

Management of Agriculture Science

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In this presentation, I will consider science management within the larger context of global competitiveness in the agri-food sector.

I will attempt to demonstrate:

- that the agri-food sector in this country can be turned around;
- that technology will play a key role;
- that Saskatchewan is well-positioned to take the leadership; and finally,
- that success, and for that matter survival, will depend on whether every one of us in this room—farmer, agri-food businessman, researcher, educator, and government official—is willing to work together to make it happen.

Before going any further, I would like to put one misconception to rest. Many people say that the principal reason this country is in the mess it's in is because we do not do enough R & D.

I would argue that the low level of R & D in Canada is a symptom, not a cause, of a deeper industrial malaise. Moreover, addressing the malaise by merely emphasizing R & D is like using a band-aid when stitches are required. Band-aid methods are not good enough. We need to fix up the basics. Managing ourselves out of this mess is going to require a cooperative approach, an approach that brings together the vision, skills, and resources

of business, government, labour, the R & D community, and the general public.

When setting a course of action, it is often useful to look at issues from a historical perspective. On December 9, 1986, at the Outlook Conference in Ottawa, the prime minister announced a \$1 billion relief package for western Canada, the first of several grain support programs. All of us who were there that afternoon realized that we had just reached a turning point in Canadian agriculture.

In 1980, we were living in a time of expanding trade, food scarcity, and prosperous farmers. None of us could have foreseen the period of rapid economic decline and mass uncertainty that would hit us six years later.

Looking back, we now know that the problem in 1986 was much bigger than just agriculture. In that year, Canadian manufacturing costs relative to the United States started to accelerate significantly. In 1988, manufacturing output stopped growing. And by 1989, over a year before the economy-wide recession began, manufacturing jobs began to disappear.

What we should have done in 1986 and what we have to do now is step back and look at the reality of today's problems within the context of tomorrow's opportunities. Sure our problems appear overpowering—adverse foreign policies, fragmented markets, surpluses, trade barriers, new competitors, more demanding customers, and the like—but look at the opportunities!: cost reduction through improved technology, import replacement, new markets, and new and value-added products.

As a nation, we have been very successful as traditional producers of timber, wheat, and minerals—in fact, world leaders. However, we should remember that our success was driven by three basic conditions, namely: a growing market, low input costs, and a focus on production and manufacturing efficiencies in order to be the least-cost producers.

Today's reality is that these conditions no longer exist. That was the case in 1986, and it still is in 1992. In order to survive in today's climate, we must realize that it is our knowledge and ingenuity that will be the mainstay of our future prosperity, rather than the conditions that created yesterday's success.

The first step is to agree that technology and marketing must be better integrated with production. By focusing more on the marketplace, we will identify new opportunities. However, successful exploitation of these opportunities will require ongoing commitment to developing the knowledge, information, and technology required to address a full range of questions. This will require that we become as effective at applying information and technology around market issues as we have been at applying them around production issues.

By doing this, we can shift our emphasis from commodities (someone

else's raw material) to our own value-added, technology-intensive products.

I would like to draw on an analogy from the business I am now in, the wood products industry. We used to think of wood as a commodity harvested from the forest—firewood, studs for construction, and so forth. Today, we have flipped the paradigm. We now look at the forest as a diversified source of fibre, fibre that we can process, transform, or reconstitute into an array of products made of wood or wood and non-wood component, all tailored to meet specific market needs. By thinking this way, we can approach the problem as a systems engineer would. He optimizes fibre-processing strategies by developing and integrating better knowledge of our forest resource with a more complete understanding of market opportunities.

Would this approach work in agriculture? Wheat in the bin is a resource, someone else's raw material. Why do we not get our added value by integrating that resource with technology, marketing, and processing strategies?

Today, as in 1986, we identify enabling technologies—biotechnology, informatics, and advance materials—as critical to our industrial strategy. In 1986, Canada was internationally recognized as a potential world leader in developing and applying biotechnology to agricultural problems. Indeed, Saskatoon was targeted as the future Silicon Valley of agricultural biotechnology. It was on this premise that the National Agriculture Biotechnology Initiative was developed.

