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Canadian Agriculture 101 Speech

IFAJ Congress 2011 - September 14, 2011

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Agriculture today is at a crossroads. At a global level, the world's undernourished and hungry hover at 1 billion people. That is 1 in 6 people in the world. And it is not getting easier....

The most significant challenge we're facing in terms of food production is population.

World population is estimated to be growing by two people per second. By the time I finish this speech at least 2,400 more babies will have been born. According to the United Nations Food and Agricultural Organization (FAO), global food output will have to increase by 70% by 2050 to accommodate the world's population.

World Present Challenges

Sadly we add to those challenges:

increasing dietary demands for meat, fruit and vegetables;

A recent Goldman Sachs study predicted that by 2020 the world's middle class – people earning between \$6,000 and \$30,000 a year – will expand by one billion people and by 2030, another two billion. In China alone, the McKinsey Global Institute has predicted the middle class will grow to constitute 76% of the population by 2025.

This middle class will expect more varied and nutritious diets with a higher protein content. Not just rice and vegetables, but chicken, pork, and ultimately maybe red meat. All of which take more land and natural resources to produce.

the ratio of arable land to population is declining by 40-55%;

However, the challenge is, while populations, dietary expectations and energy requirements continue to grow, our planet possesses a finite amount of arable land. In 1960 we had about 4.3 hectares (10.5 acres) of arable land per person; by 2020 we'll have only 1.8 hectares (4.5 acres) per person. Some new land will come into agricultural production in the coming years, but not nearly enough to compensate for the

losses due to urbanization, climate change and erosion. Outdated farming practices, deforestation and other man-made factors also continue to cause erosion. Simply put – we need to grow more from less.

1.8 billion people living with absolute water scarcity by 2025.

Water is the staff of life and it will become the key limiting resource in the years ahead.

SOLVING THESE PROBLEMS, DOING IT IN AN ENVIRONMENTALLY RESPONSIBLE AND SOCIALLY SENSITIVE WAY IS THE CHALLENGE WE HAVE IN FRONT OF US.

The question is: What solutions can help achieve the goal?

No Single Solution

Quite simply, there is no single "silver bullet" that will solve all the problems. What is needed is a mosaic of solutions. There are many tools, many already known and used, needed to produce enough crops on less land.

Closing the Gap

For example, certain key crops in some regions of the world reach only 20% of the level of the productivity that is enjoyed elsewhere.

Closing only half of that gap in yield would revolutionise the relationship between agriculture and biodiversity, as well as helping to alleviate poverty. Remember half the world's poor are themselves smallholder farmers.

Investing in Research: A Must

Research is needed to close that gap. Unfortunately, we are facing a time when public research funding in agriculture has declined over the last decades. It is hard to recruit scientists into agriculture. And, on top of that, many extension programmes that allow research to be transferred onto farms have been cut to the bone. In fact, in developing countries, where the need is greatest, spending on farming as a share of total public spending has fallen by 50% in the last 25 years.

COMPLEXITY

Fifty years ago, Norman Borlaug led the first Green Revolution. This revolution changed the way we produced food with new research, innovation and technology allowing us to grow more than ever before. He won a Nobel prize for the millions he saved from starving. But today we see these issues in an even more complex manner.

In addition to increasing productivity, we must also factor in a broad array of other considerations:

- poverty reduction
- use of fossil fuels
- soil protection
- climate change adaptation
- waterway management
- habitat protection to name just a few.

Often, journalists find it easy to overlook the complexity of food production and the multiple competing demands placed on farming. Or to assume that there is just one system that is good – like organic – and forget the impact of those systems on increasing demand for habitat or impact on food safety and security.

As agricultural journalists, we need you to better link with your counterparts in the rest of journalism. Given your greater understanding of agriculture, you can better reflect the complexities of food security. And your commitment to continued learning, at events like this, will allow you to continue to dive deeper into the world of sustainable agriculture.

Deep Commitment

For our part, at Syngenta, we develop seeds and crop protection tools to help plants reach their full potential in the presence of disease, pests and climate stresses while at the same time minimizing the impact of agriculture on the environment. Recognizing the complexity of issues before agriculture, there are four key areas where we focus: Land Use, Biodiversity, Water and Access to Technology.

Syngenta is devoted to building new technological improvements and agronomic knowledge. Globally, we invest over 2 billion dollars a year in research and development. That is around 1 billion dollars annually.

Natural Resources

Producing more food, feed, fuel and fibre however, must all be done sustainably within the finite land and water resources that are available.

But trying to produce more food without exploiting our natural resources is a challenge. Although Canada is rich with natural resources, applied science is absolutely essential to make the best possible use of these resources in a sustainable way. This will help our producers get the highest yield from every field they farm, while ensuring that future generations are able to do the same. We aim to help farmers to grow more from less.

Wheat

Wheat is a classic example of a crop where we're going to need to grow more from less. Figures from the International Maize and Wheat Improvement Centre (CIMMYT) show wheat demand growing by 1.5 percent per year, while annual production is increasing by only 0.9 percent. High demand. Low supply. Same acreage.

