

IPC Sustainability Task Force DISCUSSION PAPER

Is There a Role for Food Labelling in Enhancing Agricultural Sustainability? A Preliminary Assessment

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Introduction

The International Food & Agricultural Trade Policy Council (IPC) Sustainability Task Force has undertaken to develop a number of thematic and sectoral papers which examine the impacts of policy measures on sustainability. These thematic and sectoral papers, of which this is one, attempt to incorporate particular aspects of the general framework paper developed by Dixon and Tutwiler (2004) to examine issues of sustainability in the agriculture and agri-food contexts.

This discussion paper is the second in a series that the IPC has commissioned to examine labelling measures and their impact on sustainability. An earlier paper "Links between NTBs (particularly SPS and TBT measures) and Sustainable Agriculture: The Case of Food Labelling" (Buckingham 2002c) proposed a general framework for the assessment of international and national measures on sustainability focusing on food labelling as a case study. The discussion which follows in this second paper builds upon the earlier discussion paper. It is however limited to a discussion of the national impacts of food labelling on sustainability and leaves most international dimensions of the question for another day.

Part I - Establishing a Link between Food Labelling and Sustainability

A. Sustainability and sustainable agriculture

The IPC Sustainability Task Force has articulated the following definition of sustainable agriculture:

Sustainable agriculture is a productive, competitive and efficient way to produce agricultural raw materials, while at the same time protecting and improving the natural environment, the economic and social conditions of local communities. Sustainable agriculture requires farmers to satisfy the public's demand for improved environmental performance by reducing pollution, conserving the natural resource base, and generating environmental benefits. (IPC, 2002)

The definition explicitly acknowledges the three legs – economic, environmental and social – of sustainability. Implicitly the definition also acknowledges the importance of markets and trade with agricultural producers and food consumers sometimes located virtually next door to one other and at other times, separated by vast distances in the larger global marketplace.

Notwithstanding the importance of trade and trade considerations to any individual country, they are not its only concern. Governments will seek to pursue national objectives such as measures to protect human, animal and plant health, to ensure consumer safety, to protect the environment, to celebrate culture, and to advance the

rights of disadvantaged or particular groups in the national mosaic. Consequently regulating agricultural production and food consumption always requires the pursuit of a multitude of objectives.

At the domestic level, these objectives are sometimes complementary but are often conflicting with some objectives aimed at maximizing producer revenues, some aimed at securing a safe food supply and still others aimed at advancing environmental concerns. Furthermore, national regulatory objectives may conflict with international ones particularly as they pertain to reducing national barriers to trade. Thus local regulation of agriculture has global impacts and, conversely international trade rules affect local and national production policies and trends. This is as true for measures related to food labelling, as Box 1 indicates, as it is for any other measures related to implementing national agriculture and food policy.

Box 1: The WTO and National Measures Relating to Food Labelling

National food labelling measures like other national policy measures must conform to the international obligations undertaken by that state. At the international level, Codex Alimentarius and the World Trade Organization are two organizations that contribute to the formation and harmonization of international standards for food labelling. As the Codex standards are not international obligations as such, they influence, but do not require the formulation of specific national standards. More recently, the Codex standards have taken on a quasi-legal status when they are referenced by the WTO's Dispute Settlement Body (Buckingham 2000).

The WTO Agreement, on the other hand, does contain international obligations which bind each of the WTO's 147 Member States. The agreement sets strict rules as to which national non-tariff measures that restrict international trade are permitted. In the area of food labelling, two WTO agreements are applicable--the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) and the Agreement on Technical Barriers to Trade (TBT Agreement). Mandatory food labelling measures will fall under the scrutiny of one or the other of these agreements. If the food labelling measure has to do with protecting human health, such as would be the case for allergen labelling, "use-by" date stamping, lot numbering, handling and storage instructions, the name of the product and nutrition labelling, then the measure would have to meet the SPS Agreement's tests of acceptability. To be a legitimate SPS measure, the measure must be necessary to protect human, animal or plant life or health, be based on an appropriate assessment of risks to be avoided, and be developed and maintained on the basis of sufficient scientific evidence. States are also required to ensure that SPS measures do not arbitrarily or unjustifiably discriminate between foreign states (most-favoured nation status) and that they do not discriminate between nationally produced goods and goods from foreign states (national treatment).

As the remaining elements of national food labelling legislation would be difficult to fit within the category of "labelling requirements directly related to food safety", they would be subject to the scrutiny of the TBT Agreement. Thus measures such as those relating to weight and sizes of products, list of ingredients, names of supply chain

producers and processors, production and processing methods, and all other consumer information or producer claims have to meet the TBT Agreement's tests of "legitimate objective" and "non-discrimination". Under the TBT, measures which are trade distorting are permitted if they advance the following "legitimate objectives": the prevention of deceptive practices, the protection of human health or safety, animal or plant life or health, or the environment. States' TBT measures must also be "non-discriminatory", that is to say, the measures must not unjustifiably discriminate between foreign states (most-favoured nation status), nor discriminate between nationally produced goods and goods from foreign states (national treatment).

Finally WTO-compatible SPS and TBT measures must not create disguised or unnecessary obstacles to trade and be maintained only as long as the objectives for their adoption was necessary continue to exist.

To date, one of the areas of significant controversy amongst WTO members is the compatibility of national measures that require or permit the labelling of products for production and processing claims. The WTO has generally viewed the obligation of non-discrimination as applying between goods that have the same physical characteristics, regardless of production and processing methods. Thus a product that has been produced by one method of production can only be discriminated against (that is, have a different set of rules applied to it), if the final product has different physical characteristics from a "like" product which may have been produced by a different method. Until this controversy is resolved through WTO Member States negotiations or through a decision of the WTO Dispute Settlement Body, the international legality of national labelling measures regulating production and processing claims is difficult to determine. This situation, of course, has important ramifications for any assessment of whether a state can or should attempt to promote a labelling regime that has the enhancement of agricultural sustainability as one of its objectives.

B. A framework for assessing the impacts of measures on sustainable agriculture

In an earlier paper, the author proposed a framework for assessing the impact of policy measures on sustainability. Such a framework would require an interdisciplinary approach with economic, scientific, social and regulatory analysis. The framework had four basic steps:

1. identifying the measure or the body of measures;
2. assessing the national impact of the measure(s);
3. assessing the international impact of the measure(s); and
4. postulating the contribution or detriment of the measure(s) to sustainability.

