *no one is going to starve to save our soil*. We have to do it. We have to find ways to do it, and we have to find the ways to implement those answers. If we don't change our approach and provide the appropriate tools and enabling environments for small farmers around the world, we'll ultimately fail again. It's a big responsibility.

Because in the end we all share this planet together, and we must feed the world.