POLLARA AND EARNSCLIFFE

PUBLIC OPINION RESEARCH INTO BIOTECHNOLOGY ISSUES FOURTH WAVE

EXECUTIVE SUMMARY

Presented to the Biotechnology Assistant Deputy Minister Coordinating Committee (BACC), Government of Canada

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Earnscliffe RESEARCH & COMMUNICATIONS
46 Elgin Street, Suite 200, Ottawa, Ontario, Canada K1P 5K6

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Prepared for the Biotechnology Assistant Deputy Minister Coordinating Committee, Government of Canada, by Pollara Research and Earnscliffe Research and Communications.

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Introduction

Earnscliffe Research and Communications is pleased to present this report on a public opinion research program conducted in the winter of 2001 for the Assistant Deputy Minister Coordinating Committee (BACC). This was the fourth wave of a series that began in the fall of 1999. This wave was comprised of two separate instruments:

- a telephone survey of 1200 Canadians;
- eight focus groups designed to support the survey.

The research investigated a number of key tracking issues related to stewardship and benefits. In addition, this wave of research placed significant focus on communications issues – messages and themes both in relation to the technology and in relation to government's role in this field.

The research was designed to accomplish two major objectives:

- to track sentiment on a range of biotechnology issues, using a baseline of data developed in previous waves of research; and
- to assess communications messages and information in aid of developing communications strategies.

The research probed a number of areas of investigation in order to develop a comprehensive analysis of current opinion on biotechnology. The areas included:

- overall awareness and familiarity;
- perceived risks, benefits and drawbacks;
- assessments of government performance in biotechnology, and preferred roles and future priorities for government;
- the testing of communications materials and information.

The telephone work began on March 15, 2001, and ended on March 24, 2001. The survey reports on the views of a random sample of 1200 Canadians and carries a margin of error for the national sample of +/- 2.8%, nineteen times out of twenty.

Four nights of focus groups (eight groups in all) were conducted in Montreal, Toronto, Vancouver and Halifax between March 26 and March 29, 2001.

The research followed a set agenda for discussion and was designed to probe in more detail opinion underlying the results of the telephone survey. Each night involved a group of approximately ten participants drawn from the general population and a group of similar size comprised of *Involved Canadians*, our proprietary population segmentation of Canadians who are significantly more interested and involved in public policy issues.

Further information can be obtained from Pollara or Earnscliffe Research and Communications. Please contact either of the following at our offices, (613) 233-8080, or via e-mail:

Elly Alboim (elly@earnscliffe.ca)
Jeff Walker (jwalker@earnscliffe.ca)
Don Guy (dguy@pollara.ca)

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EXECUTIVE SUMMARY

Awareness, Familiarity and Interest

Biotechnology is a subject that has become a firmer part of the Canadian public consciousness over the past two years. A majority of Canadians report hearing and talking about biotechnology in recent months, although the growth in the number doing so has leveled off following significant increases over the past two waves of research.

In spite of these growing levels of awareness, there remain relatively low reported levels of familiarity with and interest in the issue. That being said, in focus groups, Canadians, particularly Involved Canadians, suggest that they have noticed increasing volumes of media coverage. Those who are interested in this subject show deeper knowledge in discussion than they have in previous waves of research.

Consistent with previous research, most people associate biotechnology with health and medical benefits, or with GM food. There remains minimal awareness of forestry or environmental applications like biomass energy. There is also virtually no awareness of the size and importance of the biotechnology industry in Canada. Most people are surprised to hear about some of the research breakthroughs with which Canadian biotech scientists have been involved.

