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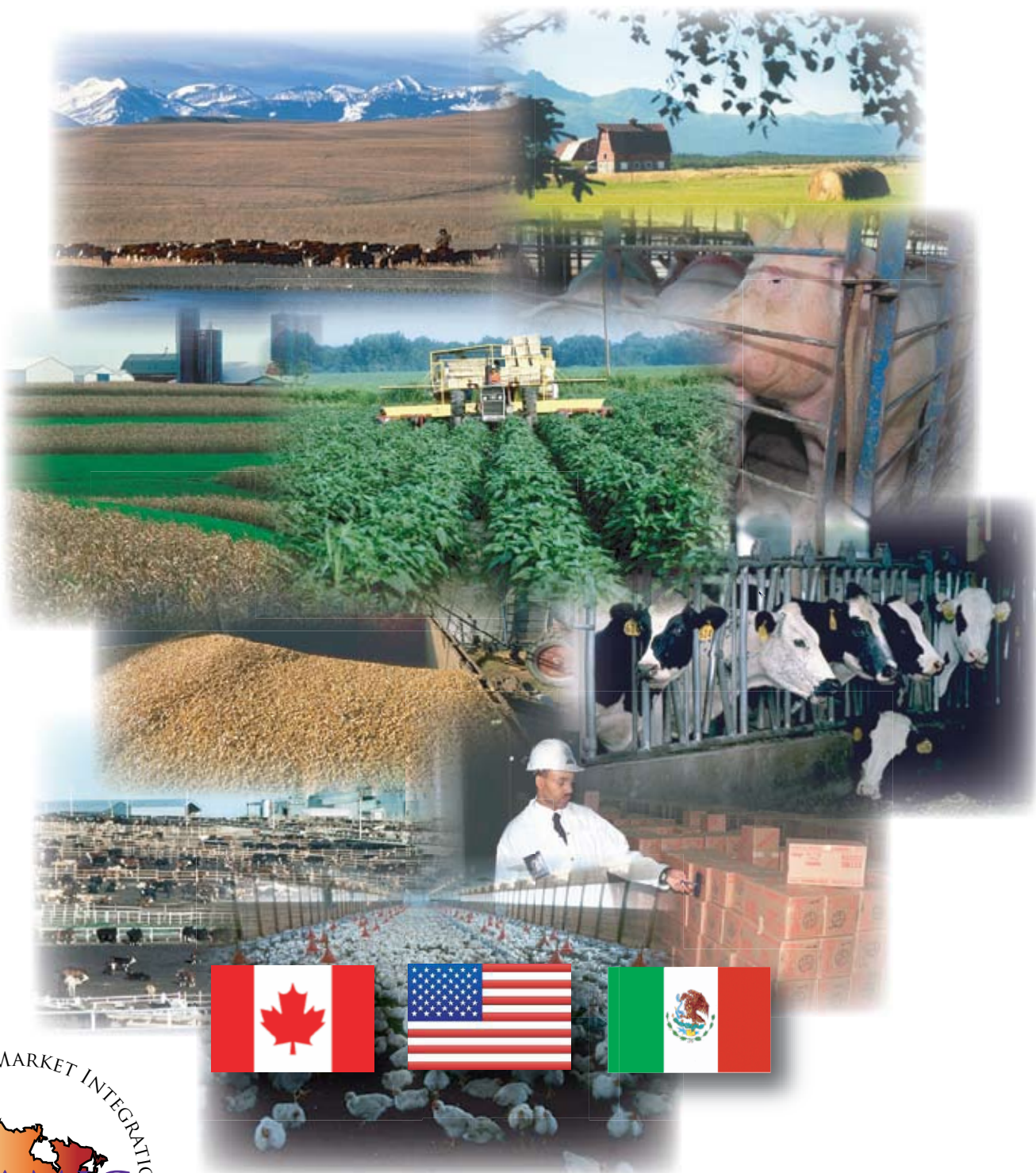
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New Generation of Standards - Executive Summary



NORTH AMERICAN AGRIFOOD MARKET INTEGRATION CONSORTIUM

Fifth Annual North American Agrifood Market Integration Workshop

New Generation of Standards – Executive Summary

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The Fifth in a series of workshops organized by the North American Agrifood Market Integration Consortium designed to foster dialog among policy makers, agrifood industry leaders, and academics on agriculture and food-related market integration issues among NAFTA countries.

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New Generation of Standards - Executive Summary

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The theme of the 5th Annual North American Agrifood Market Integration Consortium (NAAM-IC) workshop reflects the rapidly changing standards requirements that influence how agricultural products are produced, handled, transported, and processed. This standards change is occurring both within the NAFTA countries and globally, meaning it has implications for private sector strategies, for country strategies, for country trading blocs, and for international organizations such as WTO, CO-DEX, OIE, IPPC, and ISO. It affects how products are inspected at borders and, when combined with changing oil and biofuels prices, it also affects where and how products are produced.

Developing International Standards

New World of Standards – Knutson and Josling Standards reflect what consumers want in their food in terms of quality, safety, and lifestyle. Quality standards, set by USDA and FDA, convey to consumers the product characteristics that affect their decisions on what to buy and what price they are willing to pay. They may

be product grades, product labels, content labels, nutrition labels, or container fill requirements. Safety standards are designed to protect consumers from harm due to pathogens, additives, or residues. Lifestyle standards, such as organic food standards, are designed to give consumers information about how or where products are produced.

Until recently, most standards were **product standards**, meaning that the product itself could be examined and tested to determine if it met a specified standard, with little regard to the methods of production or the conditions in the region of origin. It was found, however, that while product standards could be designed to convey food quality, they did not insure food safety at a level demanded by consumers.

Process standards typically specify the steps and procedures that are to be utilized along the supply chain to minimize the occurrence of food safety problems and potentially other issues discussed herein. They are intended to ensure the safety of the food supply by requiring thorough information about how products are produced, handled, and processed so that both the presence and the origins of pathogens, diseases harmful to humans, harmful additives, or harmful chemical residues can be specifically identified. The most widely recognized process standard is the science-

based Hazard Analysis Critical Control Point (HACCP) procedure required by developed countries for most processed food products, including fresh meat and fish, and internationally as the standard for trading food products.

Process lifestyle standards also ensure, for example, that products sold in the United States that are labeled organic are produced using specific inputs and procedures; that animals are produced with practices considered to be humane; or that fair trade prices are paid to farmers. Process standards typically are monitored for compliance by some type of audit procedure, which may be carried out by a state or federal regulator, such as the Agriculture Marketing Service, USDA or by a third party from the private sector.