Discussion at the 2nd meeting of the Task Force in 2003 suggested a fifth step for the framework:

5. exploring additional options that would contribute to more sustainable outcomes.

This framework implies an overall assessment of the national and international impacts of the measure. After further discussions with Task Force members and upon reflection, it seems that measures may have very different national and international effects and any attempts to conduct an assessment of a measure's effect at both levels in the same analysis would not provide a detailed enough assessment at either level. Thus, an analytical framework for the assessment of any measure might better be examined in to three distinct phases--a national one, an international one and an aggregation of the combined national and international effects of the measure.

This report will focus on the first of these three phases and only the legal and regulatory aspects of issue at that.² As such the analytical framework that the author suggests need be employed to determine the impacts of a measure on national sustainability would require the following four steps.

Step 1 - identify the measure or the body of measures within the regulating state

What is the nature of the specific measure--constitutional, legislative, directive, policy, practices? Which state or states (and level of government within the state) has put the measure in place? Is it voluntary or mandatory? What is the source of the measure--government or non-government? What is the primary objective of the measure--economic; environmental; social; health-related? Does the measure specify who bears the burden of paying for the measure and who are to be the primary beneficiaries?

Step 2 - examine the impact of the measure(s) on each facet of sustainability in the country - economic, environmental and social

From an economic perspective, who principally bears the burden of the measure in question? What is the magnitude of economic impact of the measure on this group? On the other hand, which group or groups benefit from the imposition of the measure and what portion of the general population benefits from the measure? Will the answer to these questions reveal some of the economic and social dimensions of the measure on a national scale? Are there immediate, tangible and direct environmental consequences of the imposition of the measure in the implementing state? Or rather are there long-term or indirect consequences likely to result from it? Finally how is risk managed for the implementation of the measure if there is a great deal of scientific uncertainty and/or lack of data on the environmental consequences of imposition or non-imposition of the measure in the implementing state?

Step 3 - assess the overall contribution or detrimental impact of the measure(s) to national sustainability

² As a lawyer and legal academic, the author's interest and expertise is with respect to the regulatory analysis of policy measures' impact on sustainability. Others in the IPC or the larger intellectual community will be able to envisage economic models or to collect data to provide insight into likely or actual impacts of specific measures on ecosystems, on social structures or on economic actors.

Measures can have one of four effects on sustainable agriculture--a net negative effect, a net positive effect, a negligible effect or an effect that cannot be readily determined. A preliminary conclusion can be drawn as to the impact of a particular measure on agricultural sustainability in a local ecosystem, in a region, in the nation or for the international community.

Step 4 - explore options that would contribute to more sustainable outcomes

Other possible options to achieve more sustainable outcomes require policymakers to have clear idea as to what objectives are being pursued and how sustainability will be measured. Otherwise, comparing the outcomes from one policy instrument with that of another becomes very difficult.

In the next part, the author presents a detailed analysis of Step 1 of the above analytical framework with respect to the potential for food labelling to be used as a measure to enhance national agricultural sustainability.

Part II - Analyzing the Potential for Food Labelling as a Measure to Enhance National Agricultural Sustainability

A. The function and anatomy of a food label

The link between food labelling and sustainability might not be readily apparent. Generally, food labels provide information about the product covered by the label--its name, its weight, its composition or its maker or retailer. Considering the IPC definition of "sustainable agriculture" found on page 2 of this study, if a food were to have a link with sustainability it would have to provide some information on "improved environmental performance by reducing pollution, conserving the natural resource base, and generating environmental benefits". Can food labelling do this?

Food labels are about communication. In national economies where a large portion of food is pre-packaged, labels are the principal means of communication between those who consumer food and those who produce, process and market it.³ In Canada, for example, at least 60% of all food purchased by the average Canadian is prepackaged.⁴ As a result, the food label has the potential to be a powerful

³ The analysis in this paper focuses predominantly on the food economy of an industrialized state economy where most food acquisition occurs in the marketplace between consumers buying from intermediaries who are not themselves food producers or processors. This analysis may be more difficult to apply in countries in the world where a large portion of a country's population live in rural areas and either produce their own food or buy or barter for unlabelled food.

⁴ Statistics Canada, "Food Consumption in Canada, Appendix B: Annual Food Expenditures per Person, by Province, Canada" in "Food Expenditure in Canada 2001". Catalogue no. 62-554-XIE. The remaining 40% is purchased in restaurants or in bulk, the majority of which is fresh fruits and vegetables.

communication tool regarding the characteristics--compositional and otherwise--of the food sold on supermarket shelves.

What labels communicate, of course, depends on the intent of the label's creator, the interpretation of the label's reader and what is prohibited, required or permitted by law. As food labels are meant to inform "consuming" consumers and to influence the choices they make in the marketplace, food labelling rules can have notable effects on consumption patterns which in turn will influence production, processing and trade trends nationally and internationally. The food label has the potential, therefore, be used as a means to disseminate information on the "sustainability footprint" of the product being sold.

Labels have been attached to foods for centuries. As societies have become larger and more literate, as food products proliferate and trade flows accelerate, food labels surround consumers, bombarding them with information and claims. The development of labelling has resulted from two separate forces: (1) the voluntary initiatives of food producers and sellers to label their products to attract consumers; and, (2) the measures, usually mandatory, introduced by state regulators to regulate the marketplace, to prevent fraud and to protect consumer health.

To frame the discussion of food labelling's implications for sustainability, it is necessary to explore why food is labelled, what constitutes a food label and the elements that can be presented in a typical food label.

1. the who and why of food labelling

Labels permit the flow of information from seller to purchaser when the two cannot be physically present at the same time. As the food system becomes more complex, the need for food labels becomes more critical. Below one can see the multiple players in the market, each of whom may have different objectives or requirements in labelling food.

Box 2: Dramatis Personae of Food Labelling

label creator -----	label intermediaries-----	label reader
(usually)	(usually)	(usually)
retailer	gov't regulator	consumer
producer	(but also)	(but also)
processor	private regulator	consumer group
wholesaler	gov't verifier	processor
(but also)	private verifier	wholesaler
importer	gov't enforcer	retailer
inspector	arbitrator	competitor
grader	court	
regulator		

The label creator objectives might include the following: (1) to gain market share and increase profits by making his product more attractive than his competitors'; (2) to comply with law; (3) to protect himself against liability claims; (4) to inform consumers about food composition including any possible additives, allergens, and human health advantages of the product; or (5) to inform the consumer about any other characteristics of the product that will make it more attractive to the consumer.

