Understanding Grades and Standards: and how to apply them

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UNDERSTANDING GRADES AND STANDARDS - and how to apply them[1]

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Abstract*: With the expanding globalization of trade, grades and standards (G&S) help to set the 'rules of the game' and their implications for developing countries are becoming increasingly relevant. While they are clearly important to trade, their formation and utilization is also undergoing a shift from being neutral market lubricants to also being tools of product differentiation. This implies a fundamental shift in the role of G&S from just reducing transaction costs of commodity market participants, to serving as strategic tools for market penetration, system coordination, quality and safety assurance, brand complementing, and product niche definition.*

The issues of who is forming G&S, their privatization, motivations, and the impacts on various market participants and poor people must all inform the strategic responses to the changes in the roles and nature of G&S. The definition of their usefulness and value goes beyond the sometimes artificial distinctions between quality and safety to more current distinctions between process and characteristics.

All of these distinctions are predicted to become more relevant than ever as industries and governments, even in the most developed countries, are faced with a new sort of food security issue. In terms of international trade, G&S is becoming the hot topic of political economics in much the same way that tariffs were in the 1990s, with profound implications for regional and international agreements, particularly in terms of sanitary and phytosanitary (SPS) and technical barriers to trade (TBT).

To complement this understanding, a practical outline of the principles of G&S is offered along with step-by-step guidelines for establishing them. The document includes examples as well as ample resources for further information.

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I. Introduction

Grades and standards (G&S) are defined parameters that segregate similar products into categories and describe them with consistent terminology that can be commonly understood by market participants. In particular, standards are rules of classification and measurement established by recognized and consistent use or by regulation. Grades are specific systems of classifications that uniformly and consistently identify quantifiable and qualifiable attributes[2].

In agriculture a clear set of descriptive guidelines or standards help to determine grades and these together provide the common language and terminology for defining product value. On the simplest level, as long as buyers and sellers can meet and bargain with the products in front of them, there is not much need for standardization. But when products are handled in greater volumes and travel greater distances, a system of grades and standards become more critical in order to convey valuable information about the products that determines prices and helps define contracts for delivery. Such a system improves the efficiency of markets and helps make them more transparent. It can also serve to differentiate and segment in positive ways that define market niches and in negative ways that present a barrier to entry for certain market participants.

Unlike industrial products, which are produced to specifications and are relatively consistent, agricultural products are by nature much more varied. Since agricultural products can have a vast array of characteristics such as weight, size, shape, density, firmness, tolerance to insect damage, cleanliness, color, taste, odor, maturity, blemishes, moisture content, etc., a system for clear communication between buyer and seller is vital. In some of the less developed countries, even simple standards for units of volume can be useful in dealing with market problems such as, 'how much is in a burlap bag?'.

A common system and terminology have several benefits:

- Make it possible to buy product that one has not seen
- improve the incentives for quality and safety
- make market information meaningful
- facilitate price/quality comparisons
- reduce the risk of deception and fraudulent marketing
- enable diverse market mechanisms such as futures trading, commodity exchanges, inventory credit or warehouse receipts schemes, and letters of credit
- facilitate resolution of disputes regarding quality and/or composition of shipped products

While grades and standards have obvious value for international transactions, they also provide a valuable impetus to the **development of quality and the domestic market** by distinguishing among quality levels and rewarding, often with higher prices, the better products. In the Newly Independent States, for many years apples and grapes were packed in large wooden crates for transport to processors or local markets with little consideration for different quality levels. Since growers got the same price for average quality as they did for good quality there was no incentive to invest in improved varieties, higher production standards or better packaging. With the collapse of the Soviet system and

[2] this furthers and expands on Jones and Hill, 1994

the opening of markets, local and regional producers found themselves at such a competitive disadvantage that products from as far away as Chile displaced them even in their nearby Russian markets.

Standards are of increasing strategic importance in international trade and can make the difference between being able to participate and not being able to participate in many markets. Since the poorest countries will have the greatest difficulty adapting to standards, their implementation must be carefully thought through so as to prevent them from becoming a barrier to trade.