Either product or process standards may be established voluntarily by private firms or under

¹The content of this Executive Summary was abstracted by the authors from the proceedings of a the New Generation of Standards workshop held in Austin, Texas, on May 21-23, 2008. The six base papers commissioned for the Workshop are identified at the end of the Executive Summary and are referenced within it. These base papers are published on the website of the North American Agrifood Market Integration Consortium (NAAMIC) at <http://naamic.tamu.edu> and subsequently will appear in print by Agriculture and Agri-Food Canada. From time to time, key statements by conference participants are also referenced.

Process standards require information about how products are produced, handled, and processed so that both the presence and the origins of pathogens, diseases harmful to humans, harmful additives, or harmful chemical residues can be specifically identified - Knutson and Josling.

law by governments. Private sector standards exist to show and ensure product quality, safety, and/or life-style characteristics as marketing strategies to distinguish products from those of competitors. Among the more specific management codes related to the food industry are the following “good practices” specifically related to the issue of biosafety:

- **Good agricultural practices (GAP)** indicate dictate the practices that are to be followed by farmers/growers in producing agricultural products, such as inputs utilized, irrigation water quality, and hygienic facilities for farm workers.
- **Good handling practices (GHP)** indicate the practices that are to be followed in harvesting products and in post harvest practices for products that are not processed, such as hygienic facilities in harvesting or handling products, or the quality of water utilized to clean products. It also includes provisions that facilitate tracing the origins of the products back to specific farms or areas of production.
- **Good processing practices (GPP)** indicate the practices that are to be followed in processing, such as HACCP and requirements for traceability. The scope of what constitutes processing is expanding as, for example, fresh fruit and veg-

List of Acronyms Used in this Report.

ABI	Automated Broker Interface
ACE	Automated Commercial Environment
ACS	Automated Commercial System
AMS	Agricultural Marketing Service, USDA
APHIS	Animal and Plant Health Inspection Service, USDA
BSE	Bovine Spongiform Encephalopathy (Mad-Cow Disease)
CBP	Customs and Border Protection
CFIA	Canadian Food Inspection Agency
CHC	Canadian Horticultural Council
CODEX	Codex Alimentarius Commission
COOL	Country of Origin Labeling
CPMA	Canadian Produce Marketing Association
C-TPAT	Customs Trade Partnership Against Terrorism
DG	Distillers Grain
DHS	Department of Homeland Security, US
FAST	Free and Secure Trade
FDA	Food and Drug Administration, US
GAP	Good Agricultural Practices
GFSI	Global Food Safety Institute
GHP	Good Handling Practices
GLOBALGAP	Global Partnership for Good Agricultural Practice
GMO	Genetically Modified Organism
GMP	Good Management Practices
GPP	Good Processing Practices
HACCP	Hazard Analysis Critical Control Point
ID	Identification
IPPC	International Plant Protection Convention
ISA	Importer Self-Assessment
ISO	International Standards Organization
LGMA	Leafy Green Marketing Agreement
NAAMIC	North America Agrifood Market Integration Consortium
NAFTA	North America Free Trade Agreement
NAIS	National Animal Identification System, US
NAPPO	North American Plant Protection Organization
OFFSP	On Farm Food Safety Guidelines for Specialty Products
OIE	World Organization for Animal Health
PN	Prior Notice
SAGARPA	Mexico Ministry of Agriculture
SCSS	Supply Chain Security Specialist
SENASICA	SAGARPA's Animal, Plant, and Export Safety Protection Agency
SPP	Security and Prosperity Partnership
SPS	Sanitary and Phytosanitary
SVI	Status Verification Interface
USDA	United States Department of Agriculture
WTO	World Trade Organization

Most disputes related to food safety result from countries not using international standards - Griefer.

etable products are placed in ready-to-use packages.

- **Good management practices (GMP)** relate to the responsibilities placed on management to see that control systems are in place to assure that products are safe and biosecure.

Problems arise when standards conflict because they send opposite and conflicting signals to producers and to consumers. This is likely to be less of a problem domestically than internationally. International conflicts in standards have the potential to disrupt trade. A number of international organizations have been explicitly established to deal with these issues, including:

- **Codex Alimentarius Commission (CODEX)** develops internationally recommended food standards for protecting the health of the consumers, ensures fair food trade practices, and promotes coordination of all food standards work undertaken by international governmental and nongovernmental organizations.
- **World Organization for Animal Health (OIE)** is responsible for safeguarding world trade by developing and publishing health standards for international trade in animals and animal products based on veterinary science.
- **International Plant Protection Convention (IPPC)** prevents the spread and intro-

duction of pests of plants and plant products by promoting appropriate phytosanitary measures for their control.

- **World Trade Organization (WTO)** obliges all members to adhere to the Agreement on Sanitary and Phytosanitary Measures (SPS Agreement) requiring governments to apply SPS only to the extent necessary to protect human, animal, or plant life or health and to base them on scientific principles and in the least trade-distorting manner.
- **International Standards Organization (ISO)** is a private sector standard setting organization that seeks to promote a free and fair global trading system by providing the management control underpinnings for quality, technical procedural, safety, management, and environmental process standards.

Knutson and Josling concluded that domestic food regulations are the most appropriate instrument for risk-related food safety goals. By contrast, measures undertaken voluntarily by the private sector, albeit with varying and sometimes significant degrees of government involvement, are the preferred approach for food quality goals.

Process standards place more responsibility on the regulatory infrastructure of the exporting country than on border inspection in

the importing country. This trend in quality regulation is leading to increased use of private, third-party certification services in the food sector, especially within countries lacking satisfactory public certification infrastructure. These and other alternative certification options are one manifestation of a broader commitment by national food quality regulators.

The public-private standards nexus is a long-run problem for the Americas, as it is unlikely that the dominance of supermarkets in food retailing and large multinationals in processing and distribution is on the wane. NAFTA could provide an excellent test case for attempting to achieve a constructive balance between public product standards and private process standards.

Discussant Greifer

There is a basic need for training systems based on international SPS standards. These standards need to be based on risk analysis and risk assessment, which is the critically important rule in the WTO SPS agreement. Most disputes related to food safety result from countries not using international standards.

Regionalization within a country as being disease free is an important area, but there is wide variation in procedures from country to country. In 1997, the United States took the leadership in developing a

The development of process standards has the potential for substantially changing trading relationships and, therefore, has not received sufficient public attention - Open discussion conclusion.

regionalization policy. This procedure has been adopted by the international organizations.

