Remarks as prepared for delivery by President Steven Leath

I. Introduction

Good morning. I am pleased to be with you at the first Iowa Ag Summit!

I want to thank Bruce Rastetter for hosting this event, and I want to thank all of you for participating in this important forum to address the critical needs, concerns, and challenges facing the future of agriculture.

There is no better place than Iowa to hold this discussion. Iowa is an agricultural powerhouse. We’re a leader in the production of row crops, pork, and eggs; and we’re one of the top agricultural production areas in the world.

Iowa is also the home of one of the greatest agriculturalists of our time. Dr. Norman Borlaug was born near Cresco, Iowa – about 190 miles northeast of here – and as many of you know, he went on to become the father of the Green Revolution, a Nobel Prize Winner, and the creator of the World Food Prize, which is located right here in Des Moines.

Dr. Borlaug is credited with saving a billion lives from starvation through his cutting-edge development of high-yielding, disease-resistant wheat varieties in the mid-20th century. And now, we must build upon Dr. Borlaug’s success as we undertake what many are calling “the second green revolution.”

I actually had the privilege to meet Dr. Borlaug on a few occasions. After earning my bachelor’s and master’s degrees in plant science and a Ph.D. in plant pathology, my science career included travel to Mexico to conduct research on wheat diseases... in the same fields walked by Dr. Borlaug in Texcoco and
Obregon. Like so many of you here today, I have a true passion and appreciation for agriculture and the land-grant mission.

And that’s what drew me to Iowa State, where I am now the university’s first ag president in 50 years. As one of the first and best land-grant institutions, Iowa State University is a world leader in agricultural research, outreach and of course training the next generation of ag leaders.

Land-grants were founded on the ideals that higher education should be available to all and focused on core, practical subjects like agriculture and engineering. They were also created with the idea that there would be research on real-world problems to improve lives and that the results would be distributed to those who need it.

Dr. Borlaug was a product of the land-grant university system through the University of Minnesota. At Iowa State University, we, too, inspired and continue to inspire agriculture pioneers – most notably George Washington Carver and Henry Wallace – men whose vision changed the world and all our lives.

It was George Washington Carver who said – “Since new developments are the products of a creative mind, we must therefore stimulate and encourage that type of mind in every way possible.”

For more than 150 years, Iowa State University has been doing precisely that. And today, our College of Agriculture and Life Sciences is ranked in the top 5 in the world, with the third largest undergraduate enrollment in the country. We’re
training future leaders in fields such as agronomy, animal science, plant pathology, environmental and food science, and global resource systems. Somewhere in Curtiss Hall right now – the home of our College of Agriculture and Life Sciences – I believe we may find the next Dr. Borlaug to help solve the greatest challenge in the history of agriculture and, indeed, in all human history.

II. Single Greatest Challenge: 9+ billion people by 2050
And that challenge is this: How can we produce enough food, feed, fiber, and fuel to meet the needs of a global population expected to exceed 9 billion people by the year 2050; how can we produce it all in an environmentally sustainable way that protects our land, and water quality and quantity; and how can we ensure the population has proper access to high-quality food.

A. Population Growth in Food Insecure Regions
The vast majority of population growth by 2050 is projected to occur in areas already experiencing food insecurity; Sub-Saharan Africa’s population could more than double.1

At Iowa State, our Center for Sustainable Rural Livelihood is helping fight malnutrition and poverty in that very area. Much of the center’s efforts are focused in Uganda, and specifically in the Kamuli District.

I traveled there a few years ago to witness the incredible impact of our work. I visited with one farmer who had a child die from malnutrition; but after working with our program for two years, he finally had a roof on his house, he was raising

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his own crops and livestock, and his other children were well-fed and healthy. It was incredibly eye-opening and rewarding.

**B. Global View**

But the challenges of 2050 aren’t confined to developing countries – the impacts will be felt worldwide. And Iowa State has launched a Global Food Security initiative to bring together expertise from across several disciplines to focus research on six key platforms: animals, seed, crops, water, post-harvest and agricultural policy. But what exactly are we up against?

**C. Shrinking Farmland**

Take crop production and farmland for example. The amount of farmland available to feed each person is projected to shrink dramatically from nearly a full acre 25 years ago, to well under half an acre by 2050, meaning we must fully optimize every bit of production land that we have. \(^2\)

Iowa State is identifying ways to improve productivity... We’re working to launch the next revolution in precision agriculture by gaining a better understanding of the relationship between the genetic structure of plants and the impact of environment on those plants.