Several distinctions in G&S are useful for our subsequent discussion. First, **G&S can pertain to outcomes or processes**. The former are the characteristics the product is expected to have when it reaches a certain point in the agrifood chain (e.g., the maximum amount of pesticide residue permitted when apples are purchased from a grower by a processor). The latter concern any of the processes in the agrifood chain (production of the raw product, processing into intermediate or final goods, marketing, etc.); they specify the characteristics that the processes are expected to have, in order to produce certain outcomes (e.g., an organically grown apple, HACCP standards for meat that is safe to consume, or ethical standards relevant to the production or sourcing process, such as worker health/safety or environmental contamination)

Second, **G&S can pertain to various characteristics of a product**:
(1) quality (e.g., appearance, cleanliness, taste),
(2) safety (e.g., pesticide or artificial hormone residue, microbial presence),
(3) "authenticity" (guarantee of geographical origin or use of a traditional process);

Third, as “institutions”, **G&S can be formed and enforced in various ways**. They can be “de jure”, specified as a rule by a government, industry association, or firm or they can be “de facto” arising from many non-coordinated micro decisions in transactions. The formulating entity can be private or public. The G&S can be enforced as either mandatory/sanctioned or they can be voluntary/non-sanctioned.

As noted above, quality and safety are both categories of G&S. Although in current debate they are often discussed as separate issues, in practice G&S that relate to safety are often difficult to disassociate from those related to quality, especially when dealing with “process” G&S. This paper or "learning tool" deals with G&S in more general terms. While both product standards and food safety standards are normative (implying or requiring that producers or processors meet certain norms) and they certainly go hand-in-hand, the former is more a descriptive measure that permits greater specificity and facilitates trade while the latter is more prescriptive and regulates what is and what is not permissible in the context of consumer health and welfare.
Hotlink Designing Effective Food Safety Interventions in Developing Countries.

II. Principles

There are several principles to follow in the establishment of a system of grades and standards. The first step is to **identify the key players** by determining those on whom it will have the most impact. Since the process of developing and implementing standards may be long and arduous, it is important to solidify the commitment of the stakeholders by ensuring that they fully appreciate the value and importance of such a system. The information in section I. can be useful in this regard.

One of the most valuable considerations that should be addressed early on in the process is **clear identification of the purpose(s)** for pursuing G&S. The sort of grades and standards that wholesalers might find useful (differentiation & homogenization) might not fully serve the needs of government (record-keeping and safety) or consumers (quality and safety). Therefore it is important to conduct participatory assessments to identify the resources available and how they are to be used so as to equitably and effectively determine the following:

- A baseline study of the current systems and processes for grading agricultural products.
- Which grades and standards are to be used in the future?
- How can both domestic and international recognition be achieved?
- How can domestic and international systems be harmonized?
- Which institution or entity will be responsible for their development?
- Which will be responsible for their promulgation?
- Which will be responsible for their enforcement? If quality is not as contracted or advertised, is liability defined in the legal system?
- When determining which G&S have value, consider the costs and realistic capacity for testing.

A transparent and broadly-based participatory selection process is important for several reasons. Political considerations in the determination of a system of grades and standards raise certain ethical questions related to unfair trading advantages, consumer welfare and environmental quality. There is growing concern about WTO influence and the trend toward customized, non-conforming standards among powerful business entities such as multinational corporations and food processors. Furthermore, grades and standards, especially when they are mandatory (de jure or de facto) rather than voluntary, can constitute barriers to entry, especially for the poorest market participants.

Since the establishment of grades and standards helps to set the **'rules of the game'**, there are many social, political and economic issues that will impact their selection. These issues are discussed briefly in the following set of 3 trends/issues[3]:

1. shifts in the nature and role of G&S
2. strategic responses of private actors
3. impact issues

1. Recent changes in the nature and role of G&S

A. Shift from neutral market lubricants to tools of product differentiation. The shift from "mass markets" with broad commodities to markets with differentiated products and niches, even in many developing country markets, induces a shift from broad to differentiated G&S. That is, traditional G&S are geared to homogenizing and standardizing a commodity to create economies of scale and broad markets[4]; an emerging role of G&S is increasingly to differentiate markets. This new role is supported on the demand side by more affluent consumers with sophisticated and varied tastes, and on the supply side, by production, processing, and distribution technologies that allow product differentiation and market extension and segmentation.

[3] This discussion is further developed in Reardon et al. (forthcoming).
[4] Jones and Hill, 1994

With that shift comes a change in the fundamental role of G&S from just reducing transaction costs of commodity market participants, to serving as strategic tools for market penetration, system coordination, quality and safety assurance, brand complementing, and product niche definition.

This shift is not, however, occurring in all parts of developing country agrifood economies: in the poorer markets for non-internationally tradeable and traditional products and services, there tends to be a lack of G&S; product quality is judged on the spot and regulated by face-to-face contact and informal institutions (oral contracts and enforced by multilateral reputation mechanisms), just as in pre-industrial Europe[5]. In that setting, transaction costs and risk in the agrifood chain can be relatively high and exacerbated by the lack of G&S.