Top-of-Mind Disposition – Support and Opposition

Slightly fewer than two out of three Canadians express support for biotechnology, a level equal to that found in the previous wave of research in September 2000. The survey data reveals that the vast majority of both supporters and opposers of the technology express their sentiments with little intensity – few report strong support or strong opposition. Our experience suggests that while, in part, this is a product of a lack of interest in these technologies (usually among the general public), among those with higher levels of awareness (usually Involved Canadians) it is often a product of internal conflicts about the benefits and risks that these technologies bring, and an attendant unwillingness to offer a blanket acceptance or rejection of the technology. Segments of the population that tend to be more supportive of biotechnology include men, as well as those with higher levels of income and education. Segments that tend to be less supportive include older Canadians, those with lower levels of education and income, and

women. Our research indicates that women tend to express more concern about risk than men, which affects their willingness to accept many applications.

This wave of research confirms the assessment made following last September's research that as Canadians become more aware of biotechnology, they are less willing to make blanket assessments (either positive or negative) about it. With higher levels of awareness, views become more nuanced, and often come with qualifications, reflecting consideration of the numerous benefits and risks that surround biotechnology and its applications. In focus group discussions, it usually becomes clearly evident that most people are torn in their views toward biotechnology, as they seek to reap the potential benefits but remain wary of the potential risks.

Biotechnology Applications

The vast majority of Canadians resist offering systemic views on biotechnology applications. Most people evaluate each application on its individual merits, employing a core analytical framework to assess applications on a case-by-case basis. That framework involves an implicit risk/benefit calculation, with the net conclusion depending on the assessment of the marginal personal benefit conveyed by the application. In simple terms, the larger and more personal the anticipated benefit, the more acceptable the risk and the higher the level of support for a given application. The more intrusive the application, the higher the life form it involves and the larger the degree to which the application crosses boundaries separating plants, animals and humans, the larger the perceived risk. Human gene modification is the most problematic concept for most people and requires the largest set of expressed benefits to render it acceptable. Central to understanding the risk/benefit analysis of applications that most people carry out is that the *purpose* of the application is a key positive driver, and the *process* of creating the application is a key negative driver.

As has been found in all previous waves of biotechnology research, health and medical applications are the most positively received, and GM foods are the least. Environmental applications remain virtually unknown. Upon discussion, it is clear that people are receptive to the benefits case for environmental applications, particularly in areas like bio-remediation, but there is some concern about the risks of environmental biotechnology agents ending up in the water supply or food chain. The results suggest the need for comprehensive research into ecosystem impacts of these applications. Our assessment is that extensive scientific research will be a quid pro quo for public acceptability of applications in the environmental field.

Two new biotech applications were tested in focus groups during this wave of research. The first was the stimulation of insulin production to treat sufferers of Type 1 Diabetes, through the introduction of modified genes into the pancreas. This application was widely deemed acceptable because of the substantial benefit that this technology promised to those who suffer from the disease. The second, which involves the growth and use of biomass energy products, was generally found to be appealing, although those who tend to be most concerned about biotechnology often raised questions about the risks to the surrounding ecosystems.

Risk

As we have suggested in previous waves of research, assessments of risk and in particular risk/benefit ratios are central to understanding public attitudes toward biotechnology. Among the most notable findings garnered in previous waves of research is a strong correlation between the uncertainty people carry about biotechnology and its long-term risk and their demand for government stewardship. Because of its importance, each research wave has probed the risk issue to ensure the phenomenon is thoroughly understood. In general, the results have been quite consistent.

- The more significant the benefit (health/medicine being the most powerful), the more acceptable the risk.
- In virtually every formulation, there is a quite small percentage of people who *strongly* disagree (the best indicator of settled negative opinion) with proceeding to reap the benefits of biotech despite the risks.

This survey tracked a number of issues involving risk. Much of this work involved investigating various risk/benefit equations. The findings suggest that there has been some movement toward the center, with people expressing more equivocal views toward the issues, and in particular greater consideration of issues relating to risk. That being said, the net risk/benefit equation for most people remains positive – while fewer express extreme views, the overall proportions in agreement with the risk/benefit propositions in the survey remain similar to results found in previous waves of research.