Are the conditions that existed in 1986 any different today? I think not. The problems and opportunities we face today are the same ones we faced six years ago. What went wrong? I'll tell you what went wrong: we stood still while other industrial countries adjusted and adapted to the new economic realities.

Let us look a little more closely at the essential ingredients for success. All of you have read about them—in the Michael Porter report, the Economic Council of Canada's report released last week, the extensive documentation prepared by the government for the Prosperity Consultations, as well as in numerous newspaper articles. They all have the same message:

1. We have to invest. Over the last twenty years, we have been a nation of borrowers. We borrowed while other countries, like Japan, invested. They invested in knowledge through education, in training, and in science and technology. They invested in infrastructure—equipment, transportation, and communication. We borrowed; they invested. Who has progressed the most?
2. Public attitude has to change. As a country, Canada has increasingly chosen to avoid the more uncomfortable and stressful aspects of international competition. Maybe it is our aversion to risk-taking. This is

reflected in a reluctance to study science and engineering, innovate in industry (changing things is hard work), and invest in R & D (one of the most difficult functions to manage effectively whether in industry, university, or government laboratories).

Public attitude towards science and technology borders on apathy. Most Canadians tend to look at R & D as an activity we indulge in when times are good rather than an indispensable ingredient of wealth creation.

3. Partnerships must be forged. In pursuing the new reality, the costs and risks will be high, but they are manageable if we take a cooperative approach, an approach that brings together the vision, skills, and resources of both industry and government. Look at the successful trading nations—Germany, Japan, Sweden—where business, government, and labour work very closely together. How well have we done as a nation? Are we still pointing the finger and blaming the other fellow?
4. A shared vision must be developed. This brings me to the last, and probably the most essential, factor for success: developing a shared vision of where we want to go. Developing some sense of common purpose is the one hope Canada has of competing successfully in world markets. The vision has to come from you. You have to develop it and own it.

Earlier, I said we had to "get back to basics." Most of you here either cut your teeth during the depression or have parents who did. You were brought up with a strong belief that land and education were important investments, to be passed on to the next generation. Knowledge, the mother of innovation, sometimes was put back into the land to enhance that investment, or it was carried out of the province and put to use in other parts of Canada.

Over the past fifty years, Saskatchewan has developed a knowledge base of some considerable strength, indeed, a base well out of proportion to the population and industrial infrastructure of the province. Two respected universities, a solid school system, several major research institutes and stations, and the technical knowledge associated with several major industries—potash, agriculture, uranium, oil—provide the base for future development.

What about taking risk? Certainly, risk-taking is no stranger to anyone who has ever farmed or managed a business in Saskatchewan. When you take risk, you quickly learn how to manage it—through partnerships, cooperatives, and the like. The cooperative movement on the prairies grew out of that need.

As you can see, most of the essential ingredients are already deeply rooted in Saskatchewan—these same values turned this prairie into productive agricultural land sixty years ago. Perhaps we have become a little complacent

over the years. It's time to get back to basics.

I would like to quote the introductory paragraph of *Made in Japan*, a book written by Akio Morita, president of the Sony Corporation:

We Japanese are obsessed with survival. Every day, literally, the earth beneath our feet trembles. We live our daily lives on these volcanic islands with the constant threat not only of a major earthquake, but also of typhoons, tidal waves, savage snowstorms, spring deluges. Our islands provide us with almost no raw materials except water, and less than a quarter of our land is livable or arable. Therefore, what we have is precious to us. And that is why we learned to respect nature, to conserve, to miniaturize, and to look toward technology as a means of helping us survive.

Quite a vision, and one shared by every member of Japanese society. A pity we did not read this when it was published in 1986.

The lesson is straightforward—get back to basics. The need is greater now than ever before.