B. Shift from "outcome" to "process" G&S. The shift in diet composition discussed above implies greater emphasis on production of fish, meat, fruit and vegetables in developing countries. The most dynamic markets for these products are where incomes are growing the fastest – in metropolitan areas of developing countries and in the developed country markets. The latter have recently begun demanding various process G&S such as HACCP by the US for imports of meat and fish[6]. Public and private actors in developing countries (with a bias toward the richer developing countries, the tradeable products, and the larger firms have thus begun to adopt HACCP or ISO 9000 standards. HACCP is usually mandated by governments for reasons of quality control and to strategically position domestic exporters[7]. As noted above, these process G&S have come to mix quality, safety, and other objectives such as worker safety and the environment.

Hotlink Food Quality Issues: Understanding HACCP and Other Quality Management Techniques

2. The strategic responses to the changes in G&S roles and nature

A. Privatization of G&S

Multinational agrifood firms are simultaneously operating in OECD markets and in the richer portions of developing countries such as India. In a given developing country domestic market, they bring G&S that make their operations compatible across markets and also serve to distinguish their quality and ability to coordinate in the given host market, which strengthens their competitive position there. Individual large firms (e.g., Nestle or Parmalat), supermarket chains and fast food chains are increasingly creating their own G&S that they impose on the agrifood chains that they dominate in developing countries.

These firms or associations use these G&S to specify quality and safety standards for each point in their operation – in order to:

- reduce coordination costs
- meet or exceed quality and safety requirements in the range of markets in which they participate
- create a reputation of quality assurance among consumers and other firms
- complement sub-contracting mechanisms
- increase the firm or industry's flexibility to adjust to new market conditions
- raise transaction costs for competitors

[5] Milgrom and North, 1985
[6] Hazard Analysis of Critical Control Points see Unnevehr and Jensen, 1999
[7] Diaz, 1999

B. Lobbying for domestic public standards

Large and medium domestic firms press for formation of domestic G&S, in the case of tradeable goods, that are most in harmony with the G&S and tastes of the OECD markets or richer developing country markets. That is, in the same way that such domestic producers are "price takers" in the globalized markets, they are "G&S takers."

However, poor producers and consumers are, to a large extent, left out of the participation on the producer side and determination on the consumer side given that they are often not part of the producer associations at least in the case of those involved in the most lucrative export markets, or if they are, have relatively low leverage to set the agenda. This action is particularly pressing because these intermediate level actors are in the most ambiguous and perhaps changeable situation with respect to G&S formation and effects. Poor consumers are less aware and demanding of food safety[8] and poor markets have lower quality differentiation.

Whereas in OECD countries one finds active lobbying for G&S formation and change by a range of consumer groups, ethical and fair trade advocates[9], environmentalists, vendors, and producer associations, it is fair to say that the range is narrower in most developing countries, at least with respect to G&S issues. The most common situation is for lobbying pressure to be applied by associations of domestic firms in a given subsector for the creation and implementation of the following: (1) G&S that help them build market share, perhaps domestically, but especially internationally (i.e. olives in Chile, asparagus in Peru, fish in Kenya); (2) certification programs that help communicate this institutional change to foreign buyers. The latter often create a public-private mix.

Hotlink Fundamentals of Ethical Trading

3. Impact issues

The above two responses (privatization of G&S by large firms/associations and public/private action spurred by lobbying) are fundamentally the domain of the large and medium participants in subsectors producing internationally tradeable agrifood products (with some exceptions, i.e. dynamic urban market with high-income consumers).

Left out of those profitable actions are the small producers, excluded by the above actions in that they cannot meet the requirements for inclusion which often include important investments. Of course, when the markets are purely rural, local and traditional, these producers are not "sidelined" in that there are local informal social mechanisms to control safety and quality.

Complying with new or more more stringent G&S requires investment in:

- changes in production practices
- access to updated information
- adaptation to new technologies
- improved equipment
- developing and maintaining new processes

[8] Salay and Caswell, 1998

Some of these investments are difficult to achieve or unaffordable to small and medium enterprises. Therefore, improvements in G&S and the corollary investments are increasingly putting small farmers and enterprises out of business and acting as an entry barrier for smallholder participation. In the past decade this trend has favored larger and better capitalized businesses and driven the increasing concentration of ever larger enterprises. Examples abound in subsectors that were traditional smallholder strongholds such as dairy, pork, poultry, and horticulture.