The most prevalent negative driver in the realm of biotechnology is rooted in concern about long-term risks and unknowable outcomes that these technologies may produce. In particular, potential long-term risks to human health and the environment are what concern Canadians most. Absent consideration of

benefits, the presentation of these risks drives many people to resist the technology.

At the same time, people recognize that there are important benefits to be accrued from these technologies and that some level of risk has to be taken in order to gain them. This research illustrates this finding in two ways. First, when risk statements are posed to respondents, accompanied by mention of the potential benefits (especially health benefits), a majority are drawn to agree that the benefits outweigh the risks. Second, people resist the idea that because of the potential risks, these technologies should be stopped altogether or governments should completely ban their use. It appears that these technologies are closely linked to people's conceptions about human progress, and the benefits that progress brings. The idea of banning a technology altogether strikes many as an unreasonably radical measure.

In reality, most Canadians express a sense of inevitability about biotechnology, coupled with a strong sense that risk is pervasive in modern society and that managing risk in biotech, as in other fields, is about as much as can be expected. Ultimately, the risk most are willing to accept is best characterized as calculated risk, that is, taken with the view of realizing a substantial benefit and with a keen eye on managing the potential downsides. Our assessment is that some degree of risk is acceptable to Canadians, but only in the contexts of substantial benefit and diligent government stewardship.

The case for biotechnology applications is most widely compelling to Canadians when it is built on science. This finding has been noted consistently in both surveys and focus groups since Earnscliffe and Pollara have been conducting research for the Government of Canada. The wide majority tends to be reluctant to accept arguments based on fear or emotion. Ultimately, if an application is deemed safe by the "best available" scientific research, and is monitored over time through diligent government surveillance and ongoing research, the test for acceptability has been met.

Federal Government Performance, Priorities and Roles

Survey results suggest that the public assessment of the federal government's performance in biotechnology remains weak. Focus group discussions indicate that there are four drivers of these assessments. First, performance is linked to a general malaise with government, evidenced in data collected by Earnscliffe/Pollara and others over the past decade. Second, there is virtually no understanding or knowledge of the government's biotechnology policy or

regulations, leading many to assume that little is being done. Another key factor has to do with perceptions about how well government studies risks, particularly long-term risks, and how well it is able to keep up with innovations in products as well as methods of testing and evaluation. Finally, some express concern that government cutbacks have eroded the effectiveness of the regulatory system.

In most focus groups (even among Involved Canadians) only after prompting did some suggest that the government probably has rules governing what kinds of safety tests products must meet, but none knew at any level of detail what those rules consisted of.

However, when asked about whether they feel safe about health and/or food products and the respective product approval processes, attitudes were much different – people were much more positive. Indeed, the vast majority suggested that they feel confident in Canadian product safety approval processes. In particular, a majority feel that food on grocery store shelves is safe, with the exception of the "core" opposers of biotech and GM food (about 10-15% of the population) who express significant concern about whether food on shelves is safe.

For those who expressed skepticism, a very consistent view emerged on what would improve their confidence: the integration of independent verification of research by scientists outside government (at universities, possibly from other countries), contracted by government to provide a secondary "check" on research.

When asked how Canada's regulatory system compares to systems in other countries, most believe that Canada's regulatory and safety system, particularly in the area of health, is probably the same or better than that of other industrialized nations. Most often, these views are based not on any knowledge about what the standards and practices are regarding biotechnology, but on positive associations people have with Health Canada on other issues. Of note, many cite the drug approval process as a reference point for their assessments of biotechnology products, and assert that those processes are quite stringent, leading them to suggest that biotech approval processes probably are as well.

In terms of government priorities, while a majority suggest that government is currently pursuing an equal balance between promotion and stewardship of biotechnology, respondents expressed fairly clear views about what the government roles *should* be. Most believe that the government should place greater emphasis on stewardship, and must regulate aggressively to ensure

product safety, with a strong focus on research into long-term health and environmental impacts.

