
Agriculture's Future: "Reading the Tea Leaves"

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The agricultural industry is capital intensive, technology driven, and absolutely critical to the health and welfare of every person on this planet. Unfortunately agriculture has become politicized and, to a degree, marginalized in our society. Although the results that we have been able to deliver via the application of technology to a natural resource-based industry have been absolutely phenomenal over the past 50 years, our profile—our political clout—has diminished.

I will discuss a new way forward that I believe will place our agricultural industry and the fruits from the application of the biosciences "on the table" (pun intended) in a dramatic way. Hopefully, I will leave no doubt that agriculture is a foundation—a pillar—necessary for societal progress.

One of the limitations in this industry is our inability to come to grips with long-range planning. When I talked with Alan Wildeman about this presentation, he suggested looking at the tea leaves to about 2050. In some societies, particularly parts of Asia, people do have a focus beyond 5 or 10 years, to 20 years or more. But, 2050 seems too far out beyond those time horizons. It leaves too large a gap in an industry fluctuating between reasonable profitability and uncertain survival, for people to cross. It is hard to think about draining the swamp when you are up to our thighs in alligators.

Recently I visited a processing company in the mid-west of the United States. In discussions about long-range planning, I focussed on 2015. Senior management said that they cannot plan effectively beyond 5 years, and 3 years is a better horizon. In agriculture, much of our planning has been done on a 3-year time period, but by drawing a straight line from last year to next year.

We must go out to the future then return to the present in order to long-range plan effectively. I will discuss three trends—drivers—that I think will shape the next 15 to 20 years. Hopefully we can weave these drivers together into a strategy, into a recipe for the future. Finally, I will make some comments on a new process that we have undertaken in Canada that will, hopefully, provide one option as a path forward to the future.

TRENDS AND DRIVERS

Recently, a speaker at a conference in Florida talked about hard trends and soft trends and the difference between them. He classified a soft trend as something that may happen based on a set of circumstances at present and a hard trend as one that is solid and verifiable scientifically with physical evidence to back it up. As an example of a soft trend, within a year of the death of Elvis Presley in 1977 there were so many imitators that a trend indicated that by the year 2000 one in three people in the United States would be a Presley impersonator!

Global population growth is a hard trend. Eight billion people will be trying to find standing room on this planet by the year 2020. The population doubled, from three billion to six billion, from 1960 to 1999, just 39 years. Now add another 33% in the next two decades—where does that kind of trend end and what will be the effect on the enclosed biosphere that we call Earth?

I worked in the broiler-chicken feed business in my first years out of college. Those of you in poultry or animal production know what happens when you concentrate large numbers into a limited space. We are doing the same thing with *Homo sapiens*.

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FIRST TREND

China and India and also, potentially, smaller Asian nations will emerge as the economic tigers of the twenty-first century. We talked about population growth from three billion in 1960 to eight billion in 2020, a 133% increase in six short decades. Peeling those gross numbers reveals that, in 2020 the population of India and China will equal that of the world in 1960. These two countries are industrializing rapidly and will devour limited natural resources like we have never seen before.

In North America, we are gluttons when it comes to energy use. In 2002, the United States consumed oil at a rate of 67 barrels/1,000 people/day, Canada 62. China consumed only 3.8 barrels and India 1.9. China's industrialization and push to prominence will significantly increase global consumption of energy even in the short term—between now and 2015. It is expected that, within 30 years, China and India's rate of oil consumption will be at least half that of North America. For this reason the issues of alternative energy and energy security are increasingly important, which is reflected in current pricing. However, \$40 per barrel of oil will look really cheap in 15 years.

The same trend will apply in the agricultural industry; we will have to deal with increased growth in animal-protein consumption and changes in diet and absolute increases demanded by newly affluent consumers in Asia. We are most used to thinking about animal protein in the form of terrestrial animals and poultry. However, farming the oceans in various shapes and forms of aquaculture will eclipse our beef industry, for example, which is based on high intake of plant-based protein to produce a pound of animal protein for human consumption. As hard as it is for us to plan long term in agriculture, we have to make the attempt and we must deal with it, because change, like time, will not wait for us. The future is all about demands for enormous volumes of healthy food plus energy security.

SECOND TREND

The population of the developed world is aging. Japan is the oldest in terms of average, but North America is coming on strong. In the United States alone, almost 80 million baby-boomers—born after 1946 as a result of soldiers returning from the Second World War—are approaching retirement: one turns 50 every 7 seconds! The population born between 1946 and 1964 is the greatest demographic “bubble” that we have ever faced. Truly, an “age wave” is sweeping over society. This population is technology literate, mobile, wealthy, and inheriting from their parents (the generation that scrimped and saved through the depression) anywhere between \$12 trillion and \$40 trillion, depending on what source you use. This population is also very health conscious, quality-of-life conscious, and wants to live forever. As the boomers age, they will place a tremendous demand on the healthcare system, a demand larger than ever seen before. Remember: two thirds of all people throughout all of history who have lived to be 65 years of age are alive today.

