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Labelling Policy for GM Foods: Pragmatism in Action or Policy Failure?

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The Issue

Public wariness of genetically modified (GM) foods has led many nations to develop labelling policies for foods derived from modern agricultural biotechnology. In most cases mandatory labelling has been specified. In contrast, voluntary labelling is the chosen policy approach for the United States and Canada. Detailed regulations to enable a voluntary labelling policy to become effective in Canada have been time-consuming to develop. An even longer period of time has applied in the case of unsuccessful efforts to develop consensus standards for GM food labelling at the international level, through the processes of Codex Alimentarius.

Implications and Conclusions

The U.S. adoption of a voluntary labelling policy reflects political and economic influences on public choice for the world's largest producer and exporter of GM food. The similar Canadian choice reflects similar influences and the pressures of being a small trading country that is highly dependent on the U.S. market. The differences in incentives and economic effects of the voluntary labelling approach, adopted by major producers of GM food crops (specifically, the United States, Canada and Argentina), and mandatory GM labelling, widely adopted elsewhere, reflect a policy dichotomy that is a

cause of major dispute in international agricultural trade. Differences in incentives and costs for the two labelling systems, the complexities in defining a labelling standard, and the strengths of the values and beliefs that underlie the attitudes of some people to GM food, explain lags in development of a Canadian labelling standard and the stalemated process to achieve international consensus on GM food labelling.

Background

For several years there has been increasing public awareness and discussion of appropriate public policies for screening, approval and commercialization of GM foods. Major themes of this discourse include three main sets of concerns about GM food: possible food safety issues; potential environmental impacts; and ethical/social issues. The latter focus on such concerns as the nature and distribution of potential benefits and costs of GM foods, the role and influence of transnational firms in defining national food policy and patenting genetic material, the extent to which science should be applied to modify nature relative to food, and the rights of individuals to be able to make informed choices about food. Ethical/social issues are increasingly rcognized to be important to many people and to underlie much of the focus on GM labelling.

Many countries have decided to adopt mandatory labelling policies for foods derived from modern agricultural biotechnology. This position had been announced for some 26 nations, plus the European Union, by August 2001 (Phillips and McNeil, 2002). In contrast, Canada followed the United States in adopting a policy of voluntary labelling for GM foods, except in cases of appreciable changes in composition, nutritional value or intended use, when labelling is required. For either of theses labelling policies to be effective, truthful, verifiable, and not misleading, a standard for labelling is required that includes specifications for product and claim characteristics and verification.

Underlying Economic Theory and Public Choice Issues for GM Food Labelling

Economic theory regarding information associated with product labelling recognizes that information is costly to acquire, is often imperfect, and may be asymmetrically distributed. This is the basis of the categorization of goods into search goods, experience goods and credence goods. For a search good, product quality is known before purchase, but for an experience good, quality is not known until after purchase and use. For a credence good, quality is not evident, even after purchase and consumption. Foods claiming to contain or not contain GM ingredients are credence goods.

There are problems of asymmetry in information between buyers and sellers of experience and credence goods. As demonstrated by Akerlof (1970), this can lead to adverse selection, moral hazard, quality deterioration and market failure. Remedies may include establishing minimum quality standards (Leland, 1979). Incentives that firms may

have to invest in increased quality include enhanced reputation, enhanced consumer loyalty, and the ability to attract quality premiums (Shapiro, 1983). Identity preservation systems, backed by credible audit and certification procedures, targeted at high-quality products and market segments for which this is remunerative, may be developed. Labelling and other marketing strategies may be used to signal quality reputation. Regulatory policy is also applied to many issues of food safety as a mechanism to alleviate problems of market failures from asymmetric and imperfect information and in response to public-good characteristics of food safety. Regulation to limit misleading information also generally applies to food labelling.

Labelling Costs and Incentives for GM Food

Motivations and incentives for labelling differ for beneficial versus detrimental credence attributes, and these are affected by the type of labelling policy adopted. In a voluntary labelling regime, sellers of a good with beneficial attributes of enhanced food quality or safety have incentives to make "positive" label statements claiming the presence of the attribute if there is an expectation of consumers' willingness to pay for this and if the expected added revenue from the claim exceeds the costs of the claim. However, in a voluntary labelling regime there is neither a requirement nor an incentive for label disclosure information about a detrimental quality characteristic.

Rather than being seen as a beneficial credence attribute, GM food is viewed by many consumers as an undesirable attribute. This view has been criticized by some scientists and industry members. Nonetheless, numbers of consumers express wariness of GM food: the introduction of GM food is not seen to have arisen from the requests of consumers and does not provide conclusive consumer benefits of improved quality and safety; GM food is viewed by some to be new, different and without demonstrated long-term evidence of safe use; its introduction and use appear to benefit mainly large corporations and farmers and reflect their interests, rather than the public interest; and its production may introduce unintended and irreversible genetic changes in the surrounding environment. Wariness is heightened by the familiarity and availability of non-GM foods and the view that these have a long history of safe use.