The North American Plant Protection organization (NAPPO) has developed as a very effective plant protection standard-setting body. While the National Animal Health Commission was established as a counterpart to NAPPO, it has never achieved standard-setting status. However, it was effective in assisting OIE in developing the standard for BSE.

The following issues were identified by Grier for the future:

- Developed countries have the obligation to help developing countries gain the skills and procedures required to conform to SPS standards.
- There is a severe resource limitation in risk analysis and training.
- National sovereignty is a major barrier to obtaining standard uniformity.
- Variation in developing country food safety and risk analysis infrastructure is a major problem.

Open Discussion

The development of process standards is a very important development that has the potential for substantially changing trading relationships and, therefore, not received sufficient public attention. The absence of uniform in-

ternational process standards is a serious problem that gets caught up in issues of sovereignty. Private standards outside health and safety may become serious barriers to trade, thus creating a serious disconnect with regard to the role of the WTO and other international standard setting organizations. For example, one private standard defines sustainability as not having GMOs. In addition, process standards are having serious adverse impacts on developing countries due to inadequate training on the procedures for compliance and the higher costs imposed, including the cost of certification and other transaction costs. Each of these issues deserves the attention of both national governments and international organizations to develop an understanding of the appropriate roles for both the public and the private sectors.

Evolving Crop Standards – Paggi

Many resources are being invested by international organizations, national governments, private sector food retailers, food processors and producers to establish process standards to address concerns regarding food safety and food protection at all levels of the supply chain. The proliferation of these standards, guidelines, and certification programs has created a situation some have likened to an “arms race” to prove who is providing the safest food and to capitalize on the way consumers per-

ceive food safety. In the absence of one universally accepted set of standards, producers and food providers are often faced with having to comply with a different set of standards for different customers resulting in increased costs with little evidence of a corresponding increase in compensation in the form of higher product prices or food safety. These standards apply to the basic areas of soil, water, animals, people, and traceability:

- **Soil amendment standards** place particular emphasis on the treatment and application of animal manure and on the use of chemicals such as soil fumigants.
- **Water quality standards** are designed to control the inherent potential for pathogen contamination during the numerous field operations involved in crop production (e.g., irrigation, application of pesticides and fertilizers, cooling, and frost control). These standards generally require identification and charting of the sources of irrigation water with the specification of required chemical and microbiological testing and tolerances such as specified by ISO 17025 or equivalent.
- **Animal standards** are designed to control the transfer of pathogens, such as *E. coli* O157:H7, linked to runoff from animal feeding operations or large concentrations of grazing livestock, and/or the presence

In the absence of one universally accepted set of standards, producers and food providers have to comply with different standards for different customers. This results in increased costs with little evidence of a corresponding increase in producer compensation in the form of higher product prices or food safety - Paggi.

of wild species such as deer or feral pigs which deposit feces in growers' fields. The standards may require monitoring, fencing, maintaining buffer zones, and habitat removal.

- **Worker hygiene standards** specify practices to minimize the risk of pathogen contamination and infectious diseases. Most cases of foodborne illness associated with fresh produce have been linked to contamination from contact with fecal material. Therefore, hygiene risk analysis and training must be preformed, documented, and updated annually.
- **Traceability standards** recognize the ability to identify the source of a product as an important complement to good agricultural and management practices intended to minimize liability and to prevent the occurrence of food safety problems. These standards are not yet well developed and most commonly cover only the one-step forward, one-step back approach specified in the U.S. Bioterrorism Act of 2002. However, in the longer run, the integrity of developing supply chains would appear to require farm to table traceability systems.

Public and private sector process standard initiatives within the NAFTA countries are highly

variable. Typically, the initial initiative comes from consumers who demand a safer food supply; from retailers and food service operators who strive to fill this demand, build their franchise, and protect their liability; and from farmers whose markets and financial well-being are frequently at stake.

Federal governments have been hampered by the lack of will or authority to act, leading to, for example, the predominant voluntary GAP guidelines of the USFDA. AMS/USDA has been more aggressive in opening the door for the use of marketing orders and agreements, in addition to the development of third-party compliance audits. Frequently, states and provinces have been called on to fill in the gaps due to a lack of federal authority or an inability to agree on the appropriate type and level of regulation.

In 2002 the Canadian Horticultural Council (CHC), a grower and primary packer industry organization, issued the On Farm Food Safety Guidelines for Specialty Products (OFFSP), which are similar to FDA's GAPs. Unlike FDA, the Canadian Food Inspection Agency will review and recognize the OFFSPs. The OFFSPs are also more general in that they cover chemical and physical hazards in addition to microbial food safety issues. While the FDA

does not think HACCP systems are appropriate for field operations, the CHC has pursued HACCP-based food safety programs.

In the absence of strong federal authority and uniform domestic and export food safety standards, SENASICA, the APHIS counterpart in SAGARPA, assists its states in helping to conform to evolving U.S. and Canadian standards. Mexican farmers are left in a position of responding to decisions made by U.S. and Canadian regulators.

While these standards have the same basic food safety objective, their specifics vary among firms, organizations, and countries. Sometimes they are treated as voluntary guidelines and in other cases they are mandatory. Initially promoted by public or private interests in individual countries or their regions, they are rapidly proliferating to global standards though international organizations and supply chains, often referred to as The Global Partnership for Good Agricultural Practice (GLOBALGAP), with the stated goal of being applied to all of agricultural production, and the related Global Food Safety Institute (GFSI). Accomplishing this task will be costly and involve a considerably higher level of regulation than farmers and their organizations are accustomed. The biggest challenge will be for developing coun-

The biggest GLOBALGAP challenge will be infrastructure development and training by developing countries for their predominately small farmers to gain market access. A related WTO challenge will involve sorting out the requirements for science-based systems that minimize trade distortions - Paggi.

tries that, while wanting access to developed country markets, will require extensive infrastructure development and training for their predominately small farmers to gain market access. A related WTO challenge will involve sorting out the requirements for science-based systems that minimize trade distortions.

Absent an agreement on universal standards, the uncertainty regarding food safety will likely increase as the source of food for consumption within North America becomes increasingly global. At issue is what role NAFTA countries should play in providing leadership for setting international process standards. This role currently is being led by developments within the European Union associated with GLOBALGAP and by the desire of international private sector buyers such as Ahold, Carrefour, Delhaize, Metro, Migros, Tesco and Wal-Mart to reduce duplication in the supply chain through acceptance of common standards contained under the umbrella of the Global Food Safety Initiative (GFSI)

Discussant Horsfall

The Leafy Green Marketing Agreement (LGMA) was formed to protect public health following the emergence spinach of the contami-

nation issue. The key elements of the LGMA's success include:

- Total industry involvement,
- CA Marketing agreement that make audits mandatory once they join the LGMA,
- Penalties for noncompliance,
- Certification trademark,
- Transparency.