THIRD TREND

As society demands environmental sustainability, more and more responsibility is being taken by the individual for the environment. People are looking to hybrid cars, to retrofitting their homes to be more energy-efficient (albeit that much of this is driven by economics as energy prices rise). Energy conservation is becoming more a part of daily life. Much media noise and debate exist around the Kyoto Agreement and greenhouse-gas emissions. New studies emerge almost daily about endangered species; a recent report from Oslo, predicting that the Arctic Ocean may be inhospitable to polar bears within 20 years, has helped raise public awareness. This new consciousness will drive a demand by society that everything we do in our daily lives—government, corporate, or individual—must be tempered by the desire to leave the smallest possible environmental footprint as we pass by.

MANAGING DRAMATIC CHANGES

In my opinion, these three trends will drive the future. They also must drive our

actions, to develop and implement strategies to manage these dramatic changes. Let's look at these three drivers, as three points on an equilateral triangle. Our strategies must deal with what's inside the lines because there is a great deal of overlap, cause and effect between the three points.

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China and India

Let's start with population growth and dominance early in the twenty-first century by China and India as industrial powers. Each of these countries will have between three and four times the combined population of Canada and the United States and their economies will have increasingly affluent consumers. That factor of three to four will drive consumption of animal protein, vegetable oils and energy from all sources at rates never seen before. The economies of India and China are in take-off phase much like an airplane roaring down the runway. They aren't airborne yet, but there is going to be a dramatically increased need for energy and power as they move up the steep slope of economic growth like a climbing plane. It will attack availability of energy, it will attack availability of certain foods and it will drive up pricing. We in North America must be able to produce abundant high-quality food and we must become as energy secure through alternative sources as we possibly can. We must unhook from our dependence on fossil fuels whether domestically produced or from overseas. Expensive and timely technology development, energy conservation, and even a sacrifice in style and quality of life are all options on the table. The message from last August's blackout should resound with all of us. That was a great wake up call. We cannot be complacent: we must plan for the possibility of blackouts, power interruptions and oil and gas shortages. This calls for a strategy on energy security, which I believe is recognized in the United States but not yet in Canada. To achieve that goal will require new technology, new management and conservation techniques, a longer-term view by our politicians and, most of all, a new acceptance of individual responsibility. North America is like an island with three nations clustered on it. We must develop a North American strategy if we are to deal with this issue in the right time frame and with the right spirit.

Environmental Sustainability

Environmental sustainability is hooked to population growth, to energy use and to lifestyle, and it must become a way of life for all of us. We cannot pay lip service to it. We cannot say that it is too costly. Each and every one of us must con-

sciously say that we are going to leave a smaller environmental footprint for other generations to follow. We cannot leave a huge debt for our children and grandchildren to pay, a debt that may not be repayable in some cases because the damage may not be repairable. The need to reduce greenhouse-gas emissions is real and must be dealt with. The need to conserve energy is real and must be dealt with.

Let's use the power of our marketing, our access to the press and our powers of persuasion to get every person in North America to realize that it is their responsibility individually and our responsibility collectively to leave this planet better than how we found it.

Aging Population

The most immediate and most impactful concern is the effect of the aging population in Canada, the United States and in the developed world as a whole. In Canada, we are on the threshold of having to pay a huge bill; over the next 10 years, healthcare delivery is going to cost \$1.4 to 1.5 trillion. We cannot avoid the bill, but we can do something about how we pay it. The population of seniors over 65 grew 130% between 1970 and 2000 and will grow another 125% between 2000 and 2020. Thus in North America, increasing numbers are predisposed to the degenerative diseases associated with aging. Furthermore, Statistics Canada has determined that 48% of Canadians between 20 and 64 are overweight, and 15% are obese. Excess weight leads to high cholesterol and heart disease, and to diabetes and numerous other diseases. Already, 41 million Americans either have diabetes or are pre-diabetic. The demand on Canada's healthcare system will chew up 75% of new budgetary expenditures—three out of every four new dollars in our provincial budgets. Keep in mind that provincial governments pay 75 to 80% of Canadian healthcare-delivery costs. Canada has only three provinces with a population base and budget that can sustain and pay for the healthcare system currently envisaged. "Healthcare is the policy gift adored ferociously by Canadians that keeps on taking," Jeffrey Simpson commented rather cynically in the *Toronto Globe & Mail* recently. This healthcare monster is on our doorstep chewing through the front wall. Canadians have two choices: figure out a new strategy to pay and hopefully reduce the bill or raise personal income taxes by 65% over the next 10 years.