Genetically modified foods are also an important option to increase production. And Iowa State is engaged in science-based analysis of the risks and benefits of GM plant and animal products to provide a healthy, nutritious food supply, while helping safeguard consumers and the environment.

\(^2\) Council for Agricultural Science and Technology (CAST)
**D. Environmental and Climate Issues**

The environment and climate are critical components to this challenge as well. We’re facing disease threats, a divided view of the impacts of climate change, and water quality and quantity concerns. It is projected that nearly half of the world’s population in 2050 will face water scarcity. ³

One way to protect the water we have is to make adjustments to the way we farm. An Iowa State team is at the forefront of a new technique to reduce runoff that can impair water quality. By converting a small portion – about 10 percent – of row-cropped fields to prairie strips, growers can significantly reduce soil and sediment loss by up to 95 percent!

**E. Leading the Bioeconomy**

We also understand the importance of adding value to agriculture and reducing our dependence on petroleum. In cooperation with the state of Iowa, we began anticipating more than a decade ago the emergence of the bioeconomy.

1. **Ethanol/Biofuels**

We initially focused on corn-based ethanol and biofuels – and we saw the U.S. ethanol industry take off. Ethanol production skyrocketed from just over 2 billion gallons in 2003 to more than 13 billion gallons in 2013.⁴ But, what’s next?

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Last summer, Iowa’s first gallons of cellulosic ethanol were produced on a commercial scale; that’s ethanol made from biomass like corn stover and switch grass. DuPont Pioneer is getting ready to open their Cellulosic Ethanol plant just 10 miles from Iowa State -- because we developed the corn stover harvest, storage, and handling technologies for them.

2. Next Generation of Bio-products

But the bioeconomy is about much more than just biofuels. We’re spearheading the next generation of biobased products. We’re leading two National Science Foundation Centers, one for biorenewable chemicals and the other for bioplastics and biocomposites. Our researchers are working to develop technologies so that one day, chemicals in everything from building materials to personal-care products as well as plastics can be produced with biorenewables.

And Iowa State is providing leadership for the Cultivation Corridor initiative - a public-private partnership working to cultivate innovation and accelerate growth in agriculture, biorenewables, biotechnology, and advanced manufacturing industries to make Central Iowa the premier region in the country for these sectors. Think of us as the Silicon Valley of agbioscience.

F. Ag Research Funding

But there’s one thing that is essential to overcoming all of the challenges of 2050 -- and that’s adequate funding for ag research. There is great concern on the Iowa State campus, throughout Iowa and across this great nation that the U.S. is directing far less money toward agriculture research. For every federal dollar that
goes toward USDA research, more than $12 dollars is invested in the National
Institutes for Health.\(^5\) While finding cures for diseases is important, shouldn’t we
be investing in research that can prevent those diseases in the first place...
through proper nutrition and access to high-quality food?

**G. Extension and Outreach**

Now there’s one more, very important piece to meeting this challenge. While
Iowa State is a pioneer in agriculture research, we’re also a pioneer in putting that
knowledge to work. Iowa State was the first to establish Extension and Outreach
services, and now our team reaches more than 1 million people every year!

I’ll never forget the conversation I had with Dr. Borlaug who said he couldn’t have
had the success with his wheat varieties without the face-to-face conversations
with farmers. His famous quote with regard to research: “Take it to the farmer”
is exactly what ISU Extension and Outreach is all about – moving our research to
the field and to communities, making the results of our research available to
those who need it.

**III. Conclusion: Food is our Foundation**

And as extension and outreach demonstrates, we cannot navigate the path to
2050 alone. In order to solve the greatest challenge in human history, we must
share our resources, research, and expertise. I can’t emphasize enough that this is
not a problem that only affects developing countries, this a problem that affects
every single one of us; food is our foundation.

\(^5\) AAAS R&D report series, based on OMB and agency R&D budget data
Dr. Borlaug put it best in his 1970 Nobel Lecture. He said – “*Without food, man can live at most but a few weeks; without it, all other components of social justice are meaningless.*”\(^6\)

And that’s why this should be our top priority! We must think bigger and act bolder if we are to feed and sustain more than 9 billion lives, and we must act now to ensure a safe and healthy future. Thank you.