

SPECIAL INTRODUCTION

Speaker: Robb Fraley

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Introduction

Ambassador Kenneth M. Quinn

President - World Food Prize Foundation

So we've been talking and promoting that there are two major mergers in the agribusiness world. You heard this morning from Jim Collins of Corteva, one; and now this afternoon we're going to hear from Liam Condon about the second. And I'm very pleased to be here and welcome Liam to be here with us. But to introduce him, our 18th World Food Prize laureate has arrived here, and that's Robb Fraley, and Robb is going to introduce Liam. And I've been telling everybody how every panel has come out of some meeting that I've been at, some in Africa, some in, oh, well, and selfies taking place, some in Harvard Square. So I want to tell you how I got connected to Robb Fraley.

And that was through Norman Borlaug. So the first time Robb Fraley and I met was with Norm. It's about 15 years ago, and Robb was Chief Technology Officer at Monsanto and had such a wonderful relationship, and Norm admired you personally. He would have been so pleased to see you get the World Food Prize in 2013, one of true pioneers of biotechnology. And so it's my honor to introduce to you our laureate, Robb Fraley.

Dr. Robb Fraley

2013 World Food Prize Laureate

Thank you. I remember about this. It's a great memory. Well, this is going to be a long introduction, Liam, so relax here. I'm going to show a few slides of my own – I couldn't resist it. It's such a privilege to be here and address this group that I wanted to take full advantage of it.

And I especially love the theme this year, *Rising to the Challenge*. And I'll just make the point that I don't think anyone has ever risen to the challenge any better than Dr. Borlaug, and, you know, he's with us now, and we're celebrating him at this event. But it also means that we all have that collective responsibility to rise up and feed our hungry and still growing world and importantly do it in a more environmentally sustainable way.

Now, let's see. I can't quite see the slide here. Which one's on next? There we go. This has come particularly close to me this year, because I want to introduce you to Charlie, which is my first grandson. And I think when you're raising your own kids, you don't have time to reflect on this because you're too busy trying to get everything right. But I'll tell you, when I have the time and I'm holding Charlie, the things I think about are the future. And holding that little guy, I think about what's going to happen. But Charlie's going to be 32 years old in 2050, and the

questions that it brings up to me are questions like: What will that world that he lives in look like? And what will it mean for his generation? Will farmers actually be able to produce enough food in 2050 for 10 billion people? Or can we produce that food in a way that doesn't deplete all of the earth's resources and leave our grandkids with a terrible climate problem to try to solve?

So as the ambassador said, I've spent my entire life in ag, from growing up on a small farm in Illinois and serving for many years as the Chief Technology Officer of Monsanto. But today I'm here really more as an advocate, an advocate of what's possible and what's needed to not only feed our planet but to do it in a way that's more sustainable. And the point I want to make is, for many people, particularly policymakers, decision-makers, consumers, that last aspect is as important as food security.

So over the last year of working with some scientists, working with some statisticians across academic and in industrial circles, we've put together what I would call a future best-case scenario on what these new technology advances can represent for the future. It's definitely forward-looking, but I'd tell you it's really based on the science that I see going on in the laboratory and the rates of gains we're seeing in the breeding programs that we're driving. So I guess I'm going to have some good news and some bad news.

I'm going to start with the bad, but I think you already know this, and the point is – If farmers just kept doing what they're doing today, I mean if technology were frozen and there was no new technology and no new yields, there's absolutely no way that we can feed 10 billion people on the same farming footprint that we enjoy today.

So just to think about it, today around the world we farm about 2.2 billion acres of cropland. That's about the size of Brazil or about the size of the U.S. And so if we're going to meet that demand without new technology, it would take an additional approximately 700 million acres. To put that in perspective, that would be about the size of adding California, Alaska and Texas together to create that footprint.

So of course that's not practical. There's not that much new land to be put into agriculture; and if it did, it would come at the expense of converting forest and wetlands and prairies, which would be catastrophic in terms of the greenhouse gas releases and the impact on the environment. As you know and it was mentioned earlier, ag already contributes about 25% of the world's greenhouse gas emissions, and there's a huge pressure to reduce that footprint. In fact, a report that just came out last week, the ITC report, stressed the impact of climate change on agriculture, how it can be avoided by managing the rise in temperature, and that the next few years are absolutely critical to avoid the bad trajectory.