Although this may change for future "second generation" GM foods that have direct consumer benefits, currently there are expectations of adverse market impacts and price discounts for GM food products if disclosure is required. However, in a voluntary labelling regime, there are incentives for "negative" label claims, such as "this product does not contain GM ingredients", as long as the benefit from making the claim exceeds its cost. There are similar potential benefits from negative content claims in a mandatory labelling regime, but in such a case discounts for food items for which GM content labelling is mandated are also expected; these discounts would not apply in a voluntary labelling regime, where disclosure of GM content per se is not required. Further, in a

voluntary labelling regime, most of the costs of making negative ("no GM content") claims will ultimately fall on consumers of the labelled products.

Subject to the availability of substitutes, with mandatory labelling, GM food producers expect to face lower demand and lower prices. Costs of identity preservation are required for negative statements ("no GM content") in each labelling regime. These include costs of segregation, testing, related verification and documentation, in addition to risk premiums reflecting the costs of liability and lost reputation consequent on accidental contamination of the labelled item.

Economic, Political and Social Pressures on GM Labelling Policies

The nature, possible magnitude and incidence of costs associated with labelling have influenced stakeholders and their lobbying activities relative to labelling policy. Some expectations of the relative economic benefits and costs of GM labelling can be delineated. First, the nature of the standard governing the specification of GM versus non-GM labels will influence the costs of food labelling. Second, the distribution of the costs of labelling between producers and consumers (and between producers of GM versus non-GM food) will be influenced by the characteristics of demand and supply that apply for GM and non-GM food. Further, as implied above, the distribution of labelling costs between producers of GM versus non-GM food will be fundamentally affected by the chosen labelling regime. Irrespective of which GM labelling regime applies, the specification of a labelling standard includes some basic but contentious issues which affect the cost of labelling. These include the determination of threshold levels for label declarations, whether labelling is to apply to foods derived from GM procedures or to foods with GM content, and other features of wording and exclusions.

"Threshold" GM content levels specify maximum levels of accidental ("adventitious") contamination that are allowable, whether in a mandatory labelling regime or for a voluntary negative labelling claim. (Thresholds for specification of minimum content required for positively stated GM content claims would also be necessary for any beneficial GM product in a voluntary labelling regime.) Although zero content of accidental GM contamination (in effect, requiring no detectable level of contamination) has been suggested as the basis for exemption from mandatory labelling of GM content and for negative labelling claims, this is generally recognized to be unrealistic. *De minimus* adventitious contamination levels, ranging from less than 1 percent up to 5 percent, apply in labelling standards developed in different nations. These thresholds typically apply to contamination by licensed GM products.[2] The more stringent is the threshold standard for accidental contamination, the higher are costs of segregation and identity preservation. There is evidence that these costs can increase appreciably as lower threshold levels are specified (Huygen, Lerohl and Veeman, 2003).

Another major issue related to GM labelling is whether the definition of GM food is based on detectable GM content (described by "contains GM product"), versus definitions that are entirely process based ("derived by GM processes"). This distinction arises since the modified plant protein of some GM crops is removed in food processing to yield refined edible oil (as with canola, soybean or cottonseed oils) or syrup (corn syrup). With no scientific basis to detect GM content in these highly refined products, they have commonly either been excluded from the definition of GM food or exempted from labelling requirements.[3] In the Canadian context, the distinction between "content" and "process" GM labelling standards is of particular interest to canola producers.

Additional issues of definition include thresholds for individual minor GM components of mixed or prepared foods; exclusion or inclusion of GM-derived enzymes, food processing aids and additives; whether meat derived from animals fed GM-based livestock feedstuffs is included in the definition of GM food; and whether restaurant meals are exempted.[4] Each issue involves varied interests of different stakeholders.

Introducing a GM Labelling Standard for Canada

There is much variation in the details of GM labelling specifications internationally, reflecting pressures of different stakeholders' interests in different nations and the associated complexities of interest trade-offs. The complexity of standard definition is in itself a potential source of confusion to consumers (Einsiedel, 2000). This complexity, and the conflicting interests of different stakeholders, contributed to the lengthiness of the process for consensus on a Canadian standard; the standard will provide for both positive and negative voluntary labelling claims.

The decision by the federal government to adopt voluntary labelling for GM food reflects two major influences on domestic food quality standards: Canada's role as a producer and exporter, rather than mainly as an importer, of GM food and food ingredients; and the decision of the United States, Canada's major trading partner, to adopt a voluntary labelling policy. The U.S. decision not to require GM labelling, except in cases of food safety concerns, dates from 1992 (Belson, 2000). In 2001, the Food and Drug Administration of the United States posted a draft document to guide voluntary GM labelling claims in that country (U.S. FDA, 2001).[5]

Canadian work on a detailed standard to enable voluntary labelling claims for GM food began in 1999. Responsibility for this activity was given to a joint committee of the Canadian General Standards Board (CGSB) and the Canadian Council of Grocery Distributors. Some 54 voting representatives were named from farm groups, the food industry (processors, importers/exporters, retailers) and consumers, representing producers, users and general interests. A larger number of observers reflected widespread general interest. The committee first met in November 1999 and also used web-based discussions. Initial announcements implied that a standard would be developed within

months. This was not to be the case. Committee minutes indicate difficulty in reaching consensus, reflecting differences in interests of various groups and the disparate nature of their motivations and incentives (CGSB, 1999 to 2003).