The label reader's objectives are to inform himself or herself concerning: (1) the composition and nutritive qualities of the product; (2) how to store and prepare the product; (3) the amount, grade and shelf life of the product; (4) the comparative value of this product versus that of a competing one; (5) how to maximize food safety by eating healthy foods, reducing exposure to chemical and biological toxins, and avoiding allergens; (5) how to contact the a "supply chain" party if the product does not meet expectations; and (6) the origin, the production and processing methods used to the make the food.

Intermediaries who scrutinize food label might do so with the following objectives in mind: (1) to make sure that competition amongst sellers is fair; (2) to ensure that labels accurately describe the product to which they refer; (3) to investigate seller or consumer complaints; and (4) to adjudicate disputes arising from the use (or misuse) of food labels.

With such an impressive list of characters and objectives, one might ask: "Are any of these actors concerned with agricultural sustainability?" A supplementary question might be: "Should they be concerned about the role of food labelling in enhancing agricultural sustainability?" Part of the answer depends on understanding of the types of claims that are made on food labels and how such claims might affect agricultural sustainability.

2. what is a food label?

What constitutes a food label? Legal definitions in national legislation offer definitions of food "labels" or "labelling" or both, depending on the jurisdiction. This study looks at three such jurisdictions as examples: one from the "Old World" (France), one from the "New World" (Canada) and one from the "Third World" (Ghana). In France,⁵ the French *Consumer Law Code*, Article R112-1-3 defines "labelling" as follows:

« Etiquetage : les mentions, indications, marques de fabrique ou de commerce, images ou signes se rapportant à une denrée alimentaire et figurant sur tout emballage, document, écriteau, étiquette, bague ou collerette accompagnant ou se référant à cette denrée alimentaire. »

⁵ This definition has been adopted for all member states of the European Union as the definition comes from Directive 2000/13/EC of the European Parliament and the Council on the approximation of the laws of the Member States relating to the labelling, presentation and advertising of foodstuffs. Article 1(3) defines "labelling" as "any words, particulars, trade marks, brand name, pictorial matter or symbol relating to a foodstuff and placed on any packaging, document, notice, label, ring or collar accompanying or referring to such foodstuff."

The French legislation makes labelling rules extend to any product claims that are marked on the product, attached to its wrappings and even information that refers to the product but is not directly attached to it.

Under section 2 of the Canadian *Food and Drugs Act*, a "label" includes "any legend, word or mark attached to, included in, belonging to or accompanying any food, drug, cosmetic, device or package." "Package" means "any thing in which any food, drug, cosmetic or device is wholly or partly contained, placed or packed".⁶

In Ghana, labels are defined under the *Ghana Standards Board (Food, Drugs and Other Goods) General Labelling Rules, 1992* to include "any tag, brand, mark, pictorial or other descriptive matter, written, printed, embossed or impressed on or attached to the item or inserted in its container."⁷ Section 51 of the Ghanaian *Food and Drugs Act, 1992*, on the hand, defines "label" as "any legend, word or mark attached to, included in, belonging to or accompanying any food, drug, cosmetic, device or chemical substance."

For an internationally accepted definition of "label", one can go to Codex Standard 1 "General Standard for the Labelling of Prepackaged Foods" which was adopted in 1985 and has since been revised twice. This document adopted by the 170 Member States covers all aspects of labelling for prepackaged foods and defines "label" and "labelling" as follows:

"label" means any tag, brand, mark, pictorial or other descriptive matter, written, printed, stenciled, marked, embossed or impressed upon, or attached to, a container of food; and

"labelling" includes any written, printed or graphic matter that is present on the label, accompanies the food, or is displayed near the food, including that for the purpose of promoting its sale or disposal.

Based on the above definitions, a food label at the very least is anything attached to a food or food product that provides information about that product. Most food labels would be obvious and would include the written material printed on the wrapper of food and food products. Other than wrapping labels, some labels would be adhesives stuck to the food product giving information about that product. Still other examples, although

⁶ Definitions for "label" are also found in other Canadian statutes regulating food. Under section 2 of the Canadian *Consumer Packaging and Labelling Act*, a "label" means "any label, mark, sign, device, imprint, stamp, brand, ticket or tag". The Canadian *Meat Inspection Act* defines "label" in section 2(1) to include "any legend, word, mark, symbol, design, imprint, stamp, brand, ticket or tag or any combination thereof that is or is to be applied or attached to or included in, or that accompanies or is to accompany, any meat product, package or animal." Section 2 of the *Canada Agricultural Products Act* defines a "label" as "a label, legend, word, mark, symbol, design, imprint, stamp, brand, ticket or tag or any combination thereof that is, or is to be, applied or attached to an agricultural product or a container or that accompanies or is to accompany the product or container".

⁷ The exact definition of "label" and "labelling" is unclear in Ghanaian legislation as three slightly different definitions exist: one in the *Ghana Standards Board (Food, Drugs and Other Goods) General Labelling Rules, 1992*, another in the *Ghana Standard* (an instrument with an indeterminate legal status); and a third in the *Food and Drugs Act, 1992*. The *Ghana Standard* also offers a definition for "labelling" where no other piece of Ghanaian legislation defines the term. That definition is: "the marking of a product by a label and any written, printed or graphic matter relating to an (sic) accompanying the product."

perhaps less obvious, would be grading, inspection and industrial marks that are stamped, inked or branded on the product itself, such as grading stamps on meat carcasses.

On the other hand certain information available about a food product might or might not constitute part of a "food label", depending on the jurisdiction and the physical distance such information is located from the product itself. The French definition (as derived from the EU regulation) is probably the broadest and would likely include not only the information imprinted on or attached to the food product itself but also other sources such as promotional materials that might not be in physical proximity to the product itself (ex. advertisements, website resources, etc.). The Codex definition would deem materials in relative proximity of the food product to be include in the "labelling" of a food product, but not its "label". Anything not physically attached food product or in its very near proximity to would likely be beyond the meaning of "label" under Ghanaian and Canadian legislation.