Lack of formal G&S increases transaction costs, particularly for the poor, in the national (not to mention the international) market and thus reduces the scope and profitability of their market. That increases their poverty and by extension, political clout. This vicious circle justifies public action. In practice, however, it is hard for governments of poor countries to address this need; abstracting from sensitive issues of politics, it is costly to define, implement, monitor, and enforce G&S for the products bought and sold by the poor. This was already clear in the earlier days of marketing boards which incurred deficits (for this and other reasons) trying to administer markets. It is even harder in an era of liberalized domestic markets in developing countries and the elimination of most state marketing institutions. Moreover, one can surmise that the poorer the country, the greater the proportion of those excluded from the above G&S strategies.

Low levels of G&S can be inclusive for small enterprises and farmers to the extent that they enable them to readily participate in domestic markets. The opposite is true for international markets where the same low G&S tends to exclude them from the dynamic demands of international markets.

Here then is a clear role of governments, NGOs, and even trade or producer associations to help improve the capability of small enterprises and farms to participate in the marketplace. They will require:

- improved information and communication
- technical assistance
- credit for G&S investments
- infrastructure

International G&S benchmarks

The Codex Alimentarius Standards and the United Nations Economic Commission for Europe (UNECE) standards are the internationally recognized benchmarks and therefore are commonly used as the basis for many G&S. ISO standards for tests under its agricultural committee are quite important as are OECD standards for fruits and vegetables. Other standards setting organizations include the International Plant Protection Convention (IPPC) and the Office International des Epizooties (OIE). The Codex Alimentarius Commission was created in 1962 by two U.N. organizations, the Food and Agricultural Organization (FAO) and the World Health Organization (WHO). Codex is the major international mechanism for encouraging fair international trade in food while promoting the health and economic interests of consumers. UNECE standards are more oriented toward quality issues. Its members include countries of North America, western, central and Eastern Europe and central Asia. The organization is a forum for dialogue aimed at bringing about better understanding and agreement on common guidelines and policies and promoting harmonization.

[9] Blowfield, 1999

There are also a number of private standards, often higher than public standards, such as The Ethical Trade Initiative and EUREP (an association of European supermarkets), that have set high quality, safety, and environmental standards and "good agricultural practices" (process standards) for their suppliers.

Since standards have been used to restrict and control international trade, the World Trade Organization (WTO) developed the Agreement on Technical Barriers to Trade (TBT) and the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) to ensure that nations do not post unfair barriers to trade. Sections of the TBT and SPS offer useful information to assist institutions in developing grades and standards.
Hotlink Multilateral Trade Agreements and Organizations: a basic introduction to WTO, CODEX and others

III. The Basic Road Map

The following step-by-step processes to establish useful G&S will be greatly facilitated if the preliminary processes of participatory planning and thoughtful design, covered in the Principles section above, are thoroughly addressed.

1. Select products
If there are no clearly established grades and standards the preliminary step must be to select what product or products to address first, usually the most traded or those with the most export potential. This will narrow the focus of the task, define some of the stakeholders, and determine whether to first pursue domestic or international standards.

2. Identify stakeholders
One of the first steps is to identify the relevant stakeholders and these may vary for each sector. They typically include:

- the relevant government Ministries such as Agriculture, Trade and Health
- existing organizations or agencies that are involved in establishing trade and industry associations such as processing, packing, transport, wholesale, retail, distribution, private farmers, import and export
- representatives of markets
- scientific and academic experts
- consultants on trade and standards
- consumer groups

It can be useful to invite people who have experience with this process in another sub-sector (livestock, poultry, etc.), to advise or consult on the project since a number of the issues and learning processes are similar.

3. Resource assessment
Step three is to conduct an assessment of the resources available. Who has done this sort of work? Where can technical assistance be found? How much funding is available? Who can assist in the work? While this sort of project is conducive to attracting donor or public sector funding, it can also be

supported with technical assistance and funding by private sector associations that would benefit from its implementation.

Some excellent starting points are, the guidelines in the WTO's Agreement on Technical Barriers to Trade, the WTO's Technical Trade Center and International Trade Center world directory of information sources on standards, technical regulations, certification, eco-labeling and quality management schemes available. See the Information and Resources section V.

4. Determine the specific sectoral and national needs
Using various methods such as subsectoral analyses, begin by asking: "What exactly do we want to accomplish with these grades and standards?" and "What are the specific needs of the different stakeholders."

Some important grades and standards are often already in use informally although sometimes they are neither official nor codified. It is important to identify these systems and processes and to assess their advantages and disadvantages. Market leaders can often set their own unique standards. Where possible, it is best to build on the market norms that are already in use since it is often difficult to change long-standing customs. Market participants suffer confusion and sometimes increased transaction costs where guidelines are not clear.