There has been no pathogen contamination case discovered since LGMA was established. The same basic model, with adjustments for specific crops, pests, and irrigation systems, has been implemented in Florida, Arizona, and Mexico.

The race for standards is part of the problem but can be part of the solution as well. It is part of the problem in the sense that growers may have 4-6 audits per month using different standards that could easily be the same. It can be part of the solution if there is the realization that everyone must get on board supporting a single standard.

Discussant Trujillo

With \$6 billion of produce exports to the United States, Mexico has made strong efforts to comply with U.S. GAP with eight crop process standards. Our biggest need is for one organization that takes on the responsibility for achieving uniform standards. In plants, NAPPO has been very effective in providing this leadership for phytosanitary standards. Eight of nine

adopted international IPPC standards were advocated by NAPPO. NAPPO is effective because all interested parties are involved in its decisions. Animals do not have a comparable standard-setting body; neither does the food safety arena.

Canada has a closer to ideal country structure with one food safety agency (CFIA). While CODEX is the core for food safety standards, it has not been effective in creating uniformity. GLOBALGAP was created as a result of a lack of strong government leadership.

Discussant Dempster

The Canadian Produce Marketing Association (CPMA) has developed a gate-to-plate system that is coordinated with both the United States and Mexico. In addition to promoting produce consumption, CPMA strives to make trade seamless and problem free. The emphasis is on food safety and traceability guidelines. The standard is essentially a HACCP program applied to crops. Their leadership in establishing a national standard for Canada avoided provincial differences. Farm level process standards, that are essentially the same as the LGMA procedures, likewise are being implemented.

In an attempt to avoid the costs of multiple audits, CPMA has established a Joint Food Safety Comparison project designed to help move in the direction of global harmoni-

It is important that the NAFTA countries take decisive steps to establish their leadership in the development and setting of a uniform and workable set of process standards. The Security and Prosperity Partnership (SPP) has had that opportunity, but it does not appear to be working - Open discussion conclusion.

zation of process standards. The plan then is to take the results to the GFSI.

There is a danger that individual governments, acting independently, will get ahead of the private sector, leading to the tyranny of small differences. All must use the HACCP system. While the United States and Canada have HACCP-based systems, the details are not the same. There is an overriding need to hammer out a uniform appropriate system before putting it into legislation. The bottom line is for a need for harmonization among food safety programs.

Open Discussion

Lifestyle standards mix the objective of food safety, with economic issues such as sustainability and with societal goals such as wildlife preservation, fair trading, and organic farming. Food safety is the main goal of LGMA, CPMA, FDA, USDA, and SENASICA.

The potential for liability in the event of an incident is driving the push for traceability. There are indications that the costs of implementing and maintaining standards are being passed down the value chain to the producer level. However, in the new era of process standards, buyers have become more aware that the strategy of buying at the lowest cost may

come with increased risk of contamination.

Private sector leadership has positive attributes in that it is more flexible in making adaptations to get a workable quality system. Once public sector laws are enacted, adjustments become more difficult.

It is important that the NAFTA countries take decisive steps to establish their leadership in the development and setting of a uniform and workable set of process standards. The Security and Prosperity Partnership (SPP) has had that opportunity, but it does not appear to be working. The process needs to be more open, and the issues need to be looked at from a broader perspective, as in this NAAMIC Workshop.

Evolving Livestock Standards – Skaggs, Boecker, and Crawford

Animal and zoonotic diseases and pathogens coexisted with livestock and humans. However, globalization and multilateral trade dependencies have brought new urgency to the systems and infrastructure for preventing, detecting, diagnosing, and managing disease threats. When markets are integrated, with both animals and livestock products flowing relatively unimpeded

across borders, pathogens can be expected to also flow.

Multilateral trade liberalization has been viewed as a means to exploit competitive advantage, spur economic development and growth, and bring about increased economic efficiency and social welfare in nations, which liberalize their trading regimes. NAFTA and the Uruguay Round Agreement on Agriculture were supposed to eliminate or reduce trade barriers leading to more integrated food and agricultural markets.

To a large extent, borders in the North American livestock complex have been transcended. However, growing livestock and zoonotic disease and livestock-related food safety concerns have led many to question the future of liberalized trade in animals and animal products. Even ardent free-traders are finding it increasingly difficult to argue that animal and zoonotic disease and food safety concerns are not legitimate problems in today's globalized food market as a result of numerous high profile disease and food contamination incidents in recent years.

While the WTO allows member countries to set their own SPS standards using sound science, member countries regularly disagree over SPS standards as they relate to livestock and livestock products. It is relatively common for trading nations to restrict im-

The ability of nations to deal with livestock disease outbreaks and food safety threats is primarily determined by the effectiveness of existing animal identification (ID) and traceability systems - Skaggs, Boecker, and Crawford.

ports based on food safety and health concerns even when international human and animal health organizations conclude there is no health risk.

The ability of a nation to deal with livestock disease outbreaks and food safety threats is primarily determined by the effectiveness of existing animal identification (ID) and traceability systems. Animal identification and traceability are functional across diseases and livestock subsectors. The emergence of corresponding standards is a fairly recent phenomenon and in various phases of discussion and implementation.

Throughout the livestock complex, driving forces for traceability exist at the consumer/public health, animal and firm/industry levels. In order to make progress on traceability, governments need to develop regulatory requirements with the cooperation of the industries that will be affected by the regulations. Traceability systems can generate benefits for individual firms, a specific supply chain, or an industry as a result of improvements in operations and supply chain management, market enhancement, product differentiation, and branding strategies. Consumer preferences and consumer trust impact more directly at the firm or industry level, while regulatory-driven traceability for animal and public

health does not discriminate between particular suppliers.

While the development and adoption of traceability systems within NAFTA countries has been difficult, cross-country coordination is even more difficult. Cost-benefit considerations for animal health risk management measures, including animal ID and traceability systems, differ by country. Countries cannot coordinate policy closely unless they agree on which benefits and costs to take into account and on how to measure them. This cannot simply be determined at the federal level, because needs, and thus costs and benefits, differ between states or provinces within a country. Hence, close policy coordination across countries becomes more difficult when efforts are concentrated on the simultaneous development of new or enhanced animal ID and traceability systems. International organizations can play a key role in facilitating such coordination.