Technology will be key to bringing wheat supply back into equilibrium with demand.

At Syngenta, our strategy for wheat is to transform wheat production worldwide by creating new technology platforms that set unprecedented standards for yield, quality and sustainability.

WHEAT YIELD PLUS

It's Yield Plus, we like to think. While yield is obviously important, we're focusing our wheat research and development on more than just yield.

Yield plus profitability – taking the business mindset, including consistency, simplicity and scalability into consideration.

Yield plus input efficiency – to help you get more output from your wheat with fewer inputs and better use of water and nutrients.

Yield plus quality – our cereal breeders are working to overcome today's yield-quality tradeoffs

Yield plus safety – to help ensure sustainability and safety of our wheat grain from supplier to food chain

And, Yield plus sustainability – to do this in a responsible way that will allow future generations to enjoy the same successes.

Innovation, Technology & Leadership

Part of achieving those goals involved partnerships. Syngenta is very excited about our partnerships with CIMMYT.

Our most recent one entails joint research and development in the areas of native and GM traits, hybrid wheat, and the combination of seeds and crop protection to accelerate plant yield performance.

Through our Syngenta Foundation for Sustainable Agriculture, we're also proud to be supporting CIMMYT's work to identify and map genetic markers in wheat for use in resistance breeding against Ug99 stem rust. Because of the serious threat this disease poses to the world's third most important food crop, CIMMYT's Ug99 research is also being supported by some of the world's most influential and agriculturally focused funders, including the Bill & Melinda Gates Foundation and the Borlaug Global Rust Initiative.

Biofortification

Another area of effort is biofortification. One of the most cost effective ways to tackle malnutrition is to breed crops to have a higher nutrient content, particularly of micronutrients such as iron, zinc, and Vitamin A.

Perhaps the best example is orange-fleshed sweet potatoes. The Syngenta Foundation supports the HarvestPlus Challenge Program to improve global nutrition. From 2007 to 2009, HarvestPlus distributed orange sweet potatoes richer in Vitamin A to more than 24,000 households in two countries in Africa. In Mozambique, 75% of project households adopted the variety and 65% in Uganda.

As a result, total vitamin A intake increased, especially among children and women. Notably, for children aged 6-35 months, the orange fleshed sweet potato contributed 78% of their total vitamin A intake in Mozambique and 53% in Uganda. In the long run, it could save their eye sight.

Individual programs like the work of HarvestPlus give hope for achieving real outcomes. However, the debate over food policy moves far beyond just one program. It touches on markets for agricultural

commodities, reserves, labelling, and consumer choice, among many others. It also has many experts engaged, including doctors, nutritionists, and government policy makers. Shockingly, some of the least consulted groups are those most likely to be able to affect change – farmers.

CONCLUSION

This is an incredible moment in the history of food production. We have never had so much technology and knowledge to work with, and we have never had so much on the line. We can either put our heads in the sand or hope that other people will fix the challenges we're facing or, we can take this opportunity to feed the hungry people of our planet and minimize the footprint of agriculture at the same time. Quite simply: We must do more with less.



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Jay Bradshaw is President of Syngenta Canada, an agri-business committed to sustainable agriculture – farming with future generations in mind. With products in crop protection, seed care and seeds aimed at raising farm productivity, Syngenta is helping bring plant potential to life.

Syngenta was formed in 2000 and Jay joined the team as President of Syngenta Crop Protection Canada, Inc. in 2001 at the head office in Guelph, Ontario. He brought with him a passion for agriculture and a leadership style that focuses on empowering the Syngenta team to shape the company's reputation and future.



Under Jay's guidance, Syngenta Canada has embarked on some truly exceptional programs that support Canadian growers and the agriculture industry. Training programs that support business success and encourage leadership include Leadership At Its Best[®], Grower University[™] Business Foundations and Syngenta Learning Centres[™]. His leadership role in Canadian agribusiness was honoured in 2009 with the Canadian Agri-Marketer of the Year award from the Canadian Agri-Marketing Association.

With 25 years of experience in agriculture and five consecutive years as Chairman for the Executive Board of Directors for CropLife Canada, Jay delivers a unique perspective on Canadian agri-business. He regularly addresses producers, farmer associations, students and industry groups to bring a global outlook to the local farm level. Most recently, Jay spoke to the Economic Clubs in Ottawa and Toronto as well as Agriculture 2.0 in Toronto, sharing the world's most pressing need: to feed 9 billion people by 2050.

Jay was born and raised in a farming community in the Eastern Townships of Quebec. He is a graduate from the University of Guelph's Ontario Agriculture College in 1982 followed by an M.B.A. from Saskatchewan in 1986.

Jay is currently serving as Chair of CleanFarms Inc and sits on the Executive Board of CropLife Canada. He is an active community hockey and soccer coach. He lives north of Guelph with his wife Kathy and their two sons.