There is continuing broad support for a two-track policy approach which includes a strong regulatory and scientific oversight system for long-term surveillance and research, in concert with measures designed to foster the development of the technology and the industry. People don't see stewardship and promotion as a "zero-sum" game – both can and should be pursued, but primacy is assigned to the stewardship function because the technology is seen to so materially affect people's lives.

Moreover, a fairly universal consensus has emerged that GM products are different than other products and should be subject to higher standards and more comprehensive research and testing. Finally, Canadians also believe the federal government should make it a priority to collaborate with other countries on biotechnology, particularly in the areas of safety and regulation.

Economic support to industry was deemed important, but less important than safety regulations and research into long-term health and environmental impacts. Nevertheless, Canadians very much want government to ensure they reap the benefits of what they see as truly important scientific breakthroughs, particularly in health and medicine. They also want to ensure that Canada is at the forefront of scientific research internationally because of the economic benefits it can bring, and because it can help to address perceptions of a "brain drain" of bright young Canadians to other countries.

The Innovation Agenda and Government's Support Role

In this wave of research, Earnscliffe/Pollara investigated in some detail government's support role to the sector, and in particular the relationship between its Innovation Agenda and biotech.

Only a handful of respondents initially had a sense that the government plays a role in facilitating the development of industries like biotech and being involved in an "innovation agenda." In general, those who indicate some unprompted awareness of this tend to be those most concerned about it, worried that government might be, and might become further beholden to, corporate interests. Upon discussion, others were more supportive of the role in general, and a clear majority accepted that a government-driven innovation agenda can reap benefits for Canadians. People tended to believe that government support would hasten the maturing of the industry.

After discussion (and prompted by the rationale outlined in the moderator's guide, which attempted to draw a parallel between support to the information technology industry and biotech), more were convinced that an innovation agenda should be a government priority.

Aspects of the Innovation Agenda that tend to drive higher levels of acceptance of the importance of this role for government (in descending order of importance) included:

- The ability to link Innovation Agenda resources with university labs and researchers
- The ability to develop new research techniques to evaluate the safety and effectiveness of biotech products (through universities as well as government)
- Concerns about a "brain drain" of young people to the United States
- The idea that government support might facilitate access to products faster
- The importance of high technology as a creater of value-added jobs – especially among Involved Canadians, but less so among the general public, who express concern that those jobs will leave them behind

Decision Making

The vast majority of Canadians continue to believe strongly that science should be the primary guide to decision making about biotechnology applications. While many people do see biotechnology as having moral or ethical dimensions that have to be considered (particularly in the area of human applications), health and environmental impacts are the key drivers of concern about most applications.

This wave of research indicates a growing sense among Canadians that experts must be chiefly involved in assessing the merits of biotechnology products. Many, particularly those in the Involved Canadians segment, suggested that it must be experts, rather than the general public, that ultimately make decisions about these products. One proposition that was raised in several groups (and that gained widespread acceptance) is the idea of involvement of experts from both inside and outside government (ideally at universities), both to ensure that the most rigorous modern processes are being used to evaluate the products, and to provide a check against corporate influence over the evaluation process.

GM Food

In spite of continued high awareness of GM food, the GM food debate still has not catalyzed opinion negatively in Canada. The vast majority of survey and focus group participants believe that food on grocery shelves is safe and has been tested by government. While some indicate concern about these foods when asked, this concern is often driven as much by questions about why people haven't been offered a choice about purchasing these foods, as it is by questions about whether the foods themselves should be on the shelves.

This remains the case in spite of increasing awareness that a wide variety of processed foods contain GM ingredients.

There continues to be a widespread assumption that the long-term risk of GM food ingredients cannot possibly be understood yet. Few people are willing to say categorically that they will not consume food with GM ingredients. In part, that is because despite the long-term uncertainty, few believe there are current safety concerns -- they haven't heard anything about sickness or other negative consequences.