Future changes in meat inspection will involve:

- More testing at the meat packing level for a greater range of disease causing bacteria;
- Enhanced meat tracking and traceback systems to speed recall efforts and to narrow the focus and scope of the recalls;
- Improved animal management and handling practices on farms and ranches to reduce

the chances of introducing or increasing the ability to contain a disease-causing organism;

- With increased trade, more port inspections or certification of importing country's inspection systems can be expected.

In the face of this additional emphasis on inspection and testing, recommendations for GAP and GMP are needed. Individual firms and operators will have to increase the level and quality of practices and processes as the costs of food safety and disease failures can be catastrophic. Thus, private sector insurance premiums for liability insurance are likely to play a large role in dictating good practices in the future, and it may be that insurance driven mandates can more efficiently reduce food safety and disease threats (relative to increased regulation) within the North American livestock complex, as well as be of greater interest to some industry segments.

Questions must be raised as to the feasibility of additional livestock and animal products regulatory integration within NAFTA and between NAFTA and other countries. Further regulatory integration implies process standards which could dictate acceptable inputs or means of production. In a perfectly integrated regulatory system, mandated standards for production, handling, processing, or management at all stages

Going totally electronic at border crossings must be a goal for all NAFTA countries - Whetten.

along the supply chain would be harmonized across nations. Such standardization has the potential to defeat the purpose of market integration designed to exploit comparative advantages along the supply chain. Process standardization would also be a moving target given shifting consumer preferences and evolving social ethics regarding agricultural animals in the NAFTA countries and beyond.

While process standards incorporating HACCP pathogen control methods in slaughter and food processing seem to be good candidates for harmonization, at lower levels of the supply chain (e.g., cow-calf production, shipping, confined feeding) these will continue to be controversial and could be elusive. For example, the U.S. National Animal Identification System (NAIS) has received substantial push-back from the decentralized cow-calf sector.

It is conceivable that multiple-track, live-cattle production and marketing systems will develop, similar to those, which exist in other countries, where there are clear distinctions between export and domestic market channels. This type of segmented marketing system would allow the private sector to set performance standards, innovate throughout the supply chain, respond to customer and consumer demands and likely increase economic efficiency beyond that which would exist in a com-

mand and control system, which seeks to cover every animal and every producer with homogeneous, one-size-fits-all regulations. The development of multiple market channels or segments within the North American livestock complex could increase the resilience and robustness of the system, decrease systemic risk, preserve the cultural values of livestock production at the farm and ranch level, and better meet emerging consumer demands.

Discussant Whetten

In any type of program to control diseases, ranchers must be involved with other industry and government interests. Substantial progress is being made in controlling bovine tuberculosis from “disease free” states on the Northern Mexican border. This problem has been concentrated particularly in large dairies.

Mexico does not have a national animal ID program. However, movement control systems in Mexico are easier to implement than in the United States because there are fewer roads. All cattle arrive at the border with a substantial amount of paperwork and related information with ear tags. Yet, when the border is crossed, this information is filed and it is never compiled electronically. Going totally electronic must be a goal throughout the NAFTA countries. Livestock border issues are currently handled by the Border

States Alliance, which supports animal ID, traceability, and related control systems.

Discussant Perera

The Binational Brucellosis Committee meets three times a year to deal with brucellosis, bovine tuberculosis, and ticks issues. There is a need for a better approach to exporting cattle from Mexico to the United States. Increased emphasis is being placed on evaluating and improving sensitivity tests. In addition, there is a need for improved communication between industry and government.

Discussant Mayers

Producer recognition of diseases and of their consequences is a key to effective limitation and control of animal diseases. There must always be preparedness to limit the impacts of a disease event. The discovery of a disease must be followed by regional action to isolate the disease.

The establishment of a national animal ID traceability system is at the heart of the progress made in Canada. This provides much good information for the isolation and control of animal disease and pests. While Canadian adoption of animal ID may be viewed as being relatively harmonious, there has been controversy. One of the key concerns involves the need to protect the security of information provided by a national ID system. Canada is nowhere close to a

From the experience in fruits and vegetables with the development of GLOBALGAP, it is just a matter of time until its retailer and food service members demand an animal ID traceability system. The result will be a rapid development of price discounts for those farm and ranch operations that do not conform to an evolving system of process standards - Open discussion conclusion.

GAP for livestock, except for dairy where HACCP is being adapted at the farm level.

Open Discussion

While there has been substantial pushback from certain producer interests, a U.S. national animal ID system appears to be inevitable. From the experience in fruits and vegetables with the development of GLOBALGAP, it is just a matter of time until its retailer and food service members demand an animal ID traceability system. The result will be a rapid development of price discounts for those farm and ranch operations that do not conform to an evolving system of process standards. Forces will operate from global retailers, to packers, to feedlots, to stockmen. Moreover it seem highly unlikely that different systems will develop for serving domestic and international market because the markets are very difficult/impossible to separate.

The success of Canada in enacting its ID system was a function of cattlemen getting on board. In the face of BSE, ranchers, feedlot operators, and milk producers wanted a system that did not impede commerce. Program incentives were important, including a sharing of the costs. The level of regulation is not as great as one might think. For example, an animal that does not leave the farm does not need to be tagged. However, many ranches

already use tagging for a variety of management reasons.

Biosecurity has to be looked at as a cost of doing business. As part of this cost, stopping the movement of diseases is part of the payoff. Likewise, developing a complete system is becoming a key to accessing export markets.

The development of CFIA occurred despite pushback from a number of the traditional departments and agencies. It was primarily a matter of a need to increase the consistency of regulations, efficiency, and reduce costs. Firms were fed up with multiple audits and verifications. In the process there was some tendency to reduce the emphasis on promotion activities.

Border Congestion

Cascadia Border Operations, Issues, and Consequences – Goodchild, Albrecht, and Leung

The U.S. and Canada are each others' largest trading partners, with the value of trade between the two the highest between any two countries worldwide. For the United States, trade with Canada is larger than that of the European Union countries combined. Canada's international trade is strongly biased toward the U.S., which accounts for over 75 percent of the former's trade in goods. The long land border favors surface modes of transport. In terms of total trade (north-bound and south-bound

combined), trucking is the most important mode of transport both in terms of tonnage and especially value, with modal shares of truck transportation comprising almost 62 percent of value and about 35 percent of weight

The U.S.-Canada border at Blaine, Washington, is the fifth largest overall and the largest border crossing west of the Mississippi. Commodities at this border crossing are primarily wood, wood products, and agricultural products. Agricultural products, therefore, are the primary time-sensitive commodity. This is different from Eastern Borders, where manufacturing requires cross-border shipments operating in a time-sensitive environment.