The definition of what constitutes a food label thus limits or expands the amount of information that can be displayed on the food label. With the narrower definitions of Canada or Ghana, for example, one is limited to the finite space physically available on the materials covering the product or attached directly to it. With the broader Codex and French definitions, more information may be presented in addition to the space on the materials covering the product. Given the physical limitations of available space, what kind of information do food product labels seek to present?

B. Types of claims made on food labels

Examining a typical food product today yields several kinds of written or pictorial information on its label. This information, when broken down into its individual elements, may be referred to as a conglomeration of claims, allegations, assertions, or marks. A more generic name to describe all of these "bits" of information on the product label might be to call them simply "identifiers". Identifiers can be divided into two general groups--those that describe the product's intrinsic characteristics and properties (product identifiers) and those that describe something else about the life cycle of the product (life cycle identifiers). The majority of this latter group will be identifiers that describe some aspect of production or the fabrication of the product (supply chain identifiers). Other identifiers in the second group will provide information on packaging and waste disposal and thus complete the information loop for the life cycle of the product.

Most labelling claims for sustainability fall within this second group of identifiers. Production and processing (PPM), country of origin labelling (COOLs), trademarks and grading stamps as well as recycling instructions and logos all relate to the way in which a product is made or handled rather than to its physical composition. Some of the principal label identifiers falling under each of these two groups are listed below.

Box 3: Common Food Label Identifiers

(i) "product" identifiers

- (1) the product's common name;
- (2) the volume or weight of the product;
- (3) the product's composition revealed by a list of ingredients including additives or a notation of the absence of certain ingredients;
- (4) "best-before" dates stamped on the package and conservation suggestions;
- (5) nutritional information about the product;
- (6) a bar code with lines and numbers in a white rectangle;

(ii) "life cycle" identifiers

- (1) "supply chain" (production, processing and promotional) identifiers
 - (a) the names of the producer, processor and/or retailers as well as their address and other contact information;
 - (b) references to production or processing techniques used in preparing the product;
 - (c) the product's commercial grade and/or an intellectual property claims for the names or trademarks of the product or the packaging;
 - (d) information on the country of origin of the product;
 - (e) promotional information about the product;
 - (f) numerical indicators for lot number or shipment of the product.
- (2) "post-consumption" identifiers
 - (a) waste disposal instructions;
 - (b) packaging and disposal claims.

All of the labelling information will also, of course, be subject to legislative requirements that it be expressed in one or more languages that are understood by consumers in the market where the products will be sold. Labelling information will also have to comply with regulations setting out standard presentation formats and print size.

National legislation in many countries (and this is certainly the case for the three study countries) make many of the above food label identifiers mandatory. All other claims will be voluntary, subject to the requirement that claims be truthful or not otherwise misleading, fraudulent or deceptive. National labelling legislation may also designate a list of claims or identifiers that will be prohibited on all food labels. These include prohibitions on the use of claims that a certain product cures diseases or the use of identifiers which infringe the intellectual property rights of owners of protected names or images. Finally, each national labelling regime, to a greater or lesser degree is buttressed by a system of monitoring, investigation and enforcement of the labelling rules in the marketplace.

Thus, from a theoretical and a practical perspective, food labelling assists the market mechanism by setting out information that is useful for the consumer when he or she chooses to purchase one product over another. It is also useful to permit one producer or vendor to distinguish his or her goods from a competitor's. The danger of course is that food labelling can also become a barrier to market transactions if the information

conveyed on them is misleading or when compliance with labeling requirements becomes unduly onerous or costly. Both situations will increase the cost of products sold in the marketplace and decrease consumer trust and satisfaction with products purchased.

1. potential impacts of "product" identifiers on sustainability

"Product" identifiers tell the consumer about the physical nature of the food product. In a general way, these "product" identifiers contribute to national sustainability through their protection of human health of the consumer. The "product" identifiers let consumers know what they are eating and allow them the possibility of making appropriate food choices. But other than in this general way, product identifiers offer little in the way of comment on whether the food product and its life cycle have contributed to or detracted from national agricultural sustainability.

A majority of the "product" identifiers (see Box 2 above) are mandatory under national food labelling statutes. With the except of requiring handling and conservation instructions, nutritional information and bar codes, all of the other identifiers are required by law to appear on food labels in France, Canada and Ghana (Buckingham 2002a, Buckingham 2002b and De Brosses 2002).⁸

a. science-based identifiers

To a large degree, product identifiers are objective, science-based identifiers requiring food labels to provide basic consumer information regarding the volume or weight of the product, product composition, market longevity, and nutritional information. However, as more scientific information is required on food labels, costs associated with providing such labelling will increase as studies have shown (Beckman and Knudson 1977). While basic product identifiers of a scientific nature like weight or volume declarations are cheap to determine and to provide on labels, product identifiers such as product shelf life, production composition, or product nutritional profile can be considerably more expensive and require more expertise.

Thus, the impacts of requiring mandatory product identifiers on food labels on sustainable agriculture would vary according to the list of identifiers required. Impacts would likely however be limited to economic ones and ensuing social effects associated with higher production costs rather than tangible environmental ones. As product identifiers are generally mandatory "across the board" for all food products, they do not permit consumers to distinguish between products that have resulted from production methods that are more environmentally sound, more socially advantageous or more sustainable from those that have not.

It could be argued that increasing food labelling standards for product identifiers will, despite increased costs, provide the important social benefit of better consumer information, perhaps leading to healthier lifestyles and lower overall societal health care

⁸ French legislation makes labelling on proper conservation measures mandatory on all products which would endanger consumer health if not properly conserved. Canadian legislation makes labelling of nutritional content mandatory for all food products by 2006. Nutrition legislation is already in force in France.

costs. This would be true in both developed and developing countries (Lewis 1999). However, in developing countries such as Ghana, as more sophisticated scientific labelling identifiers are required, such measures may have a dramatic effect on some producers, particularly small farmers. With increased costs for labelling, larger producers (and their production methods) may be favoured over smaller ones given increased costs associated with the capacity required to deliver the science- and health-based information. For example, current cooperative producer associations of small farmers producing semi-processed foods, such as cereals, might become uncompetitive if faced with new labelling costs. This might in turn have a rippling social effect if local producers are squeezed out of a market and replaced by larger commercial enterprises, better equipped to provide the required scientific information or better equipped to absorb some of the associated costs.

b. common name identifiers

There is however one notable exception regarding product identifiers and their basis in scientific objectivity. Among the product identifiers, the product's common name identifier has not usually been determined by science but rather by common or commercial usage. Consequently what is considered a "sausage" in one jurisdiction may not be in another. The same could be said for "cheese" and "chocolate". Over the years two approaches have evolved for determining the common name identifiers for foods. The first requires any food that has the appearance of say, "jam", to explicitly give on the label the compositional content linked to that name. The second approach uses legislation to reserve the use of the name "jam" to those products which meet certain criteria (Jukes 2003). The reserved approach has been adopted in Canada since the beginning of the 20th century through the promulgation of regulations containing thousands of "recipes" which when followed allow certain products to bear certain common names on their labels (Pugsley, 1967). For example, while a block of cheddar cheese may bear the identifier "cheese" on its label, "processed cheese slices" could never be called simply "cheese" without breaching regulations under Canada's food labelling regulatory scheme.