GM Food Labeling

After discussion of GM food and food safety issues, the focus groups investigated options for GM food labeling. Participants were asked for initial reactions to the idea of labeling, and then in turn, respondents were provided with a brief overview of some of the considerations involved in creating a national labeling system for GM food. Following that, they were provided with the most likely labeling options and asked to discuss the pros and cons of each.

At first blush, almost to a person, people strongly advocated an "informed choice" approach to GM foods, which necessitates some form of labeling. As long as the science is sound, most people feel that the purchase of GM food should be up to each individual. Most people initially regarded labeling as a simple issue that required little consideration because freedom of choice was the overriding principle. Most were quite perplexed to find that there are a number of potentially difficult policy issues involved.

After discussion of some of the considerations involved in labeling, among those least concerned or indifferent about GM foods, the extra cost or other potentially difficult consequences of labeling were sufficient to make them neutral on the issue. However, for everyone else, segregating food at the farm level, and the

costs that might impose on the system, were dismissed, especially by Involved Canadians. Some suggested that that this was "the cost of doing business" in biotech food. Similarly, the argument that labeling might frighten people from buying did not resonate; it was seen to imply a paternalistic distrust of Canadians' good judgement.

The one issue that tended to garner the highest level of consideration by respondents involved how a labeling system would affect Canada's trading relationships in food – in particular their access to imported food products if those products were not allowed in Canada (because they would n't be labeled.)

Ultimately, after discussion of these considerations, most people remained fairly steadfast in their belief that a GM food labeling system was required in Canada.

Respondents were then taken through a number of possibilities for the labels themselves. Again, it was quite clear that most people had never given the issue any thought at all and were surprised that there could be so much complexity in something that appeared at first to be quite simple. After discussion, the results were consistent across groups, with the following results:

- Labeling the process. The issue once again reduces itself to the question of risk. Most people believe most previous forms of genetic modification have proven themselves to be safe. So participants overwhelmingly chose a narrowly defined option – labeling products whose ingredients have been modified only by the latest and most intrusive forms of genetic engineering.

- Trace ingredients. Most participants believed that allowing a trace of GM ingredients was more practical than insisting on 100% purity – as long as the threshold was low and commonly accepted.

- GM or GM free. Perhaps surprisingly, this was the one area where there was virtually even split opinion. In major part that was because few (other than determined opponents of GM foods) could see much practical difference to them as consumers. They seemed to equate the issue with labels that currently say: "may contain peanuts" -- they said no one with an allergy would take the chance of eating these kinds of products but that it was largely an irrelevancy to most others. And in that analogy, "does not contain peanuts" would serve the same purpose, they said. In fact, they thought "may contain" might be slightly more helpful as an affirmative statement to those with concerns.

Communications Issues

This wave of research focused significant attention on communications issues associated with biotechnology. Three areas of communications testing were carried out – argumentation, both positive and negative, toward biotechnology in general; messages about government actions and priorities; and the associations people have with some overarching "brand" labels for the technology.

Three overarching "brand" words and phrases – biotechnology, life sciences and genomics – were tested.

- "Genomics" was not a phrase that is widely known, and among those that have some sense of the word and its connection to biotech, conceptual understandings tend to revolve around more invasive human applications and some of the negative aspects of the technology.

- While in the survey the phrase "life sciences" evoked positive sentiment, focus group research provided further insight. While it certainly received positive reaction, it did not connect at all with the field of biotechnology. It s a phrase that people see very broadly associated with science in general rather than biotech in particular. When asked whether it described biotechnology, many suggested that it did not, and some suggested that it might be used as a word to "spin" the public into making the field more acceptable.

- An increasing majority of Canadians have a positive connotation of "biotechnology." Moreover, it was very clear in the focus groups that biotechnology was the most appropriate word to associate with these technologies, both because it carries the appropriate meaning and because it does not possess negative connotations for most people.