In the Pacific Northwest, agribusiness is the most significantly affected industry from border delay as it is the largest industry with a significant proportion of time-sensitive trips. The primary response to variability in border delay is increasing buffer times, these are longer for industries with time-sensitive goods, and therefore the cost is higher for time-sensitive goods and the agrifood industry than for other industries.

Electronic Presentation of Cargo Information (ACE) is an all-in-one system for in-bound filings that needs manifest and mandatory advance cargo information that requires one to submit a certification

Ensuring that border paperwork is completed prior to crossing requires a full time person accessing electronic systems - Goodchild, Albrecht, and Leung.

application. The application must include the principal (who is any high ranking officer within the account, i.e. the sole proprietor, a corporate officer, etc.) and the account owner (the person responsible for the daily administration of the account's activities), and list primary business activity as well as other business activities (also known as "account types"). Importers who are self-filers should apply for both their importer and themselves on one ACE application. ACE filing is now required for all carriers. ACE reduces processing times and errors. One can electronically store trip information of the shipment, trip, conveyance, crew, and equipment including in-bound cargo movements. In 2006, case studies and follow-up interviews about ACE revealed that the number of trips in which a truck is required to have a secondary inspection has decreased by approximately 50 percent.

Customs Trade Partnership Against Terrorism (C-TPAT) is a voluntary program. To achieve C-TPAT certification, companies must comply with a variety of security measures, which increase the level of trust between CBP and the carrier. To verify a membership, one must be processed through the Status Verification Interface (SVI) for a background check. C-TPAT reduces the number of Customs and Border Protection (CBP) inspections, provides priority processing for CBP in-

spection, and assigns a C-TPAT Supply Chain Security Specialist (SCSS) who works with the company to validate and enhance security throughout the company's international supply chain, provides potential eligibility for the CBP Importer Self-Assessment program (ISA), and provides eligibility to attend C-TPAT supply chain security training seminars.

Free and Secure Trade (FAST) requires drivers to be citizens or permanent residents of the United States or Canada and at least 18 years old with a valid driver's license. Clearance for the FAST lane requires that all passengers who hold a FAST permit, the vehicle, goods, and the carrier and importer must all be FAST approved. To be approved, one must be already C-TPAT approved, provide a full set of fingerprints, address history for the last five years, employment history for the last five years, current employer, and a fee payment of CAN\$80 or US\$50. FAST status is valid for a five-year period. A FAST Commercial Driver receives a card to use at the border. This card allows: use of FAST dedicated lanes in Canada and the United States; border crossing with accelerated customs and immigration processing; and transporting eligible goods for FAST-approved carriers and importers. Average border crossing times for FAST trucks average about 20 minutes. Average

crossing times for nonFAST vehicles are one hour longer.

USFDA requires prior notice of arrival information to import food into the United States. This advance information is used by FDA to evaluate the need for further investigation. Imported food shipments can comply by using CBP's Automated Broker Interface of the Automated Commercial System (ABI/ACS), and prior notice can be submitted either through ABI/ACS or FDA's Prior Notice (PN) System Interface. For arrival by land, prior notice must be submitted electronically and confirmed by the FDA no more than 5 days and no fewer than 2 hours upon arrival. Information submitted must consist of the identification of the submitter, transmitter, manufacturer, grower, shipper, importer, carrier; entry type and CBP identifier, the country from which the article of food is shipped, anticipated arrival information, and the country of production.

Goodchild made the following recommendations to companies requiring the movement of agrifood products across the US/Canadian border to reduce the impact of the border and related congestion and delay on business operations:

- Ensure paperwork is completed and filed appropriately prior to the crossing, which requires

A major barrier to seamless transport of produce from Mexico lies in at least three points of inspection by military personnel searching for drugs and arms. Mexico's SENASICA should define non-intrusive produce inspection protocols at the military checkpoints and train the inspectors on the new protocol - Villa and Leyva.

a full-time staff to manage this process.

- Cross between 7 am and 11 pm, but outside of peak hours, which will ensure availability of all agencies and will reduce the impact of peak congestion.
- Locate transfer terminals before the border crossing instead of after the border crossing (in the United States for Canadian bound goods, in Canada for U.S. bound goods), which will reduce the impact of variability in border delay.
- If possible, get FAST approved and comply with C-TPAT, which provide logistical benefits.
- File manifests with ACE, which, reduces the likelihood of delay at the border, although ACE is not fully enforced.
- If possible, use lower volume crossings.
- If possible, use rail, which typically has shorter delays for nonFAST cargo.

Options for Reducing Congestion at the Mexican Border – Villa and Leyva

During the past 5 years, Mexican exports have increased nearly 15 percent annually to just over \$10 billion. A large share of these seasonal imports is produce from the states of Sinaloa and Sonora. This produce primarily crosses the border in trucks, nearly half of which is through the Nogales port of entry. This is roughly a 12-hour drive from the points of production. These

are among the 5 million trucks that cross the border annually. While the goal of NAFTA was to provide seamless cross-border trucking operations, substantial delays are prevalent. A one-year pilot project involving 100 Mexican and 100 U.S. trucking companies is designed to improve the cross-border trucking impasse, but much more needs to be done to remove produce border congestion.

A major barrier to seamless transport of produce lies in at least three points of inspection by military personnel searching for drugs and arms. These inspectors are not trained to inspect produce. If randomly selected at one of these inspection points, the military personnel break the seal placed on containers at the point of origin and required by CBP inspectors to be eligible for FAST lane shipment at international bridges. In addition, tomatoes, grapes, onions, and oranges are required to be inspected for quality by USDA officials. Truckers must also meet U.S. truck weight restrictions, which are lower than in Mexico; meet all U.S. safety, environmental, and homeland security regulations; and pay all applicable taxes and registration fees. Movements of products

from southern Mexico are even more complex.

Villa made the following recommendations for reducing Mexican border congestion:

- SENASICA in Mexico should define non-intrusive produce inspection protocols at the military checkpoints and train the inspectors on the new protocol.
- Additional physical infrastructure is needed including adding traffic lanes on the Mexican side of the border, adding inspection booths, and staffing to operate the additional infrastructure.
- Prepare and require a single uniform set of paperwork accepted by both Mexican and U.S. CBP inspectors.
- Coordinate hours of operation to handle seasonal traffic and produce flows.
- Design a special version of the FAST program for produce.