Let us not, however, fool ourselves: there are gaps to fill. The first gap is vision and leadership. We rely too much on government to do it all; vision and leadership have to come from within. Canada is like a parade. We are all marching along very happily, then suddenly the leader stops. Now all of us are milling around waiting for somebody to take charge. I ask you, who, if not you, can take charge?

Competitiveness and the underlying policy issues are beyond the capacity of government to manage on its own. Nobody, including government, has all the answers or enough money to do it all any more.

If you don't believe me, think back to the National Energy Program and Scientific Research Tax Credits, to name just two. Those public policy debacles managed to pour billions of tax dollars down the drain, to cripple investment and industry growth, and to alienate huge sections of the population. The common thread running through each of these misadventures in public policy was that they were designed, albeit by dedicated, intelligent, and well-intentioned people, in a vacuum. The fact is, no matter how brilliant people are or how hard they work, you simply can't design effective policy or deliver the appropriate goods or services if you are out of touch with your client and the external environment.

This underlies some of the problems we have with regulatory policies, registration practices, and the current tax credit program for research and development. We offer the richest R & D tax incentives among the ten top industrial nations, but it's far from user-friendly. Most of Forintek's 170 member companies cannot be bothered to use the tax credit program. They find it unnecessarily complex, and the definition of scientific research is ambiguous.

I learned my lesson on public policy through hands-on experience. In 1986, the government wanted to include a longer-term investment component with the Special Grains Program. We were asked to put together a package on R & D. We came up with the National Agricultural Biotechnology Initiative (NABI), a \$50 million program to assist small western Canadian businesses in developing and exploiting agricultural biotechnology in the agri-food sector. Because of the short time-frame, consultation was minimal.

Two years later, I came to Saskatoon to head up the Western Diversification Office. To my distress, I found that western industry was not using the National Agricultural Biotechnology Initiative. Less than \$1 million had been taken up by industry between 1986 and 1988.

NABI is another example of a program designed in Ottawa without sufficient consultation with the end-user. Fortunately, we were able to correct the deficiencies in the program, and as a result, the level of uptake today is a lot more respectable.

In contrast, the development of the International Centre of Agriculture Science and Technology initiative was done the right way. All the stakeholders were involved, and, most importantly, it was led by the private sector. Industry took on very strong ownership and governments demonstrated their commitment. It will be a certain winner, provided the R & D community gets fully on board.

ICAST is an alliance of all of the players in the agri-food industry—farmers, industry, government, and institutions. Its vision is to provide an industry-driven process through networking. ICAST will champion useful, commercial, competitive agriculture, food and related productions, technology, and information. It's a great start. Get on board, take ownership, and help to further shape that vision.

The messages are clear:

- Public policy development is critical to the revitalization of our economy. Get involved.
- Vision and leadership must come locally. Don't expect government to have all the solutions to your problems.

Do not misunderstand me: Government has a role to play, but it is not as the leader, director, organizer, financier, and decision-maker for the industry's future. Government is a partner, there to help manage the risk.

Another gap relates to how we deal with our customers. We have to get closer to the marketplace, and the marketplace is outside of Saskatchewan. All of us have heard the expression "know your markets, listen to your customers, anticipate their needs." To do this, we will have to change some of our institutions. While very successful in the past, they don't answer the needs of today. For example, can you name one industrial sector, anywhere,

where the government sits between the producer and the customer? The only one I know of is agriculture. Don't get me wrong: I am not saying that we should discard all of these institutions; they still possess many attributes that can be useful today. But let's modify them, adapt them to fit our needs, our vision.

This leads me to the last point: Government institutions can and will adapt to change, but do not expect them to lead that change. They will only respond to demand. Set your vision, know where you are going, identify your needs, then ask government to work with you to help you get there. A start could be more user-friendly tax credit incentives, focused R & D to meet your needs, regulatory policies and registration practices that support rather than impede, and effective assistance in market access and development.

I was with Agriculture Canada for twenty years; I know the people and I know the culture. Ask them; they want to help. And for the few that do not respond in an appropriate and timely way, the message is simple: "Work with us or get the hell out of the way."

I hope I have made my point. The next step is yours.