

**Food security and development:
The research and innovation imperative**

World Food Prize Symposium Laureate Luncheon

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The Syngenta logo consists of the word "syngenta" in a bold, lowercase, blue sans-serif font. A small, stylized green leaf icon is positioned above the letter 'g'.

Dr. Sanchez, Ambassador Quinn, Excellencies, Ladies and Gentlemen:

It is a great pleasure for me to be with you this afternoon here in Des Moines, in the mid-West.

Today we honor a man of whose achievements all the representatives of agriculture can be proud, and whose work conveys important lessons for all of us. And what more fitting place to meet than America's heartland: the core of this country's great farming tradition but also of modern, productive global agriculture.

The World Food Prize is a unique opportunity for those committed to agriculture to come together – from a wide range of backgrounds, as today's gathering suggests. I am most grateful to Ambassador Ken Quinn and his colleagues for inviting me to speak to you. But I am also mindful of the fact that I am the last in an array of speakers you have listened to over the past two days – and the last after lunch, never a good moment for the food and feeding chain.... So I will confine my remarks to a few key points to share with you.

I will focus on the contribution of research and innovation to food security and development.

We have just heard from this year's World Food Prize Laureate. Let me join in paying tribute to Dr. Sanchez' accomplishments and in expressing my sincere appreciation of what he has personally contributed to the progress of sustainable agriculture.

We have also recently concluded a major international meeting on sustainable development, the World Summit or WSSD held in Johannesburg last month. For Johannesburg, as you know, agriculture was identified by UN Secretary-General Kofi Annan as one of the five key areas on which sustainable development must be based. From my experience there – having been asked to represent the plant science industry, and speaking at the "Business Day" in Johannesburg both for

CropLife International and for Syngenta – the Summit had some valuable outcomes.

There are some significant lessons for us today from Dr. Sanchez' achievements, lessons which are reinforced by the Johannesburg discussions.

With your work in tropical agriculture, Dr. Sanchez, you have demonstrated a number of key principles for us, which seem to me to form the basis for addressing food security and development. For convenience, I have grouped them in five categories -- allow me to address each of them individually:

The first is the connection between
Poverty, development and food security

Your research, Dr. Sanchez, has made an inestimable difference in the lives of hundreds of thousands of subsistence farmers and others depending on agriculture in the developing world. We have heard how you took an area of non productive tropical soil in Brazil and through painstaking research brought to life 30 million hectares of land, so that total grain harvest tripled. And we know that there are now nearly 150,000 farmers in Africa, who by adopting your Agroforestry approach have substantially increased their yields, in some cases as much as 200 to 400 percent. These are concrete results, not rhetoric.

In Johannesburg too we saw a renewed focus on development and on concrete measures aimed at improving living conditions. The balance shifted from Rio's emphasis on environmental conventions to a practical concern with poverty reduction.

Needless to say, real progress in the fight to overcome poverty and hunger in the developing world goes beyond direct assistance to subsistence farmers. We also have to address the needs of rural development more broadly, the fundamental needs of those 75% of the over 1.1 billion people living in poverty who live in rural areas, including the requirements of education, health, and rural

infrastructure from water to energy to roads and transport. While this is traditionally the focus of public sector development assistance, the private sector can often lend its expertise and insights to public-private partnerships in these spheres – particularly in the communities where our operations may be centred. And we are all too well aware of the decline not only in overall public development assistance, but in the share accorded to rural development. As we know, the issue is very often compounded by the inability of developing countries to export their crops at decent prices.

In sum, only if we address in parallel the key challenges of rural development and of food security can we hope to break the vicious and relentless circle of hunger and poverty.

The second message is that

Science and technology are essential to sustainable agriculture

In a recent *New Scientist* article by Jeffrey Sachs that has been widely circulated, the author begins with his central message for the Johannesburg meeting: most of the world's policy makers, he claims, have “greatly underestimated the role that advances in science and technology can play in resolving the seemingly intractable problems of poverty and environmental degradation”. He criticizes governments of industrialized countries in particular for not supporting “science and technology in poor countries to address distinctive problems such as tropical disease and tropical agriculture”.

Professor Sachs singles out the work of this year's World Food Prize laureate as exemplary of the immense advantages that accrue from the application of science and technology to tropical agriculture. He notes how Dr. Sanchez' research and “steadfast investment in R&D” are raising food productivity for impoverished farmers.

I am not sure how Professor Sachs rates the Johannesburg meeting. But for a science and technology-based company such as Syngenta his emphasis both validates our priorities and challenges us to explore how best to bring our own expertise to bear.