Now, the good news I think all of you realize is that technology is not frozen. And in fact I would tell you, as somebody who has participated in technology his whole career, that the advances that have been made can dramatically accelerate crop yields based on the explosion of new tools that are available to farmers around the globe. Now, if you think about it, the past decade the advances in biology and advanced breeding technology, gene editing, soil health; on the data science side, the artificial intelligence, the robotics, the new farm equipment – all of these are transformative, and importantly, they're all integrated into a future that I think can drive incredible yield gains.

And just as important, and this is a key thing, these technologies because of the huge reduction in cost and their great accessibility, these provide unparalleled access to technology gains for all

farmers around the globe. Smallholder farmers can benefit clearly by better seeds, and they can benefit by unparalleled access to information – that cell phone providing the market information, the agronomic advice, and the weather information that can be so critical for the future.

So let me just make that point on that. And I guess I'd just summarize it by saying – and this is really important – there's never been this much technology available to plant breeders, agronomists and farmers in the history of the world. And the key thing is, as we think about it, the past trends on yields aren't indicative of what's possible in the future.

And so to kind of illustrate this, let me show a graph here where we're looking at the acres required to meet different food security targets. And this is the scenario where there's no new technology, where we'd have to increase acres by that 700 million. But if, on the other hand, if we just fully utilize the technologies that are available today around the globe and just optimize the yields of the nine largest crops – and I know at lunchtime if you attended this session, that there's still another 25 underutilized crops that Vice President Araoz spoke about – I personally think these technologies and tools can impact all of the world's crops as we go forward. But if that were the case, we can basically freeze the footprint of farming around the world by full adoption of the technologies that are available and offset that need for more production.

And now if you'd just imagine for a minute, if we would maximize yields using this technology, just like those that are seen today here in Iowa with the soybean and the corn contest winners, I think we can actually envision the opportunity to reduce the existing footprint of farming on a global basis. And for me that's really exciting.

I think all of us here understand what it means to achieve food security. There was a great panel this morning on food and nutrition, and David Nabarro and a number of other panelists made that point on the unique connection of ag and nutrition. I think we also need to look at that unique connection between ag and the sustainable environment.

And so the question is – what does it really mean to be able to spare these kind of acres in the future, from an environmental perspective? Well, it means no additional carbon release from clearing forests or turning over sod. And if we could restore hundreds of millions of acres back to a native environment and reduce inputs and water use, the impact would be gigantic. You know, sparing these acres would potentially reduce agriculture greenhouse emissions by 5%. And to put that in perspective, that would be equivalent to all the emissions from all the commercial and housing structures, residential structures around the world. So it's a huge impact, and I really believe that technology can enable agriculture not only to address food security but could be a contributor to enhancing the environment.

Now, I'll also make the point, as someone who's learned a lot about technology and technology acceptance, that no matter how great a technology is, it's not enough. You know, we clearly, as the last panel highlighted, you know, farmer support here is going to require adoption, training and financing. That's very, very clear. From a technology perspective, we need more, not less R&D, both in the public and in the private sector. And I'd just highlight that there's a special opportunity for public/private collaborations. Because I can tell you, no matter how big a company is, how effective an NGO is, nobody can do this alone, and we need to really emphasize that point.

Of course, regulatory bodies around the world are key – that’s been mentioned several times in this meeting. We need to have science-based decisions, not decisions based on politics or ideology.

And then very much top of mind for me, and I think very important, is, it’s going to require consumer acceptance. And a big part, I think, of that acceptance in the future comes from communicating the environmental benefits of agricultural technologies around the world as much as their food security benefits. As we’ve been looking into this, study after study shows us that society is in favor of using technologies that help the environment. In fact, we did a bunch of really interesting interviews with individuals who are opposed to biotechnologies and other technologies to enhance food security, but at the same time those individuals would support the use of technology to enhance the environment, by a factor of almost 3 to 1. And what I’ve seen is, as we start to tell the story of modern agriculture technologies that are helping to grow more food using less land, water and energy, we’re building a bridge for a new dialog in support – and that’s key.

Now, it’s been mentioned several times, and it was really interesting, Dr. Borlaug’s famous quote and focus on taking it to the farmer. I’d modify that slightly and say – *We have to take it to the consumer in order to get it to the farmer.* And I think that’s increasingly key.

Everyone here understands the importance of food security. What I’m trying to say is I think adding that emphasis on the environmental benefits of these technologies and tools is equally important. And I think by changing the way we can collectively think and act and communicate when it comes to agriculture, both the food production side and the sustainability side, we actually create the opportunity to rise to the challenge of doing both. And I think that’ll be key.

And if we’re successful in doing this, we’re going to change the trajectory of the future, and we’re going to leave a gift of a food-secure and sustainable planet to my grandchildren and to yours. So thank you.