This is lemonade time. We have a big lemon; let's make lemonade. The lemonade is the opportunity that agriculture and the bioscience industry offers to reduce the costs, increase the value of technology and fuel the new knowledge-intensive, bio-economy of the twenty-first century. Agriculture must move beyond a cheap food policy and being marginalized to becoming a health-utility industry that can be a pillar in the delivery of quality human healthcare. We need value strategies that provide options to the healthcare community in the forms of nutrition targeted initially at preventative medicine then moving to population medicine with products and diet regimes that prevent disease. Peel the three drivers apart and there are huge opportunities for technology-intensive agricultural industry to have

a greater profile and a stronger position to play in the future, a future dominated by the demand of an aging population for access to better healthcare and the demand of society as a whole for environmental sustainability.

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in the future.*

Role for Agri-Industry

What do we need to do? First, we must create a vision of what our industry could be in the future; we need a national vision that people can touch, feel and believe in. We need a compelling vision that everyone, from all parts of society, can see and will want to be a part of. We need a vision that proves that the destination is worth the price and the hardship of the trip. This is the essence of leadership. In Canada and United States there has been no compelling vision of what we as an industry could be. If our politicians cannot see beyond power for power's sake, we can make a start in this industry, because we are a pillar for a healthy future for Canadians, Americans and other peoples of the world.

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actions on two deliverables: better healthcare and
environmental sustainability.*

Secondly, every one of us in all parts of this industry must align our actions on two deliverables: better healthcare and environmental sustainability. In every action contemplated, we must ask whether it helps to potentially improve the efficiency and effectiveness of healthcare delivery and/or whether it leaves a potentially smaller environmental footprint.

Thirdly we must build from a foundation of strength. We have a foundation of science, we have a foundation of good farms and farmers, and a foundation of solid industries, but our number-one competency to move our vision and strategy forward is trust. Ipsos-Reid did a study in the summer of 2002 on the fallout in society of the catastrophe of September 11, 2001, in New York. Ipsos-Reid found North American society to be very uncertain about its future—searching for certainty—a society in which the future would be based on competition for public trust.

In the Leger poll announced on February 27, 2004, in the *Toronto Star*, Canadians and Americans ranked firemen the most trustworthy with a trust level of 99%. The second highest level of trust, at 97%, was in nurses. The third level, at

91%, was in physicians, and the fourth level, 89%, was in farmers. (Used car dealers, at 19%, were deemed more trustworthy than politicians at 14%.)

Stop and think about marrying strengths: Nurses plus healthcare delivery, doctors plus healthcare delivery, farmers plus healthcare delivery—that's what it's about. We have that foundation of trust within a society searching for certainty where the dimension of competition is for public trust.

We now need alignment of the like-minded. We began to attack the alignment question in April, 2004, here in Canada by putting together a group of people in a think-tank hosted by the University of Guelph and the Royal Bank. We ended up with seventeen participants comprising roughly a third in provincial government, a third in industry and a third in academia. We did not want a group of people representing all sectors of society. We wanted knowledgeable committed people with the right personal chemistry to work effectively in a closely knit team. Our goal was to construct a vision of the agrifood industry in Canada in 2020.

VISION STATEMENT

We developed a vision statement over a day and a half of facilitated creative thinking here at Guelph, having backed off to 2015 as the time horizon because we wanted to link all parts of society to a compelling reachable destination:

In the year 2015, Canada is a world leader in the enhancement of human, animal and environmental health through the application of research, technology and social innovations in agriculture and the bioscience industry.

As a solution-provider to society, we reduce the burgeoning health deficit, improve quality of life, and embrace environmental sustainability.

We are the trusted standard against which others measure themselves.

Bumper-Sticker Version

- Agriculture: A fundamental pillar for a healthy Canada.
- The future is going to happen. We will have to pay the bill for healthcare. We will have to foot the bill also if we fail in terms of environmental sustainability.
- The future is going to happen. We can let it happen or we can shape it and lead it.

I believe that the only way to predict the future is to create it. The option is ours.



Raised on a mixed farm near Napanee, Ontario, **JOHN OLIVER** has more than 35 years experience in agricultural science and agribusiness. He began his career as an agricultural market specialist after receiving his BSc in agriculture from Ontario Agricultural College (University of Guelph) in 1961.

Mr. Oliver is president of Maple Leaf Bio-Concepts and Lojon Associates International, consulting firms in biotechnology and government affairs. He

was a founding member and past chairman of the Canadian Animal Health Institute; a founding member of the Canadian Agri-Marketing Association (CAMA); chairman, Crop Protection Institute of Canada (now CropLife Canada); and president, DowElanco Canada, Inc. His achievements include being the recipient of the first CAMA lifetime achievement award; currently, he is a member of the Agricultural Institute of Canada.