One positive outcome at Johannesburg was the announcement by the World Bank that it would launch a year-long “international consultative process on the risks and opportunities of using agricultural science to reduce hunger and improve rural livelihoods in the developing world”. In the wake of the uproar over certain African governments’ refusal of food aid containing Genetically Modified seed, the Bank’s decisions to conduct an effort “to produce an international assessment on agricultural science... for decision-makers” is responsible and helpful. The consultation will bring together “consumers, farmers, scientists, NGOs, governments, and the private sector” – and the plant science industry, including Syngenta, will participate in the dialog.

In your work, Dr. Sanchez, you found ways of vastly improving yields on lands that had suffered dramatic losses of soil nutrients – and of reversing this degradation. And you succeeded in bringing into cultivation lands considered barren and unsuitable. Hence you have succeeded both in increasing yields on existing lands and in bringing new land into arable use.

Most often, however, the best option will be to increase productivity on existing land. This will allow us to avoid the destruction of existing natural habitats and of complex natural ecosystems. It will enable us to help prevent further deforestation and corresponding loss of biodiversity.

Increased yield and productivity can only be the result of a concerted effort by many different actors, including the private sector. Through our seed and crop protection activities, our industry has long been making a significant contribution to increased crop yields and to developing products available for hitherto inhospitable conditions. We have made considerable progress on yield protection – through the targeted control of weeds, diseases, and pests. In doing so, we focus on the most effective ways to manage the land currently in production and provide farmers with the appropriate tools.

Moreover, water use in agriculture is obviously a key issue for coming years and for the developing world in particular, as your deliberations

at this Symposium have shown. Our industry is focusing on the use and development of products needing less water, or facilitating no tillage soil conservation, or intended for saline land, or for arid regions.

Science and technology are critical components. We will continue to play our part and to bring our expertise and technology to the table.

The third message is that

Research and technology transfers have to be applied to local conditions

You demonstrated most effectively, Dr. Sanchez, that any practical application of science and technology will have to be closely applied to local conditions. Indeed, local champions are fundamental for success, just as you so effectively championed the needs of the Cerrado and of Africa's sub-humid tropics. The challenge for global enterprises, public or private, is how best to translate their knowledge, skills and experience into specific local demands and requirements. At Syngenta and indeed throughout the industry, we have promoted crop enhancement through seeds and crops adapted to local conditions.

To help address the needs of technology transfer applied to local conditions, my company has created the Syngenta Foundation for Sustainable Agriculture. Our objective is to find innovative ways of promoting sustainable agriculture in the poorer and drier areas of the world through research, policy reform and public/private partnerships. The Foundation is working with national agricultural research systems

- in Mali to improve the yields of millet, sorghum and cowpeas;
- in Eritrea, through a partnership with the University of Berne to improve land and water management and hence yields and the reliability of cropping using GIS techniques; and
- in Kenya it is funding a partnership with CIMMYT aimed at producing insect resistant maize for small-holder use.

Technology transfer and public/private partnerships can make a real difference in the promotion of sustainable agriculture adapted to local

requirements. Access - access to knowledge, to products, to information and to technology- is key. The range of knowledge necessary will be critically important. Knowledge provided by science and technology, including biotechnology and chemistry, but also knowledge provided by land management practices and the expertise of farmers.

Syngenta has selectively provided relevant technology, royalty-free, to subsistence farmers through technology transfer and intellectual property agreements with research institutes – such as the groundbreaking work on the rice genome, insect resistant maize and rice, or a royalty free licensing agreement for insect protection in sweet potatoes. Moreover, we have adopted as a comprehensive policy on intellectual property that we will no longer apply for patent protection in biotechnology in any of the Least Developed Countries, as defined by the United Nations.

I might add that public/private partnerships are not confined to the developing world. We are not forgetting this agricultural heartland! Indeed some partnerships are very close to home – to where we meet today in the American mid-West.

- In Iowa, Syngenta is a sponsor of the Trees Forever initiative, which works to reduce stream-bank erosion and the resulting runoff of nutrients, soils and pesticides. The group establishes tree buffer zones along stream banks to improve stabilization.
- In Kansas and Nebraska, we are working with the state agriculture departments and the Universities of Nebraska and Kansas State to monitor and assess best management practices in local waterways.
- In Missouri, the Watershed Research Assessment and Stewardship Project evaluates cost-effective, water friendly farming practices.