This situation is further aggravated by sometimes overlapping jurisdictions and contradictory regulations of government agencies involved in G&S. Clarification of this situation at both the legislative and the institutional levels is important for further advancement because when a number of agencies, regulations, statutes, and traditions have evolved over time it is quite possible that they contradict each other or allow for confusion. A World Bank survey of Morocco identified key weaknesses in grades and standards that could quite easily be typical of those in a number of other countries:

- lack of coordination and duplication of effort;
- controls are more separate agency efforts than a national effort;
- weak laboratory testing support network;
- political interventions and poor enforcement;
- inadequate guidelines or regulation of domestic production.

Since then, the focus on export development has significantly improved the coordination and clarification of grades and standards and also contributed to improved guidelines in the domestic markets. Nevertheless, changing patterns can be difficult for an established power structure and domestic efforts still labor under inadequate enforcement mechanisms where, for example laboratory testing, although dramatically improved in quality, still suffers from administrative and political interference[10].

Whether existing standards have evolved to serve a useful function or not, they ought to be evaluated to determine how clear, thorough, up-to-date and equitable they are. The results of such evaluations can yield the basic factual and statistical knowledge with which to leverage or influence necessary changes. Such assessments must be conducted by an outside agent to ensure independence. The following questions can serve as a guide:

[10] Personal communication with USAID Morocco Project managers

a) What are the established regulations and inspection requirements?
b) What specific procedures are required as part of the application process to the existing standards committee in order for standards to be recognized on a national basis?
c) How difficult and how long is the process?
d) What factors are standards based on? Are they appropriate? Are they clear?
e) Are grades based on product quality, product yield quantity (example lean to fat ratio) or both?
f) What is the purpose of current grades (wholesale, export, import, retail)?
g) Which grades and standards are in use and to what extent are they being applied by countries in the region and by key trading partners, competitors, and relevant associations or participants in the production and supply chain?
h) Are there procedures currently in place for recognition and implementation of grades and standards?
i) What is the role of international standards organizations in the current standards?
j) What is the role of producer, processor, or trade associations and toward what role are they evolving?
k) What is the role of dominant buyers in the market and what are the trends?

5. Determine the institutional home of key grades and standards functions

The information gathered from step four above will assist in determining which entity or entities will be responsible for four aspects of grades and standards:

a) **development, updating and assessment**-- beyond taking the leadership role in the initial development, this entity must also have the capacity and resources to fairly assess outdated standards and new proposals. It must have a reputable scientific capability, be politically independent, and should always have strong private sector participation.

b) **diffusion and promulgation** -- training is required for growers, inspectors, buyers, and technicians. Guidelines are not very useful and certainly harder to enforce, if most people are not aware of them so a public information campaign with a limited time mandate (perhaps 6 to 12 months) to inform all relevant parties about new grades and standards can speed their broad acceptance

c) **coordination with international standards** -- on both the international and national levels, different countries and different subsectors use different standards, but the 'game' of trade is much easier when everyone understands and plays by the same rules. Therefore it is most useful to develop national grades and standards based on the most widely used international standards with modifications made as necessary. Coordination is best accomplished as the standards are first developed, working closely with the international bodies mentioned earlier.

d) **enforcement** -- although many grades and standards, especially international ones, are voluntary it is important that, especially those that are related to safety, be consistently applied, that their integrity be protected and that misrepresentations, fraud, and violations be exposed and penalized. This entity ought to incorporate

checks and balances in its work to ensure transparent and equitable application of G&S.

6. Ensure the basic criteria for institutional success
It is critical to provide the entities that perform the above functions with *i*) a clear funded mandate, *ii*) combined public and private sector support, and *iii*) the management mechanisms to ensure the coordination and transparency necessary for fairness and long-term success.

7. Adopt an international model and sequencing
The seventh step involves decisions about which of the international standards will be adopted as a model. Adopting a pre-developed model can save enormous time and resources since many issues are common ones and adaptations for specific needs can readily be made. Common international systems, even with minor local or national variations, greatly facilitate both import and export functions. Accepted international standards will also eliminate any efforts necessary to ensure compliance with regional bodies and the WTO. Of course, any evaluation of the standards must take into account their impact on the less dominant market participants and the ultimate costs that will be passed on to poor people. This is especially true of international standards where the level of compliance may be quite high in comparison to traditional domestic standards and can serve as a significant barrier to entry in the market, especially for smaller enterprises.