From a sustainability perspective, can one argue that common name labelling rules enhance or detract from agricultural sustainability? Unlike the other product identifiers, common name identifiers usually do not impose new costs on producers, although actually determining the proper common name for the food product may require some research and consultation with government regulators (Canadian Food Inspection Agency 1996). Thus on first examination, the requirement to label food products with a common name is not likely to significantly affect national agricultural sustainability. However, the restricted use of common name identifiers may have an affect on the types of production systems which are in place to produce certain foodstuffs. For example, since the late 19th century in Canada and in France, the name "butter" has been reserved exclusively for products made from 100% milk and/ or cream. These restrictive and protective labelling requirements provides a producer premium and protects the product from other national and international production that might wish to a sell a butter-like product that was perhaps only 90% butter and 10% vegetable oil. While there are implications flowing from this regulation for national production systems, it becomes a much more important issue of protectionism at the international trade level. One could

argue however, that even at a national level, the protection of the name "butter", favours the expansion of the one agricultural systems at the expense of other possible systems. If the former is more sustainable than other options, then the common name identifier could have a favourable impact upon national agricultural sustainability.

2. potential impacts of "supply chain" identifiers on sustainability

The label identifiers which are most likely to have an impact on sustainability generally, and on national agricultural sustainability in particular, are supply chain identifiers. Grading marks, trademarks and country of origin labelling (COOLs), and claims with respect to production and processing methods (PPM), all identify factors in a food product's preparation for the market. Each of these identifiers may permit consumers to exercise their market choice so as to purchase products which they believe will deliver positive environmental and social outcomes.

Because of the vast array of supply chain identifiers that producers, processors and retailers currently use, an analysis of all of them is beyond the scope of this discussion paper. However, below are some broad categories of supply chain identifiers that exist in the three study countries--grading marks, trademarks and country of origin labels (COOLs), and production and processing method (PPM) claims. Each will be examined for their potential impact upon agricultural sustainability.

a. grading marks

National grading systems are supply chain identifiers which are usually mandatory and state-run (although less so today). Grading systems for meat and poultry, fish, vegetables and fruit reflect criteria that the government, in consultation with industry, has deemed best to represent different standards of quality. While the criteria for the setting of the standards can change over time, particularly for reasons of export demand or consumer preferences (take, for example, the shift towards grading beef to reflect less marbled fat content), grading marks cannot be freely claimed by food producers and processors but must be assigned or "earned". Often it is even a government inspector that applies the mark to the food product or to the packaging of a food product with criminal or quasi-criminal sanctions for the improper use of such marks (Buckingham 2002a, De Brosses 2002).

Thus, the grading process proceeds largely without reference to any farming system or process and speaks to market qualities in the food product. Beef from farms practicing advanced environmental stewardship and beef from commercial operators will be subjected to the same grading criteria for the meat they produce. Grading marks and inspection systems are thus unlikely to have any significant effect on national agricultural sustainability.

b. trademarks

All countries have some form of trademark protection for intellectual property, including for certain food products. Trademarks can protect names of food like "Parma ham" in Canada for example and give the trademark holder exclusive rights to use the

registered trademark on any label. Trademark protection can come into direct conflict with other government regulation such as the protection of geographical indicators. In Europe, for example, the right to use the term "Parma ham" is granted only to those specific producers of ham in Italy who follow detailed production methods and who live within a defined geographical region.

Some producers and processors may develop methods of production which are more environmentally sustainable than their competitors. If such companies enjoy a reputation for quality products produced in an environmentally sustainable way, then perhaps their registered trademark on their product may be enough for consumers to identify the trademark with the sustainable processes used by the producer. The trademark, as a sign of the company's reputation, then becomes a product identifier with a "sustainability footprint" that the consumer can identify and act to support.

c. country of origin labels (COOLs)

Some countries have, or are considering, legislation to require food products to indicate country of origin on their labels. The objectives of such regulation are to provide better consumer information and, perhaps tacitly, to encourage consumers to buy domestic products over foreign ones. This type of labelling requirement has significant implications for international trade as it raises a suspicion of unjustifiable discrimination between like goods.

However, the effect on national agricultural sustainability of mandatory country of origin labelling by itself is likely to be minimal. For COOLs to have a positive effect on national agricultural sustainability, two elements would be needed: (1) consumers would need to be persuaded that the COOL really represents superior product characteristics than a product from a different country in order for them to systematically prefer these national goods over foreign ones, thus pushing up demand for domestic production; and (2) the product displaying the COOL would have to demonstrably result from a production or processing method that enhances national agricultural sustainability. One obstacle foreseeable is proving a clear consensus on what kind of farming systems enhance or detract from sustainable agriculture so that the second of these elements could be met.

The COOL is therefore, a rather blunt instrument which speaks to the geo-political site of production but offers little towards informing the consumer of the life cycle characteristics of the product it describes. It is difficult to imagine how COOLs could be designed to more exactly represent to the consumer which products were more or less likely to enhance agricultural sustainability.

d. other production and processing (PPMs) claims (including signes de qualité)

Production and processing (PPMs) claims are the newest challenge to food labelling in the three countries studied (Buckingham 2002a, Buckingham 2002b, De Brosse 2002). Such claims arise from the pull-and-push between food industry and food

regulators. Often, one industry player wishes to appeal to the consumer by labelling his or her product with identifiers that are different from those of competitors through claims that relate to how the food product was produced or processed. These claims may relate to seed varieties or characteristics ("heirloom tomatoes", "product not produced through genetic engineering"), growing conditions ("organic") or processing techniques ("not from concentrate"). For meats, poultry and fish, claims may relate to animal welfare "free range chickens and eggs", production methods "hormone-free beef" or harvesting techniques "wild salmon". For processed foods, claims include ones like "no additives or preservatives", "pure", "fresh". As well depending on the origin of the components of the final food product, some markets will wish to claim a place of origin such as "100% Alberta beef". These claims, when not subject to specific legislation, need only meet the general requirement of being truthful, not misleading, not deceptive and not likely to confuse the consumer.