My fourth point is that

Publicly funded research remains crucial

Dr. Sanchez' successful efforts in dramatically improving agricultural productivity in the poorest of communities illustrate the value of publicly funded research. We are all aware of the apparent imbalance in the figures for public and private funding for agricultural research. The private sector, however, cannot step into a void left by the absence of public funding. Nor, as Jeffery Sachs points out, can market forces be expected "magically" to produce the appropriate solutions. Public goods must play a vital role: and here he laments the "massive under investment" in the major worldwide public research framework available, the Consultative Group for International Agricultural Research (CGIAR). Nevertheless, the CGIAR has a vital role to play in helping to build public/private partnerships for international public good, and demonstrating how productive they can be.

Hence public research is crucial – more crucial than ever at a time of limited or diminishing public expenditures on development assistance in general. Unfortunately, public attitudes toward agricultural science are not, as you all well know, particularly positive – indeed, they are much less positive than in other areas of sectoral research, such as health or pharmaceuticals. Public spending on agriculture is slowing in many countries. The same disadvantages of long-term research affects public as well as private expenditures: because the lags between investment in research and tangible benefits are often decades long, investments made today may not bring the public sector much to show for their decisions until years later. A vision for the long term is essential. Here we are of course preaching to the converted. But the World Food Prize and its supporters must be commended for lending their voices, prestige and profile to our shared hopes for increased public support of agricultural research.

My fifth and final message is that

Innovation and determination are the driving forces for success

You demonstrated, Dr. Sanchez, a thoroughly entrepreneurial spirit in taking your ideas and pursuing them to fruition. Your innovative techniques – and your determination in having your research and experimentation bring practical results – exemplify how sustainable agriculture can be made a reality.

Innovation needs individual vision, vision such as the man's we honor today. It needs a creative space in which it can work – whether in the apparently “disinterested” framework of public institutions, or the “dynamic” conditions of private research. It of course needs funding – and for the long term, as the scientists here with us will no doubt gladly echo. And it needs the appropriate government and regulatory framework so that it can flourish and enjoy public support and confidence.

When I speak of public support, I do not mean unquestioning support of industry or even of innovation – although you will understand that I often find the more open-minded, positive American approach to innovation refreshing and encouraging! I believe we need a sober risk/benefit analysis to guide society's decisions. There are too many preconceived ideas and pre-formulated opinions, which too frequently prevent us from reaching practical conclusions.

But above all I mean a logical, transparent dialog among all those concerned – a dialog that aims at a solution, a dialog with stakeholders who realize that they all truly have a stake in success. Success in enhancing production while safeguarding the environment, success in safe, healthy and affordable food supplies, success in genuinely sustainable agriculture. In fact exactly that form of realistic exchange which the World Bank is aiming to establish at the global and regional levels.

Innovation is the lifeblood of our industry. It is what earns us both our income and our place in society. Our science is of course based on the accumulated knowledge of others who have made breakthroughs in

plant science, in the fight against hunger, in chemistry, biotechnology, genomics. Let us pay tribute here to the efforts and inspiration of all who have led the way with new understanding and new knowledge to share – to your predecessor laureates, Dr. Sanchez, and to the founders of this Prize going back to Norman Borlaug and his associate pioneers.

Conclusion

In conclusion, I believe that the five principles exemplified by Dr. Sanchez' work should inspire and encourage us and others as we strive to address the complex nexus of food security and development.

Let me reiterate my admiration for today's laureate – and to the World Food Prize for allowing us both to recognize his achievements and to consider the future of sustainable agriculture. Given the conditions I have outlined – conditions which have doubtless been emphasized by others speaking here – I am convinced that sustainable agriculture must be sustainable intensified agriculture. We have to secure intensified productivity.

You are here involved in an absolutely critical enterprise. Whether from universities or government, NGOs or diplomats, journalists or farmers, you are here because you are committed in one form or other to the most fundamental of human endeavors. Whether we can continue to feed our families healthy, safe and economical food depends on our combined endeavors. And further afield, whether we can push back the ravages of hunger and bring hope to subsistence farmers, while preserving natural resources, also depends on our joint skills and ideas – as Dr. Sanchez showed us.

Let me conclude by noting that, just as the responsibility is great, so should all those here be justly proud of their part in leading the way for agriculture. The gigantic strides made in agriculture over the past four decades must rank as one of the most striking accomplishments

in human history. Let us ensure that we take the dialog forward, whatever our varied perspectives, in a shared commitment to sustainable agriculture.

Let me thank you for your attention and once more congratulate Dr. Sanchez on behalf of this community. ###