Disagreement about the need to develop a labelling standard and the fear that GM food labelling might act as a "red flag", indicating a food safety caution rather than a food quality indicator, was one basis of caution and delay, as was the concern by food processors that a positive-labelling standard might lead to mandatory labelling. Other particularly contentious issues included the definition of GM (content versus process definitions); maximum and minimum tolerance levels for GM content; and conditions for negative claims that would not mislead. The desire for a mandatory policy was a persistent issue for some, primarily Quebec-based, groups. Exclusion of GM-derived enzymes and food processing aids was important for others. One concern for a consumer group was for the standard to apply to the broad definition of GM embedded in Canada's Novel Foods Act (this includes genetic modifications based on the plant breeding practice of accelerated mutagenesis). In contrast, GM labelling elsewhere focuses on transgenic-based products or processes, the approach preferred by the majority of the committee. An associated issue was the wording "genetically engineered" (GE), versus GM. The majority preference was for GE wording, which is specified for GM labelling in the United States (U.S. FDA, 2001).[6]

In a January 2002 vote, only 51 percent of committee members approved an initial draft standard. Following modifications to the draft, the committee met again in September 2002, seeking to conclude the process. Voting indicated slight majority approval (53 percent, with a 25 percent negative vote and 15 percent abstention), but far from a consensus, for a draft standard incorporating 5 percent thresholds and a process-based GM definition. With political pressure for a compromise consensus, further amendments resulted from a final, eleventh, meeting (May 2003), providing for a GM content–based definition in the third draft standard, exclusion of GM-derived enzymes, and other wording changes (CGSB, 2002, 2003). A subsequent press release indicated that majority approval was sufficient for the compromise standard to be referred to the Standards Council of Canada; this is the last step in development of a domestic standard, which is necessary to enable Canadian producers, processors or retailers legally to apply voluntary GM labelling claims.

The Codex Alimentarius Process for GM Food Labelling

The Codex approach seeks consensus-based food standards as international guides to harmonized food safety procedures. The Codex Committee on Food Labelling (CCLF) has worked on labelling for biotechnologically derived foods since 1993 but has been stalled on the basic issue of whether GM food labelling should be voluntary, except in cases of health and safety, or mandatory. By March 2003 this process was still at Codex's

step 3 (definition of terms in a draft document) (MacKenzie, 2003). However, the Codex process to develop consensus-based risk assessment procedures for GM food advanced very rapidly: the ad hoc Codex Intergovernmental Task Force on Foods from Biotechnology (CTFBT) started work in 2000 and was at the final stage of this process (step 8) by March 2003 (Codex Discussion Paper, 2003). Consensus is easier to reach on science-based tests to assess food safety risks than on the social value–based issues that underlie a GM labelling standard.

Pragmatism or Policy Failure?

Delays in action on contentious issues can be a pragmatic approach, buying time for public opinion to change while policy options are kept open. However there can be costs of policy inaction. Citizen vote–type polls show a high level of support for GM labelling. After three and a half years without successful development of a Canadian GM labelling standard, the potential loss of societal trust in regulators and policy makers from further delay became an inducement to push for higher support for a compromise standard. This reflects an implicit threat that lack of consensus on a voluntary standard bolsters efforts to introduce mandatory labelling. Political support for voluntary labelling suggests that a Canadian standard will be soon be adopted. For the Codex process, however, the international disparities in views on and interests in GM labelling are not consistent with a cooperative solution to the ongoing GM labelling stalemate. Differences in beliefs and cultural values between Europe and North America that underlie very different attitudes to mandatory and voluntary GM labelling lie at the heart of this impasse.

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Endnotes

[1] Research reported here is supported by the Prairie Genome GELS project and by an AARI grant.

[2] Typically a lower limit, specified as any detectable level, applies for contamination by non-licensed or non-approved GM products. This was the situation, in effect, with U.S. StarLink™ corn, which had been licensed as a livestock feed, but not for human food uses (in the United States or elsewhere), when contamination of food products was discovered, leading to product recalls and destruction. StarLink™ has subsequently been withdrawn from the market and the previous U.S. provision for "split" licensing no longer applies.

[3] Forthcoming changes in the European Union, where new traceability and labelling regulations passed first reading in July 2002, will tighten EU specifications for GM labelling, eventually replacing three of the current laws governing review and approval of GM food. Changes include moving to "process-based" definitions of GM food and reduction in threshold levels to 0.9 percent (European Commission, 2001, 2002).

[4] Typically most of these categories have been excluded from the definition of GM food.

[5] The FDA draft takes a descriptive rather than prescriptive approach of guidance to processors and retailers; specific recommendations for and against particular GM-claim wordings are outlined. No provision is made for negative claims. From the experience of rBSt labelling, challenge of negative claims could occur and this could potentially lead to a requirement for an accompanying "disclaimer" statement.

[6] Wording distinctions affect some consumers' views: GE is viewed to be more pejorative than GM.