Increasingly however, production and processing claims on labels are being regulated by specific provisions in legislation. Some claims are becoming mandatory, or if used, the claims must meet very clearly articulated criteria. For example, in Canada, irradiated foods must be labelled with a written statement and pictorial symbol. Other claims are voluntary such as the use of the word "organic". If used however, produce that boasts this label must conform to the "National Standard - Organic Agriculture" (Canadian Food Inspection Agency, 1996-). If the identifier is used for products that do not conform to this standard, then liability for misleading labelling could ensue under the *Food and Drugs Act*.

In France and in the European Union, a special class of production and processing claim, quality signs (les "signes de qualité") are highly regulated. Quality signs include collective marks, product certifications, agricultural labels, conformity certifications, organic agriculture claims, mountain products, country products, "signe d'agriculture raisonnée", farmer products, and specificity claims.⁹ Under European food law these claims are grouped under one of either a protected geographical indication (PGI) or a protected designation of origin (PDO). Each of these categories can result in a product bearing a label or sign on the label which indicates to the consumer a production or processing technique or characteristic. For example, the logo "appellation d'origine contrôlée (a permitted French logo under the PDO designation)" on a cheese labelled "Roquefort" is a mandatory mark which tells the consumer that the cheese is made from raw whole sheep's milk and aged in the natural caves in Mont Combalou in the town of Roquefort-sur-Soulzon.

The effects of production and process labelling on national sustainability can be significant as labelling for specific product characteristics, for certain production practices and for particular processing methods can have direct environmental effects. Organic farming may have a lower impact surface and ground water contamination and by identifying these products in the marketplace, consumers can favour this type of production over conventional agricultural production. The same might be said of products that come from farming and processing methods that regulate the use of PDO labels. On

⁹ See A. De Brosse, Tome 2, page 164, en français les signes de qualité sont: les marques collectives, les certifications de produits, les labels agricoles, les certifications de conformité, les mentions agriculture biologique, les produits de montagne, les produits pays, les signes agriculture raisonnée, les produits fermiers, et les attestations de spécificité.

the other hand, it may in some cases be difficult to determine the overall positive or negative environmental, social and economic effects of the process or technology that produced the product as is the case for example in intensive livestock operations or the utilization of GM technology for food production.

PPM claims hold the most potential for realizing a positive role for food labelling in enhancing agricultural sustainability as these claims actually focus on a process or the life-cycle analysis of a product. Two important caveats must be identified however. PPMs have an enormous potential to become unacceptable barriers to trade and are currently regarded with suspicion at the WTO. Second, agreeing on which production methods generally enhance sustainability is not straight-forward and thus an overbroad definition may be more misleading to consumers than it is helpful. Claims which cannot be substantiated or claims for which there is no broad consensus will bring the whole enterprise of PPM labelling for sustainability into disrepute and only serve to erode consumer confidence in such claims.

PPM labelling as a means of offering consumers information on the "sustainability footprint" of products should not, however, be summarily dismissed. An example of one PPM for which there is growing support from consumers and recognition that the PPM claim does enhance sustainability is "FairTrade" coffee, explored below in Box 4.

Box 4: The "Eco-labelling" or "Sustainability-labelling" of Food

A significant literature has grown up around the concept of eco-labels and eco-labeling (see Salmon (2002), Vitalis (2001), (2002), Joshi (2004). Controversy still exists concerning their use and utility, both at the national and international levels. Generally speaking, because of their focus on production and processing, rather than on product characteristics, eco-labelling regimes are suspect as not meeting current requirements under the WTO Agreement.

At a national level however, eco-labelling regimes are usually voluntary mechanisms put in place by associations of producers and consumers of certain types of products. These associations set out rules of membership and conditions for the production and marketing of selected products so as to highlight certain production and processing attributes of the product. Only producers following the conditions of production and processing of the product earn the right to use a logo, or identifier related to that product. The production and processing attributes might include production methods which require no fertilizer or synthetic chemicals, decent social conditions of workers, or particular land-use requirements such as "shade coffee plantations". Unauthorized use of the identifiers related to the eco-labelling regimes is prevented by recourse to public prosecutions under food laws preventing misleading and deceptive labelling or under private law as intellectual property right infringements.

Examples of an eco-labelling for food would be the European labels such as "Max Havelaar", "Transfair" and "FairTrade". The term "FairTrade" is actually a registered trademark of the Fair Trade Labelling Organization (FTLO), with the Canadian affiliate being "Transfair Canada". The FTLO requires that traders meet four criteria--pay a price

to producers that cover the costs of sustainable production and living; pay a premium that producers can invest in development; partially pay in advance, when producers ask for it; and sign contracts that allow for long-term planning and sustainable production practices. The theory behind the FTLO is that their requirements will help to sustain small coffee farms around the world that will lead to economic and social sustainability in rural areas in developing countries. Fair Trade focuses on development through "improvement" rather than through "growth" and this is the message that is transmitted to consumers by the labelling of products such as "Fair Trade Coffee". The benefit made available to the consumer is that he or she can recognize the product by the trademark "FairTrade" and thus make an ethical choice to empower small coffee producers in the South through the purchase of the marked product.

The difficulty that arises however is how to secure the appropriate and authorized use of the label in order to protect the integrity of the eco-label, its message and the production system that underlies it. Unauthorized use of the label or similar terms by competitors not only erodes the economic position of members of the eco-label association but also erodes consumer confidence in the legitimate product. Thus enforcement actions, both public and private, are a cost that such associations must contemplate when considering the development and operation of an eco-labelling scheme.¹⁰

3. potential impacts of "post-consumption" identifiers on sustainability

New requirements for information concerning the disposal of product packaging will likely have a positive impact on general sustainability. This is evident in two ways. In France, under regulations legislated by the European Commission, product labels may include a symbol in the form of a double green arrow which indicates that the product's producer is part of an environmental program to internalize the environmental costs associated with the products packaging. This program requires companies who market a product to pay into recycling schemes or prove that they have established their own to deal with post-consumer waste from the products they sell.

