

**Remarks by Dr. Chris Elias, President, Global Development Programs,
Bill and Melinda Gates Foundation, at the Second Global Conference
on Biofortification**

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Thank you, Dr. Fan, for that kind introduction.

I would like to extend a special “thank you” to the Government of Rwanda – and in particular to His Excellency the Prime Minister and Minister Kalibata and the Ministry of Agriculture and Animal Resources for hosting this conference . . . and for being a leader in the adoption and scale-up of biofortified crops.

I would also like to acknowledge the presence of ministers, other senior government officials, and distinguished leaders in agriculture from Rwanda and from around the world. It is an honor to have the opportunity to address you today on behalf of the Bill & Melinda Gates Foundation.

I’ve been looking forward to this conference, and would like to tell you why. I’m a physician by training, and early in my career, I worked for a couple of years in refugee camps on the Thai-Cambodian border. For part of that time, I was responsible for the pediatric ward in a bamboo and thatch hospital with dirt floors and no electricity.

Next to the pediatric ward was the therapeutic feeding center. I got to know some of those children very well as they shuttled back and forth between the pediatric infectious disease wards and the feeding center – caught in the trap of malnutrition, poor immune function, and infection.

Unfortunately, many of those children did not survive my relatively brief tenure in that hospital. Their struggles left me with a vivid memory of the reality behind the numbers we all know so well concerning child mortality, stunting, and lost human potential. Those children and their

families also grounded my understanding of development in an appreciation of the complex relationships between food, nutrients, healthy growth, and well-being.

So, when I joined the Gates Foundation two years ago as president of Global Development, I was pleased to foster a closer collaboration between our Agricultural Development and Nutrition teams, and to encourage a broader foundation effort on Healthy Birth, Growth, and Development that also includes our infectious disease, water and sanitation, and maternal health programs.

It was in this context that I had an opportunity to review the progress on biofortification over the past decade and to enthusiastically recommend approval of the next phase of work by HarvestPlus.

There are a number of reasons why we're excited about these plans to dramatically accelerate deployment and access to nutrient-rich crops in countries where micronutrient deficiencies are prevalent.

The first is the success of the work that HarvestPlus is leading. The second is the collaboration among development partners – including the UK's Department for International Development, the European Union, USAID and the CGIAR's Agriculture for Nutrition Program. The third is the strong partnerships with the nine countries on the front lines of efforts to develop and deploy staple crops amenable to biofortification.

You heard this morning from the Prime Minister and Howdy Bouis about why biofortification is so important. Let me underscore a few points:

First, breeding staple crops for improved nutritional value is really breakthrough innovation. It is an example of the linkage between agriculture and nutrition, and proof of what agriculture can do to improve child health. It focuses our attention beyond the quantity of food to the nutritional quality of food, and how to improve it.

The second reason is that biofortified crops give us another important tool to fight undernutrition and its associated health and development impacts.

This is important because improving nutrition remains a big piece of unfinished business on the global agenda. While we have made good progress in reducing child mortality and improving health through a range of other interventions, nutrition-related factors now account for 45% of under-5 child deaths . . . more than 3 million child deaths every year.

This is unacceptable.

Eliminating malnutrition is a complex challenge and some of the causal pathways remain to be discovered. There is, however, a lot we already know about how to ensure that every child gets a healthy start in life.

We know that maternal nutrition must begin before conception, and that when children don't get the right nutrition in the first 1000 days – from the start of a woman's pregnancy until her child's 2nd birthday – it affects not only their growth, but their brain development.

We know that immediate and exclusive breastfeeding in the first six months of a child's life improves infant brain development and protects them from life-threatening diseases.

And we know that a small daily dose of a complementary food supplement can improve a toddler's language and motor development skills and help reduce stunting.

We also now better understand the importance of micronutrients for children, and for women of reproductive age.

As many as a half-million preschool children go blind from Vitamin A deficiency, and about two-thirds of those children die within months of going blind.

Every year, 400,000 children die due to zinc deficiency.

And one of every two preschool children and pregnant women in developing countries are iron deficient. Among children, iron deficiency impairs mental development and learning capacity. In adults, it reduces the ability to do physical labor. And severe anemia increases the risk of women dying in childbirth.

So the cost of micronutrient malnutrition is very high: Death. Blindness. Lower IQ. Stunting. Lower resistance to disease in both children and adults. And increased risks for both mothers and babies during childbirth.

These statistics are as haunting as my memories of those Cambodian children I cared for in the therapeutic feeding center.

With biofortification, we now have an important new tool to add to the micronutrient intervention package, complementing micronutrient supplementation, fortification of foods with micronutrients, and nutrition education. The scientific evidence of its efficacy is compelling.

A study published last year in *The Journal of Nutrition* showed that high iron pearl millet and beans significantly improve iron status in women and children. Among adolescents, consumption of iron pearl millet reduced the likelihood of iron deficiency six-fold. And consumption of iron beans resulted in strong improvement in iron status among reproductive age women.