Discussant Moore

Current operations at the Nogales port of entry make it impossible to commit for the day of arrival, which is very important for produce. The recommendations for improvements to reduce border congestion are a major and important contribution. The fact is that there is relatively little data on and study of border issues. The most important problem highlighted in the Villa/Leyva paper is the need to improve infrastructure and thereby increase capacity. The Nogales port of entry

There must be a will to deal with improving the border infrastructure and to develop a common set of border agency objectives. This requires a broader NAFTA perspective and objective with the key stakeholders must be at the table - Open discussion conclusion.

was designed with two commercial lanes and 400 trucks per day, while there are actually 1,500 trucks. The funding for improvements comes largely from the Department of Homeland Security (DHS). While DHS has a huge budget, increasing capacity at the border does not appear to be a high priority.

The second highest priority is to increase the number of hours of operation. Border operations should be on a 24/7 basis. Equally important is that there be coordination and understanding between Mexico and the United States regarding holidays. Both of these require an increase in the budget for border operation.

At military checkpoints there is need for standardization of operation and for improved equipment to identify trucks needing higher levels of security inspection. In fact, there is need for a standardization of all operating procedures for all functions at all ports of entry.

While FAST is a good program, CT-PAT was never designed for produce. The biggest FAST need is for drivers.

Discussant Ibarra

Produce needs to be recognized as having unique border issues and problems. Nogales is unique in that it is the only port of entry where loads can be consolidated. There is need for a long-term vision on infrastructure development that

is coordinated between the United States and Mexico. Studies are being undertaken of the feasibility of moving a larger share of the produce by ship or rail. There is clearly a need for improved documentation and visas. There is also a need for improved devices for detecting drugs. Development of sealed pre-inspection procedures is essential. This should be designed to give a free zone at the point of origin.

Discussant Murphy

Good trading relations with the United States are critically important to both Canada and Mexico. The following recommendations are critically important:

- A single window for forms and data requirements is needed;
- Border operations must be on a 24/7 basis;
- Contingency must be established for border closures;
- There must be a system for identifying and maintaining trusted low-risk truckers, which should be exempt from the APHIS inspection fee;
- Pre-clearance procedures need to be developed and utilized with pallets being certified.

Open Discussion

Clearly, congestion at the border reduces NAFTA benefits. NAFTA needs to be an advocate and facilitator of investments in the border infrastructure. That requires a political will. Mexico is less competitive as a result of congestion. Busi-

ness and shipping practices adapt to congestion, but at a higher cost. There is clearly a potential for more maritime shipping on both coasts. The main factor leading to a shortage of trucks is that the drivers bear the costs. In addition, customs brokers are a needless waste in the system.

Livestock presents a different set of issues but the same basic consequences. There is a basic need to know how long it takes at the border because it affects the condition of the animals. In addition, the border is not the place to test. In the case of meat, since one in ten loads get sampled, it is necessary to send eleven loads, and render the one that gets tested, which is a huge waste. Electronic certification and to pursuit of the concept of low-risk shippers are badly needed.

There must be a will to deal with improving the border infrastructure and to develop a common set of border agency objectives. To do this the key stakeholders must be at the table. This requires a broader North American productivity and supply chain NAFTA perspective and objective.

Comparative Advantage in Livestock

Comparative Advantage in the Pork Industry-Rice

Feed is the biggest cost of raising pigs. The more than doubling of feed costs is causing substantial

As major U.S. Midwest corn producing areas become corn deficit regions due to increased ethanol production, a shift in their comparative advantage in hog production can be anticipated. Globally, Argentina and Chile could become more important competitors in pork export markets - Rice

structural adjustment in the pork industry. While the beef industry can utilize distillers grain (DG), a byproduct of ethanol production from corn, in pork and poultry its use is limited. In addition, a number of major corn producing areas of the U.S. Midwest have become corn deficit regions due to increased ethanol production. The result is a shift in their comparative advantage in hog production. Globally, Argentina and Chile could become more important competitors in export markets. Internationally the feeding of nonmeat by-products will become more important.

Animal health and food safety is an additional concern in the hog industry. The most basic need is to maintain credibility as a supplier. This requires the ability to respond to disease problems with the creation of regional zones to isolate problem areas while maintaining the ability to serve markets. This requires cooperation with bordering countries. The shortage of large animal practice veterinarians needs to be addressed.

Government policy is a third major factor affecting comparative advantage in pork production. The availability of risk management tools is being challenged by increased speculation in commodities. In addition, the level and type of farm program subsidies is a concern. Exchange rates, likewise, have impacts on international competitiveness. Other factors influencing

competitiveness include drug approval policies, immigration policies, labor costs, environmental regulations, intellectual property rights, and policies toward genetic modification in breeding, feeding, and health care.

Mexico's Comparative Advantage and Labor Issues in Beef – Peel

The Mexican economy is very dynamic. The relative abundance of extensive forage resources with low opportunity cost for other uses clearly implies a comparative advantage for Mexico in cow-calf and stocker production that utilizes those forage resources. Reduced production of grass-finished beef compared to historical levels means that additional forage resources for cow-calf and stocker production are potentially available. This maintains and potentially strengthens Mexico's ability to export feeder cattle if these animals cannot be effectively used in the domestic finishing and meat processing industry.

The increasing demand for fed beef in Mexico implies more opportunity for Mexican cattle feeding. However, Mexico faces a severe and likely growing disadvantage in feed grain production, especially for cattle feeding. It is inherently more feasible to ship grains for the more efficient feed conversions of pork and poultry production. Mexico certainly cannot compete directly with the U.S. for low

cost, high volume cattle feeding and meat processing. As a result of the smaller scale and lower intensity of cattle feeding, Mexican cattle feeders utilize a wide range of feed resources and must rely to a greater extent on by-product feeds. In this manner, cattle feeding in Mexico may be able to offset much of the disadvantage of over-all feed markets.

Mexican consumer preferences are evolving for more fed beef, but it is a fed beef product that is noticeably different than typical U.S. and Canadian fed beef. Because, the Mexican cattle feeding and meat processing industries are mostly small, integrated firms that have experience in serving the Mexican meat market have an advantage. By maintaining a keen market and product focus and maintaining feeding and processing operations that exploit this focus, Mexican firms have the potential to compete effectively in niche and specialized markets rather than trying to compete directly against large scale, more commodity-oriented U.S. and Canadian production systems.

Mexican beef consumers are generally predisposed to prefer domestic beef and are inclined to respond well to quality differentiation that recognizes distinctly Mexican quality attributes. This increases the potential for branded products and value added marketing provides an opportunity for Mexican

The relative abundance of extensive forage resources implies a comparative advantage for Mexico in cow-calf and stocker production that utilizes those forage resources. Mexican firms have the potential to compete by maintaining a keen market and product focus on feeding and processing operations that compete in niche and specialized Mexican markets - Peel.

firms to offset the disadvantages of feed costs and small scale, higher cost production and processing industries.