In Canada, a different system is in effect, whereby packaging suppliers indicate on their packaging materials (for all consumer goods, not just foods), whether the materials are recyclable. While this plan does not actually internalize the environmental cost of the packaging, it provides consumers with information to assist them in deciding if the post-consumer waste can be recycled. Both of these examples of labelling laws and practices probably fall within Dixon and Tutwiler's concept of internalizing some of the environmental costs of agriculture and food production (Dixon and Tutwiler 2004).

¹⁰ The author would like to acknowledge the assistance of his University of Ottawa law student, Carolyne Magwood in the preparation of this information box. For a more detailed treatment of the implications of labelling "FairTrade" coffee, see Magwood 2004.

Conclusion - Assessing the Fit of Food Labelling Measures with Sustainability

What then is the role of national food labelling regulations in enhancing sustainability? Or rather, is there a particular role for food labelling to play in enhancing agricultural sustainability in certain regions or for farming systems in a country? The author suggested at the outset that a four step approach should be used to answer this question:

Step 1- Identify the measure (food labelling in this case) within the country that might enhance sustainability

Step 2 - Examine the impact of food labelling on each facet of the sustainability in the country - economic, environmental and social

Step 3 - Assess the overall contribution or detrimental impact of food labelling to national sustainability

Step 4 - Explore options (within the food labelling regime and outside of it) that would contribute to more sustainable outcomes

These four steps necessarily require a detailed multi-disciplinary analysis to adequately examine, address, and evaluate the overall effects that food labelling might have on enhancing national sustainability. The author has not completed such an analysis. In fact, the important contribution of this paper lies in its development of fuller picture of food labelling as a national measure under Step 1. This has not prevented the author from offering very preliminary comments on the possible impacts of food labelling to national sustainability. What might be most useful to draw from the study is that not all food label "identifiers" have the same potential to contribute to enhancing sustainability. For example, science-based product identifiers contribute a great deal to consumers' understanding of product composition and offer the consumer some information to make healthy nutrition choices but provide very little information as to the product's effect on agricultural sustainability.

On the other hand, "life cycle" identifiers do offer more promise as a means to convey information to consumers about which products might leave a more positive "sustainability" footprint. However, the possibility for equivocation and abuse of such "life cycle" identifiers is real. Thus the development and use of such identifiers requires consideration reflection and monitoring once in place to ensure that the "sustainability" claims on certain foods are in fact substantiated. Claims which are not able to be substantiated should be prohibited as they are misleading and will discredit legitimate users of the claim.

For now at least, the role of food labelling in enhancing sustainability is likely to be modest. On the other hand, given the potential importance of consumer power in shaping the way in which food is produced, there is undeniably an ever increasingly important role for food labelling to play in providing information to consumer about all aspects of the food products he or she purchases. There are some important obstacles and limitations to such an approach.

The most significant of these limitations is developing a consensus on which production and processing methods are (the most) sustainable. Without such a consensus,

the appearance of food labelling making claims about the added value of sustainable production methods would be misleading, deceptive or false. If one can determine sustainable practices in the production of food, other questions are raised. Should product identifiers be made mandatory or left as voluntary, subject to verification by the certifying body or by the state as meeting the criteria that the identifier so as not be false, misleading or deceptive?

A second limitation is that food labelling legislation currently is not designed with sustainability in mind. Food labelling legislation, as well as food labelling policy and practice, appears at present to be responding to a host of other objectives--market fairness, and competitiveness, for example--without a particular view on sustainability. This need not be the case but it would require recognition of the importance of sustainability in our agri-food systems and a more holistic approach to policy making in national agriculture and food ministries.

A third limitation is that PPM labelling may be offensive to international trade agreements. Until this issue is resolved at the WTO, the debate about whether voluntary or mandatory labelling is the better method to advance sustainability goals (Salmon 2002, Vitalis 2001, Vital 2002) may be a moot point.

Some initial conclusions are apparent from this discussion paper and are displayed in policy response matrix styled upon the work of Dixon and Tutwiler (2004). This matrix is not particularly easy to apply to current food labelling measures but does provide some initial insight into an assessment of policy responses to explicit policy measures and implicit market failures arising from food labelling that affect agricultural sustainability. Table 1 sets out some of these conclusions. This matrix does not, however, permit an exploration of the economic and social dimensions of sustainability. So in Table 2, preliminary conclusions on these aspects of food labelling's role in sustainability are exhibited.

The fit of food labelling in these matrices reveals that a number of labelling initiatives could have an impact on sustainability, particularly those that deal with labelling for human health, for production and processing methods that enhance sustainability and for those products which internalize environmental effects of post-consumer disposal of product packaging.

Thus, if one contemplates the potential contribution of food labelling to national sustainability, it is possible to envisage certain options that might yield more optimal solutions that presently exist. However, one is left with the question of what options in labelling legislation might contribute to more sustainable outcomes. First, it would be imperative to identify certain agricultural practices which exhibit characteristics of enhanced sustainability. As well, it would be necessary to examine the other end of the product lifecycle, waste minimization and disposal schemes to determine if some methods are more sustainable than others. These best practices could then be communicated to the consumer via a label symbol or logo. To some degree, this has already been with mandatory labels for recycling information and voluntary labels for other issues like "eco-labelling for tuna" or "fair trade coffee".

With respect to economic and social outcomes, the use of labelling to advance sustainability requires some caution. The labelling requirements will remain voluntary or be made mandatory through legislation. If the former, they will still require a certifying agency of some sort for basic verification of labelling claims. If the latter, the labelling

cost will impose increased production and marketing costs for the product in question. If these costs are equally distributed among producers and processors, the increased costs are probably passed along to consumers in terms of higher product prices "across the board." However, it is unlikely that labelling costs to meet legislative requirements will be the same for all producers and processors. Larger producers and processors may be able to realize economies of scale that small producers/processors will not. Further detailed analysis would probably reveal that some labelling requirements will have greater impacts on certain sectors of the agricultural economy than others and thus might have an important effect on sustainability for those sectors that are least able to bear the increased cost of meeting labelling requirements.