Research reported in *The Lancet* showed the effectiveness of biofortified orange sweet potato in increasing maternal and child

Vitamin A intake and status. About half a cup of orange-fleshed sweet potato is all it takes to meet a child's daily vitamin A needs.

Orange-fleshed sweet potato was the first biofortified crop to be widely introduced, and the proof of its effectiveness has fueled and sustained rapid uptake. By the end of 2013, more than 800,000 households in Africa had adopted it.

This early success with the sweet potato encouraged work with other crops and other micronutrients. Last year, HarvestPlus reached more than 1.3 million farm families in seven countries with a number of biofortified crops. By the end of this year, that number will increase substantially, with more than 2.3 million farmer households growing high-micronutrient varieties of pearl millet, rice, wheat, cassava, beans, maize, and sweet potato.

In Nigeria, more than 250,000 farming households are expected to plant Vitamin A cassava stems. And by the end of 2014, 800,000 farm families in Rwanda will be growing varieties of iron bean.

One of the primary reasons for the rapid uptake of biofortified beans in Rwanda is the higher yield these new varieties deliver. Preliminary results indicate that yields of biofortified bush beans are significantly higher than non-biofortified beans, and the yield from biofortified climber beans is even more.

When breeders can combine increases in micronutrients with increases in yield, the prospects for uptake and impact increase substantially.

These factors are among many of the reasons we are seeing important progress in country leadership on biofortification. Biofortification has already been integrated into the national policies of four of the nine HarvestPlus priority countries.

For example:

Rwanda's 2013 Nutrition Action Plan – which was integrated into the country's Strategic Plan for Agricultural Transformation – includes extension and input support to producers of maize and bean seeds, and a national campaign for planting and consuming biofortified foods.

The Indian government has endorsed the use of nutrient-rich crops and allocated about \$40 million to develop and promote commercial cultivation and the supply chain of nutrient-rich products for vulnerable segments of the population.

Last August, Nigeria revised its Micronutrient Deficiency Control Guidelines to include biofortified cassava, maize, sweet potato, and pearl millet – setting the stage for national funding to increase uptake of biofortified crops. This complements the full integration of biofortification into the Nigerian Agricultural Transformation Agenda of the Federal Ministry of Agriculture, including support to multiply over 150 hectares of vitamin A cassava varieties and to provide quality stems to farmers through the Ministry's Growth Enhancement Scheme.

And, finally, biofortification is included in Zambia's National Nutrition Strategy, with the government allocating funds through the Scaling Up Nutrition (SUN) movement to undertake operational research to accelerate uptake of nutrient-rich crops in Zambia.

Steps also are underway through the Codex Alimentarius to develop biofortification guidelines, which are essential to national and international adoption and commercialization.

So, as the Prime Minister said, "our time is now" to build on this momentum . . . to scale biofortification. Research by the International Food Policy Research Institute underscores the potential impact of biofortification at scale.

In less than three decades, zinc-fortified rice in Bangladesh and India can reduce the zinc deficiency among children under 5 by more than 85%.

Iron-fortified beans can halve the number of children suffering from iron deficiency in Rwanda and the DR Congo.

And Vitamin A fortified cassava, maize, and sweet potato can dramatically reduce the incidence of Vitamin A deficiency in at least five African countries.

But to achieve these impacts, near saturation levels of adoption are required, and that means we need to act now to accelerate uptake. This convening is about how we can work together to accomplish that.

And, we all have a part to play.

At the country level, governments can:

Invest in multiplication, dissemination, and promotion of new micronutrient varieties. They can mainstream adoption of biofortification policies into national plans/regulations.

They can consider micronutrient content as a key parameter in the release and registration of new varieties.

And they can ensure the integration of micronutrient content – alongside yield, marketability, disease and pest resistance, and other traits – to accelerate uptake.

The private sector can seize this opportunity to make their products healthier and better aligned with government policies and societal concerns about nutrition. In a competitive landscape, this is a way to differentiate products and build market share. Increasing integration of

biofortified crops into national and international seed and food markets is also a way to reach more potential consumers.

And for civil society, demonstrating leadership in expanding the adoption of biofortified crops is an important opportunity to help ensure we achieve the bold goals articulated at last year's Nutrition for Growth Summit in London, as well as the African Union's Year of African Agriculture.

In conclusion, this conference is an opportunity to pause –briefly – to celebrate how far we have come with biofortification. The number of farming households we have begun to reach is a great start. But given the challenge of achieving scale to reach the hundreds of millions of children and women whose health depends on higher levels of essential micronutrients, it's important that we leave here with a shared understanding of what will be required, and the challenges we must address.

The projections for adoption of biofortified crops by farming households a year from now, five years from now, and a decade from now are achievable . . . but I would encourage us all to think about how we can do even more to reach every child with the vitamin- and mineral-rich nutrition they need.

I absolutely believe this is within our power to do, working together.

This is an exciting moment in time. I look forward to working with all of you to help achieve uptake at scale and to give every child the chance to lead a healthy and productive life.

Thank you.