Mexico is likely to continue exporting feeder cattle that can be absorbed into the U.S. large-scale feeding and meat processing industries. It will likewise continue importing a significant portion of total beef consumption in terms of overall quantity as well as supplementing the supply of specific cuts that are most preferred and economical in the Mexican market. There is a potentially larger role for beef imports from South America, where both quantity and quality of beef may fit well into the Mexican market. U.S. beef could potentially be displaced with beef from Brazil, Argentina, or Uruguay. South American beef that is more consistent with Mexican beef consumer preferences could also reduce the ability of Mexican beef producers to differentiate domestic beef from imported.

Mexico is likely to have a forage-based cattle production industry and has considerable potential to have differentiated value-added cattle feeding and beef processing markets, but only with careful market orientation and management to overcome the disadvantages of higher cost feeding and meat processing sectors.

One of the issues affecting comparative advantage in livestock

involves the broader issue of immigration of Mexican labor to the United States and their employment in the U.S. livestock industry. In 2000, the U.S. meat processing industry employed nearly half a million workers. Many other immigrant workers are employed on larger scale farms and ranches that produce beef, pork, poultry, eggs, and milk. By American standards most of these jobs are relatively low paying, but not necessarily by the immigrant workers who regularly remit a portion of their earnings to their families in Mexico. Most of these jobs are located in rural communities near livestock production areas of the Midwest, South Plains, and the Southeast.

The national issues of immigration, especially illegal immigration, and the regional and local issues of the impact of minority workers will likely continue. Whatever the debate, there will continue to be a mutually beneficial demand for Hispanic labor in the U.S. livestock and meat industries and a supply of Hispanic labor to meet those demands. Cutting off this supply would adversely impact the comparative advantage of the North American livestock industry, particularly compared with major production areas in Mexico and Argentina.

Discussant Dominguez

Mexico's comparative advantage in hog production is influenced mainly by North American differences

in government policies. Whereas Mexico had become dependent on a plentiful supply of relatively cheap U.S. corn, competition from ethanol has erased this advantage. While Mexico is compensating by increasing corn production and the utilization of byproducts, it faces water supply limitations and an inadequate agricultural finance system. Mexico's large supply of low cost labor is an advantage.

Government food safety policies are not as advanced as in Canada and the United States. There is still substantial backyard slaughter and small community slaughter operations in the country with major meat sales being made in a "wet market." There is a lack of specific quality standards. Consumers tend to prefer lower cost cuts, which are imported into Mexico at a low price. In serving export markets, it is difficult to know where the health department regulations end and the SAGARPA regulations begin.

Discussant Masswohl

The beef industry is struggling with the combination of a high-valued dollar, high input costs, impaired market access, and a higher regulatory burden. The cash price in Canada is below the breakeven price in both Canada and the United States. As a result, cattle numbers are being reduced. Canada has a greater disadvantage because of pharmaceutical regulations and a reduction in publicly funded

Markets will demand convergence of standards. A starting point involves assuring that SPP is moving forward in addressing issues that move in the direction of convergence of standards - Policy maker panel.

wheat and barley research. Canadian marketing strategy involves sending the right cut of meat to the market that values it the most. It has new issues in border testing, country of origin labeling (COOL), and increased regulatory fees.

Discussant Winegarner

Global competition will continue to grow, although Canada and the United States should continue to have an advantage in fed beef. The U.S. beef industry is in the process of change, with high corn prices, increased use of DG, lower cattle and grain inventories, and issues of market access. Other significant challenges include competition with ethanol for corn supplies, environmental regulation of water and air, COOL regulation, and immigration regulations.

Open Discussion

Regionally high grain prices make forage worth more and encourage longer grazing periods. While Mexico will continue to increase feeding, the time in the feedlots will be shorter than for the United States and Canada. Limitations on the labor supply will present the most serious problems for the U.S. livestock industries, and next for Canada. Likewise, the U.S. and Canadian environmental regula-

tion is more troublesome than for Mexico.

Policy Maker Panel – Day, Jones, and Miller

Lifestyle standards may present the greatest regulatory challenges to both the public and the agrifood industries. They cover a very wide spectrum potentially including regulations relating to the environment, organics, GMOs, source verification, wild fish, traceability, animal welfare, and fair trading. Questions include who sets the standards; are the highest standards likely to prevail; who certifies; who pays; how are the borders and trade affected; and many others. The impacts are long lasting. While the standards may initially be viewed as being voluntary, they become mandatory because they become essential for market access. There is need to focus more resources on external markets rather than just those within North America.

There is need to work together in dealing with the global standards issues. There is no reason to assume that HACCP application to packing plants is the last step in process standards for livestock. Why are cows different than carrots in the application of lifestyle standards? Markets and consumer demands will be the primary guiding force with government being a facilitator. Markets will demand convergence of standards. A starting point involves assuring that

SPP is moving forward in addressing issues that move in the direction of convergence of standards. This requires a constant process of moving forward to assure that the trading system works. There is need to set border and global competitiveness goals and strategies for achieving them. Integration is happening, and NAAMIC needs to keep at it.

The new generation of standards theme is the central forward-looking issue and we need to be providing leadership for guiding their development. While adjustment will be necessary, the result will be greater trade and prosperity for both producers and consumers. NAAMIC has not talked enough about solutions. The three pillars of academics working with industry and government is the right combination to bring the results to decision makers. NAAMIC deliberations should be designed to arrive at solutions. Policymakers need to be more involved in understanding the solutions and how they were reached. Harmonization of food safety standards needs to be pursued in North America for both domestic and international markets. NAAMIC needs to have a broad perspective in terms of creatively thinking about the future. More industry leaders and policymakers need to be involved in these deliberations.

Commissioned Base Papers:

- Goodchild, Anne, *Cascadia Border Operations, Issues, and Consequences for the Food System*.
- Knutson, Ron, and Tim Josling, *The New World of Standards, An Overview*.
- Paggi, Mickey, *An Assessment of Food Safety Policies and Programs for Fruits and Vegetables: Food-borne Illness Prevention and Food Security*.
- Peel, Darrell, *Evolving Comparative Advantage of NAFTA Countries in Livestock*.
- Skaggs, Rhonda, Andreas Boecker and Terry Crawford, *Evolving Standards and Industries in an Era of Market Integration: Opportunities and Obstacles within the North American Livestock Complex*.
- Villa, Juan Carlos and Jorge Luis Leyva Vázquez, *Options for Reducing Congestion at the Border*.

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