In practice, many developing countries have dual standards, one for export and one for domestic markets. While this can cause confusion and perhaps slow development of a country's ability to produce for international trade, it can be argued that the lower domestic standards are necessary for current economic well-being. Many countries would find it impossible to harmonize their standards without serious disruption to their established channels of production, distribution, and trade. It must therefore be remembered that the ideal of harmonizing domestic and export standards cannot be achieved without a gradual and well-planned cross-sectoral process.

Indeed, sequencing is very important in order to facilitate the adoption of ever more stringent standards and to improve adaptability and incorporate lessons learned into the process.

8. Monitoring Advice
The most important factors to monitor are:

1. Ensure the ongoing inclusion of all relevant stakeholders throughout the process. If important players are not involved, key information can easily be missed and the omitted entities can later hold up effective implementation. The critical players in government and the private sector ought to be periodically updated and also queried to ensure their commitment to both the process and the goal of a system grades and standards.

2. Since it can be a lengthy process, it is important that the project be consistent and fair so as to maintain transparency and efficiently conduct the research and negotiations that are a necessary part of the process. Periodic stakeholder assessments of the project management, whether public sector, private sector, or a combination, can be vital to keeping the project on track.

IV. Best Practice and Examples

Examples of public-private efforts to create G&S systems to raise competitivity[11]

Kenya. The (public) Kenyan Bureau of Standards handles the formation of public standards and certification requirements that correspond to CODEX and ISO. The (private) Fresh Produce Exporters Association (FPEAK) creates a code of practice that is in line with those standards and concords with requirements of importers in OECD countries, such as the German Flower Label Program. Several private companies are contracted for certification and training to help companies adopt the practices and technologies corresponding to the process or outcome standards[12]. Simultaneously, powerful buyers in some of Kenya's export markets, i.e. Britain, push the level by setting their own higher standards, particularly for ethical trading issues, that are not yet part of international standards[13].

Argentina. A recent innovation in G&S implementation involves the collaboration of a private and a public entity, IRAM and the Fundacion ArgenINTA. IRAM (the Argentine Institute of Standards), a private nonprofit institute, provides certification of implementation of G&S by companies, and also has some delegated public G&S responsibilities. The Fundacion ArgenINTA is a public institution, an initiave of INTA (the National Technology Service) to link business management, market promotion, and technology innovation. They now work in tandem to provide certification for agrifood firms and farms in Argentina, combining this service with promotion of product and service differentiation, identification of domestic and international markets, and certification of quality and safety G&S in agroindustry and in farm machinery[14].

Chile and Peru. Medium/large producers and exporters of fruit linked with the government to create a multidimensional strategy of market promotion and G&S implementation forming the Coordinating Committee for Fruit and Vegetable Producers and Exporters. That committee, plus the National Agricultural Association, recently formed a "code of good practice" for production, processing, and distribution of fruit for export. They are working with the Ministry of Agriculture and the national CODEX entity to influence Chilean health and safety laws, infrastructure provision (better road, port, and storage facilities), and also to influence international CODEX discussions. The committee is also seeking to be an interface with powerful supermarket chains which dominate the domestic market. The goals of the committee are to differentiate Chile's fruit product, creating a clear international identity, and to raise quality, hygiene, and the storability of the fruit (which occasion tradeoffs and thus the need for continuous adjustment and debate and thus a forum that reflects needs along the chain[15]. There are also discussions under way with the private non-profit Fundacion Chile to set up certification systems.

Zambia. An interesting phenomenon has occurred in Zambia where, for various reasons (tight financing, high capital costs, high-cost inputs), large-scale farms have not grown to dominate the rural landscape. Rather than a concentration of actors, supply chains, even the more advanced ones exporting fresh horticultural products, are finding it more cost-effective and more efficient to expand their smallholder relationships and choose to rely more on small to midscale farmers. Grades and

[11] draws mostly from Reardon et al. (forthcoming)
[12] Ngige and Wagacha, 1999
[13] Blowfield, 1999
[14] Fundacion ArgenINTA, 1999
[15] Mercurio, 1999 and 1999b

standards, mostly private, are being channeled directly from the exporting (coordinating) firms to these smallholders. As a consequence, there has been an growth in the number of outgrower schemes in various subsectors ranging from commodities like maize and cotton to higher value products like fresh vegetables, paprika, and various organics.

One finds such public-private mix is found in other countries, with some of the same themes – a public or semi-public body that interfaces with national and international CODEX and ISO organizations, and has links with committees or bodies from export-oriented agroindustrialists and farmers (e.g., asparagus in Peru), with a link between the public INDECOPI and the industry-level PROMPEX, with feedback from the two to the national CODEX body[16].