Assessing the impact of the food labelling measures on agricultural sustainability will inevitably be complex but will not, in the short-term at least, yield positive results of the magnitude of other measures such as subsidy elimination. However, some food labelling legislation could produce tangible impacts on improving the sustainability of certain aspects of national agricultural systems.

Table 1: Dixon/Tutwiler Policy Response Matrix for Food Labelling's Effects on Sustainability

Environmental Issue	Soil/land	Deforestation	Water	Fisheries	Biodiversity	Human Health
Policy Measure 1. product identifiers a. science-based b. common name	*	*	*	*	*	***
2. Supply chain identifiers a. grading marks b. COOLs	*	*	*	*	*	*
2. Supply chain identifiers c. PPMs	***	***	***	***	***	
Enforcement						
Market failure 1. market fraud						
2. lack of consumer info						
3. Pollution from production and or packaging	*** ***	*** ***	*** ***	*** ***	*** ***	*** ***

Legend: *** Potential Major Impact on Sustainable Agriculture in a State
 ** Potential Medium Impact on Sustainable Agriculture in a State
 * Potential Low Impact on Sustainable Agriculture in a State
 No or Unknown Impact on Sustainable Agriculture in a State

Table 2: Buckingham Policy Response Matrix for Food Labelling's Effects on Economic and Social Aspects of Sustainability

Economic Issues and Social Issues	Higher food costs	Higher production costs	Effects on subsistence farmers	Effects on small farmers	Effects on large farmers	Effects on food vulnerable groups
Policy Measure						
1. product identifiers						
a. science-based		***		***	*	***
b. common name	***	*		*	*	*
2. Supply chain identifiers						
a. grading marks	*	*		*	*	***
b. COOLs						
2. Supply chain identifiers						
c. PPMs	**	**		***	**	***
Enforcement						
Market failure						
1. market fraud						
2. lack of consumer info						
3. Pollution from production and or packaging	***	***	***	***	***	***
	***	***	***	***	***	***

Legend: *** Potential Major Impact on Sustainable Agriculture in a State
 ** Potential Medium Impact on Sustainable Agriculture in a State
 * Potential Low Impact on Sustainable Agriculture in a State
 No or Unknown Impact on Sustainable Agriculture in a State

Sources and References

- BECKMAN, Dale M. and R.M. KNUDSON (1977). "Food Packaging and Labelling Costs and the Cost Effects of Recent Government Legislation". Ottawa, Department of Consumer and Corporate Affairs Canada.
- BUCKINGHAM, Donald E. (2000). "The Labeling of GM Foods - The Link Between Codex and the WTO, Vol. 3(4) AgBioForum, pp. 209-212.
- (2002a). "Both Fish and Fowl: Food Labelling Law in Canada". Ottawa, unpublished article on file with author.
- (2002b). "Food Labelling Law in Ghana". Accra, Report to the Ghana Standards Board and to the Ghana Food and Drugs Board.
- (2002c) "Links between NTBs (particularly SPS and TBT measures) and Sustainable Agriculture: The Case of Food Labelling". Washington, Discussion Paper, International Food & Agricultural Trade Policy Council.
- CANADIAN FOOD INSPECTION AGENCY (1996-). Guide to Food Labelling and Advertising. Ottawa, Fair Labelling Practices Program, Bureau of Food Safety and Consumer Protection Canadian Food Inspection Agency.
- CODEX (2000). "Codex Standard 1 'General Standard for the Labelling of Prepackaged Foods', Volume 1A General Requirements of Codex Alimentarius. Rome, Codex Alimentarius Commission.
- DE BROSSES, Antoine (2002). L'Etiquetage des denrées alimentaires (vol. 1 et 2). Paris, Editions RIA.
- DE WINTER, Kees J. M. (1999). "Food Labelling: Regulations in the European Union and the United States" in International Food Safety Handbook: Science, International Regulation and Control. New York, Marcel Dekker, pp. 663-645.
- DIXON, John A., and Ann TUTWILER (2004). "Trade, Agriculture and the Environment: The sustainability of free and more open markets". Washington, Discussion Paper, International Food & Agricultural Trade Policy Council.
- FULLER, Robert S. and BUCKINGHAM, Donald E. (1999). Agriculture Law in Canada. Toronto, Butterworths.
- INTERNATIONAL FOOD & AGRICULTURAL TRADE POLICY COUNCIL, Task Force on Sustainable Agriculture and Food Production. (2002). "Terms of Reference – The Link between Sustainable Agriculture and Agricultural Trade Negotiations" Washington, Discussion Paper, International Food & Agricultural Trade Policy Council.

- JOSHI, Manoj (2004). Are Eco-Labels Consistent with World Trade Organization Agreements?, 38(1) Journal of World Trade 69-92.
- JUKES, David (2003). "Food Labelling" from Lecture 4 of FS927 - Food Legislation, School of Food Biosciences, University of Reading. Reading. Available at <http://www.fst.rdg.ac.uk/foodlaw/fs927/lecture4.htm>, accessed on 4 November 2003.
- LEWIS, Christine J. (1999). Harmonization, Mutual Recognition and Equivalence: Labelling and Nutritional Requirements - How Much Information is Necessary? Discussion Paper at Conference on International Trade Beyond 2000: Science-Based Decisions, Harmonization, Equivalence and Mutual Recognition, Melbourne, FAO. Available at <http://www.fao.org/docrep/meeting/X2673e.htm>, accessed on 4 November 2003.
- MAGWOOD, Carolyn (2004) "Cup of Conscience: Labelling Fair Trade Coffee - Problems and Possibilities". Ottawa, unpublished paper on file with author.
- PUGSLEY, L.I. (1967). "The Administration of Federal Statutes on Food and Drugs in Canada". Medical Services Journal, vol. 23, pp. 387-449.
- STATISTICS CANADA, Income Statistics Division (2003) "Food Expenditure in Canada 2001". Ottawa, Ministry of Industry. Catalogue no. 62-554-XIE.
- SALMON, Guy (2002). "Voluntary Sustainability Standards and Labels (VSSLs): The Case for Fostering Them". Paris, OECD Roundtable on Sustainable Development.
- VITALIS, Vangelis (2001). "Eco-Labelling and the WTO Rules: What Needs to be Done". Paris, OECD Roundtable on Sustainable Development.
- (2002). "Private Voluntary Eco-Labels: Trade Distorting, Discriminatory and Environmentally Disappointing". Paris, OECD Roundtable on Sustainable Development.