The main findings in the area of argumentation about biotechnology are as follows.

Positive arguments that involve health benefits and unlocking "the mysteries of life" were the strongest tested in this wave of research. Canadians clearly see these ideas as the most important, and most compelling benefits of the technology. Arguments involving discussion of environmental product benefits are also quite strong, although much less strong than the "mysteries of life" benefits. Arguments that discuss economic benefits alone tend to be less resonant. Of note, arguments that illustrate some of the potential downsides of

not embracing these technologies were met with similar levels of lukewarm interest, with one notable exception – preventing the brain drain. Preventing the brain drain was found to be an issue of significant concern to many Canadians and a driver of support for biotechnology research in Canada.

On the negative side, several arguments resonate with moderate levels of strength. Of note, the idea of a scientist's mistake causing a serious problem touched a nerve among a significant number. Argumentation about upsetting the ecosystem balance is also resonant, especially the ability of certain pests to grow more resilient as a result of pest resistance modified into crops.

However, both survey and focus group findings indicate that the positive arguments surrounding the mysteries of life and resulting health and environmental benefits of these discoveries remain stronger than the negative arguments. These kinds of arguments tap into people's underlying sense that biotechnology may provide society with incredible medical breakthroughs.

In terms of potential government communications, information that made reference to stewardship was most interesting to respondents. Among those individuals generally predisposed to support biotechnology, the stewardship messages tended to reassure them that government was executing its role appropriately. Those who tend to hold mixed views and those who tend to oppose these technologies found many of the stewardship-related messages less appealing, sometimes because the words were not appropriate but more often because they needed to hear more detail in order to feel more comfortably about the government role. In general, people were interested in hearing more detail about the kinds of efforts being made to ensure that stewardship was being carried out appropriately, including the scientific research studies themselves. The expression of information or assurances of safety without reference to more detailed facts and figures are not likely to positively influence the views of those with mixed or negative views toward the technology.

Communications that focused on the government role in harnessing economic benefits tended not to resonate as strongly among survey or focus group respondents. While this should not suggest that these kinds of messages will have negative impact, they simply are not as important to the respondents as the messages relating to stewardship.

Information about government programs to monitor long-term effects on human health and the environment of biotechnology applications was widely appealing to respondents. The idea of a "surveillance system" in particular was something that was attractive and appealing to many. However, the idea that Canada is "working

toward" these objectives often raised significant questions about how capable government is at keeping up with the evolution of these technologies.

The current government approach to biotechnology continues to be accepted by a wide majority of Canadians. Almost nine in ten agree that "the primary role of government in this field is to gain the benefits while managing the risks," suggesting that gaining the benefits is an acceptable and appropriate objective to strive for, as long as stewardship is diligently pursued.

Conclusion

This wave of research marks another key point in the evolution of opinion trends associated with biotechnology and provides insights into several emerging issues. Although there remain low levels of familiarity and interest among the general population, the deepening of awareness, coupled with extensive media coverage, has had an impact in the depth of knowledge that interested people, particularly Involved Canadians, have with these technologies. This growth in knowledge has moderated views, evidenced by a movement away from extreme positions and toward the centre of the opinion spectrum. However, it has not catalyzed opinion either for or against the technology. While assessments are made on a case-by-case basis, overall, twice as many Canadians support the development of these technologies as oppose them. In the absence of awareness of clear benefits, opposition increases but awareness of benefits and risk provisions increases support. Scientific evidence is a key driver of attitudes, as is the principle of informed choice. While very few are willing to ban most of these products because they believe in individual choice, people believe they have a right to know the contents of the products they purchase and consume.

Print copies of the full report in English are available from:

Canadian Biotechnology Secretariat
Government of Canada
Room 561E, West Tower
240 Sparks Street, 5th Floor
Ottawa, Ontario
K1A OH5
Tel: (613) 957-1276
Fax: (613) 941-5533
Website: biotech.gc.ca