Hence, this intermediate level of firms, and their public/private alliances, are literally fighting for their businesses in a fiercely competitive environment, and G&S and certification have become paramount tools of the struggle. The government then becomes an important ally for these firms, helping them to redress the system coordination and product reputation problems that they had in the absence of such systems. Where G&S are not well established in an agrifood system, by contrast, the price can be high coordination costs, as noted for the grain system[17] and for example, for the domestic milk system in Brazil[18].

Provision of "public good" G&S for the poor, their products, and their markets
The work of international organizations and local NGOs is emerging as a complement to developing country government efforts in this domain, in several ways. The FAO and other institutions help governments to establish domestic systems of G&S, and in some cases, certification programs. International organizations, working with local producer and trader associations are forming innovative approaches to extending markets by forming and implementing G&S combined with new crop varieties. For example, Technoserve (of the U.S.), ICRISAT (of the CGIAR), and local associations are working to improve the production and marketing of high quality pigeonpeas (dahl) targeted at high value niche markets (for fresh and processed pea) differentiated by quality standards, from Malawi, Tanzania, Kenya, and Mozambique to India and Europe.

V. Information and Resources

Related teaching tools on this site
Hotlink Designing Effective Food Safety Interventions in Developing Countries.
Hotlink Food Quality Issues: Understanding HACCP and Other Quality Management Techniques
Hotlink Multilateral Trade Agreements and Organizations: a basic introduction to WTO, CODEX and others
Hotlink Fundamentals of Ethical Trading

Institutions
World Trade Organization (WTO) http://www.wto.org

[16] Diaz, 1999
[17] Jones and Hill, 1994
[18] Jank et al., 1999

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ITC lists an excellent World Directory of national and international information resources on this topic. See publication No. 56

FAO
Viale Terme di Caracalla 00100 Rome, Italy
www.fao.org

The United States Department of Agriculture (USDA),
Agricultural Marketing Service, Room 2619 South Building, 400 Independence Avenue, S.W.,
Washington, D.C. 20090-6456, USA
Weldon D. Hall
David L. Priester, International Staff/Fruit and Vegetable Program
Byron Reilly, Grain Inspection Packers and Stockyards International Monitoring Staff
Dr. Craig Morris, International Staff/Livestock and Seed Program
Marty O'Connor, Compliance Staff/Livestock and Seed Program
USDA FAIRS (Food and Agricultural Import Regulations and Standards) Report provides information on import regulations for many countries and will eventually list all nations of the world. See the USDA web site or contact Audrey Talley 202-720-9408

EUREP: An association of European supermarkets formed in 1999, that created quality, safety, and environmental standards and "good agricultural practices" (process standards) for their suppliers of fruit and vegetables in developed and developing regions (www.eurep.org).

The Ethical Trade Initiative: based in the Natural Resources Institute (UK) suggests social and environmental standards. http://www.nri.org/NRET/nret.htm

International Labor Organization (ILO): UN body responsible for labor standards

Readings

"The Code of Good Practice for the Preparation, Adoption and Application of Standards". Developed by the WTO with ISO, as part of the Technical Barriers to Trade.
FAO. "Codex Alimentarius"

WTO. "Agreement on Technical Barriers to Trade" (TBT)

Blowfield, M. 1999. "Ethical trade: a review of developments and issues, *Third World Quarterly*, 20 (4) 753-770.

Bockstael, N.E. 1984. "The Welfare Implications fo Minimum Quality Standards," *American Journal of Agricultural Economics*, November: 466-471

Caswell, J.A., M.E. Bredahl, and N.H. Hooker. 1998. "How quality management metasystems are affecting the food industry," *Review of Agricultural Economics*, 20(2): 547-557.

Caswell, J.A. and G.V. Johnson. 1991. "Firm strategic response to food safety and nutrition regulation," in J.A. Caswell (ed), *Economics of Food Safety*, New York: Elsevier.

Deodhar, S.Y. and H. Dave. 1999. "Securing HACCP in Agriculture to Build Brand Image: case studies from India," Paper presented at the International Workshop on Markets, Rights, and Equity: rethinking Food and Agricultural Standards in a Shrinking World," Michigan State University, 1-3 November.

Diaz, A. 1999. La calidad en el comercio internacional de alimentos. Lima, Peru: PROMPEX (Comision para la promocion de exportaciones).

Dirven, M. 1999. Clustering and declustering effects of globalization: based on case studies of the milk sector in Chile, Colombia, Uruguay, Argentina, and the Netherlands. Paper presented at the AAEA Preconference on Agroindustrialization, Globalization, and International Development, Nashville, August 6-7.

Farina, EMMQ. 1999. Grades and Standards in Food Systems, unpublished, Universidade do Sao Paulo, Brazil.

Farina, EMMQ, and P. Furquim de Azevedo. 1997. Moinho Pacifico: Ajustamentos e Desafios do Livre-Mercado, in Farina, E. (ed.) 1997. *Estudos de Caso em Agribusiness*, Sao Paulo: Biblioteca Pioneira de Administracao e negocios.

Farina, EMMQ and E.L. Machado. 1999. "Government regulation and business strategies in the Brazilian fresh fruit and vegetable market," unprocessed, Universidade do Sao Paulo, Brazil.

Fundacion ArgenINTA. 1999. Certificacion de productos, procesos o servicios agroindustriales y de maquinaria agricola: la diferenciacion por la calidad certificada," Buenos Aires: Fundacion ArgenINTAA and Instituto Argentino de Normalizacion.

Hall, W. et al "Issues and Activities Involved in Agricultural Grades and Standards" USDA Agricultural Marketing Service. March 1999.

Hennessy, D.A. 1995. "Microeconomics of Agricultural Grading: Impacts on the Marketing Channel," *American Journal of Agricultural Economics*, 77, November: 980-989.

Jank, M.S., E.MQ. Farina, and V.B. Galan. 1999. O Agribusiness do Leite no Brasil. Sao Paulo: Editora Milkbizz Ltda.

Jones, E. and L.D. Hill. 1994. "Re-engineering marketing policies in food and agriculture: issues and alternatives for grain grading policies," in D.I. Padberg (ed.), *Re-Engineering Marketing Policies for Food and Agriculture*, Food and Agricultural Marketing Consortium, FAMC 94-1, Texas A&M.

Jones, R.B., H.A. Freeman, S. Walls, and S.I. Londner. 1999. "Improving the access of small farmers in Africa to global markets through the development of quality standards for pigeonpea," Paper presented at the International Workshop on Markets, Rights, and Equity: rethinking Food and Agricultural Standards in a Shrinking World," Micigan State University, 1-3 November.

Milgrom, P.R, and D.C. North. 1985. "The Role of Institutions in the Revival of Trade: the Law Merchant, Private Judges, and the Champagne Fairs." *Economics and Politics* 2(1): 1-23.

Ngige, J.M.T. and J.M Wagacha. 1999. "Impact of Food and Agricultural Standards in Kenya: A case study," Paper presented at the International Workshop on Markets, Rights, and Equity: rethinking Food and Agricultural Standards in a Shrinking World," Michigan State University, 1-3 November.

Northen, J. and S. Henson. 1999. Communicating credence attributes in the supply chain: the role of trust and effects on firms transactions costs, paper presented at the IAMA World Food and Agribusiness Forum, June 13-14, Florence.

Reardon, T., Codron, J-M, Busch, L., Bingen, J., Harris, C. Forthcoming. "Agrifood Grades and Standards in Less-Developed Countries: Issues of Inclusion and Exclusion," *International Food and Agribusiness Management Review*.

Reardon, T. et al. 2001. Global Change in Agrifood Grades and Standards: Agribusiness Strategic Responses in Developing Countries. *International Food and Agribusiness Management Review*, 2(3).

Saes, MSM and EMMQ Farina. 1999. "Brazilian Coffee Industry Association – ABIC: Joint ventures and new challenges in the face of market restructuring," unprocessed, Universidade do Sao Paulo, Brazil.

Stephenson, S.M. 1997. *Standards and Conformity Assessment as Nontariff Barriers to Trade*, Policy Research Working Paper no. 1826, Washington: Development Research Group, The World Bank.

Unnevehr, L.J., M.I. Gomez, and P. Garcia. 1998. "The incidence of producer welfare losses from food safety regulations in the meat industry," Review of Agricultural Economics, 20(1): 186-201.

Unnevehr, L.J. and H.H. Jensen. 1999. "The economic implications of using HACCP as a food safety regulatory standard," *Food Policy*.

Van Ravenswaay, E.O. and J.P. Hoehn. 1996. "The theoretical benefits of food safety policies: a total economic value framework," *American Journal of Agricultural Economics*, 78, December: 1291-1296.

Zylberstajn, D. and M.F. Neves. 1997. Illycaffe: Coordenacao em Busca de Qualidade, in Farina, E. (ed.) *Estudos de Caso em Agribusiness*, Sao Paulo: Biblioteca Pioneira de Administracao e negocios.