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Article

Quality Standards for Fruits and Vegetables: Help or Hindrance for Rural Development?

Weekly Report

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Weekly Report

Quality Standards for Fruits and Vegetables: Help or Hindrance for Rural Development?

Horticulture has developed into one of the most dynamic agricultural sectors in the world. The cultivation of fruits and vegetables has significant potential for increasing agricultural income and reducing rural poverty, particularly in developing and emerging countries. However, it appears that the growing consolidation in the retail sector has shifted power relations along the value-added chain away from producers to retailers.

In addition, food retailers rely more and more on their own quality standards. The growing significance of such private standards could help to guarantee the functioning of markets and, ultimately, market access. Yet, it could also increase bilateral dependencies and the risk that producers further up the supply chain are exploited. In turn, this could hinder market access, particularly for small-scale farmers. Public standards offer a reasonable alternative: they create transparency and equal rules for all market participants.

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In the least developed countries, on average some 70 percent of the population lives in rural areas. In these countries, agriculture plays a decisive role in rural development. Due to falling prices, the cultivation of traditional export goods, such as coffee and cotton, is profitable only on large-scale farms.[1] In developing countries, however, small-scale structures are dominant. 87 percent of all farms with an area of less than two hectares are located in Asia; Africa accounts for 8 percent of the world's small farms.[2] The average farm size on both continents is 1.6 hectares.[3] Especially smallholders who produce traditional agricultural products are hardly any longer competitive on the world market.

In contrast, high-value crops with their relatively high profit margins offer significant potential for these farmers to increase their agricultural incomes.[4] The cultivation of fruits and vegetables is especially important in this regard. Because

1 Between 1995 and 2002, the price of coffee fell by two-thirds, and the price of cotton by one half (FAOSTAT 2009).

2 Based on FAO data (2001, 2004) and government statistics in: Nagayets, O.: Small Farms: Current Status and Key Trends. Mimeo 2005.

3 Braun, J. v.: Small Scale Farmers in a Liberalized Trade Environment. Mimeo 2005.

4 Unnevehr, L.: Food Safety Issues and Fresh Food Product Exports from LDCs. Agricultural Economics 23 (3), 2000, pp. 231-240.

JEL Classification:
L15, Q17

Keywords:
Private Standards, Minimum Quality Standards, Rural Development, High-Value Crops.

Table

Production of Fruits and Vegetables

	In Millions of Tons					World–Market Shares as Percentages				
	1979–1981[1]	1989–1991[1]	1999–2001[1]	2003	2004	1979–1981[1]	1989–1991[1]	1999–2001[1]	2003	2004
AFRICA	**61.9**	**82.2**	**107.5**	**115.3**	**117.4**	**9.8**	**10.1**	**8.9**	**8.6**	**8.5**
East Africa	17.8	22.8	26.2	27.1	27.6	2.8	2.8	2.2	2.0	2.0
Central Africa	6.6	7.8	8.0	8.4	8.5	1.0	1.0	0.7	0.6	0.6
North Africa	18.5	26.7	38.7	43.0	44.7	2.9	3.3	3.2	3.2	3.2
South Africa	4.9	6.0	7.3	8.1	8.0	0.8	0.7	0.6	0.6	0.6
West Africa	14.2	18.8	27.3	28.7	28.6	2.3	2.3	2.3	2.1	2.1
AMERICAS	**126.9**	**156.5**	**198.3**	**202.5**	**206.9**	**20.2**	**19.3**	**16.4**	**15.1**	**15.0**
Caribbean	4.9	6.0	8.3	10.7	11.0	0.8	0.7	0.7	0.8	0.8
Central America	18.0	24.1	33.4	35.8	36.1	2.9	3.0	2.8	2.7	2.6
South America	49.7	67.3	85.3	86.9	87.2	7.9	8.3	7.1	6.5	6.3
North America	54.3	59.1	71.3	69.0	72.6	8.6	7.3	5.9	5.1	5.2
ASIA	**249.1**	**380.7**	**696.2**	**818.8**	**841.1**	**39.5**	**46.8**	**57.7**	**60.9**	**60.8**
East Asia	102.6	187.0	424.3	523.1	541.2	16.3	23.0	35.1	38.9	39.1
China alone	67.5	150.2	387.9	488.7	506.6	10.7	18.5	32.1	36.3	36.6
South Asia	75.6	104.6	158.1	170.2	171.8	12.0	12.9	13.1	12.7	12.4
India alone	56.5	76.1	117.4	126.6	127.6	9.0	9.4	9.7	9.4	9.2
South-East Asia	36.0	43.8	60.8	70.3	73.9	5.7	5.4	5.0	5.2	5.3
West Asia	34.8	45.4	53.0	55.2	54.2	5.5	5.6	4.4	4.1	3.9
EUROPE	**135.9**	**135.2**	**144.9**	**139.7**	**148.4**	**21.6**	**16.6**	**12.0**	**10.4**	**10.7**
Eastern Europe	23.3	22.8	21.4	22.3	23.0	3.7	2.8	1.8	1.7	1.7
Northern Europe	6.0	5.6	4.5	4.1	4.2	0.9	0.7	0.4	0.3	0.3
Southern Europe	72.2	74.8	80.7	78.2	83.0	11.5	9.2	6.7	5.8	6.0
Western Europe	34.4	32.0	38.3	35.1	38.2	5.5	3.9	3.2	2.6	2.8
CIS Countries	**47.1**	**46.2**	**39.3**	**47.3**	**47.6**	**7.5**	**5.7**	**3.3**	**3.5**	**3.4**
OCEANIA	**5.3**	**7.0**	**9.4**	**9.5**	**1.0**	**0.8**	**0.9**	**0.8**	**0.7**	**0.7**
WORLD Total	**629.7**	**812.7**	**1 207.6**	**1 345.1**	**1 383.6**	**100**	**100**	**100**	**100**	**100**

1 Average annual values.

Source: FAO statistics. **DIW** Berlin 2009

of changing consumption habits in industrialized countries and emerging markets, fruit and vegetable cultivation has become one of the most dynamic agricultural sectors worldwide. Furthermore, most of the work processes in horticulture can only be partially mechanized and the productivity per hectare of fruits and vegetables exceeds that of traditional agricultural products. For this reason, horticulture is particularly useful in developing countries for integrating smallholders into growing markets and, thereby, for reducing rural poverty.[5]

This is associated with a number of challenges, however. The cultivation of fruits and vegetables in developing countries is hampered by an insufficient transportation infrastructure, a limited access to capital and specific inputs, such as high-quality seeds, as well as a lack of technical expertise. Equally significant are the institutional obstacles to market access. On the one hand, fruits and vegetables are sold mainly via retailers in both industrialized and emerging countries. On the other hand, the production of fruits and vegetables often involves greater risks in terms of quality and safety than that of traditional agricultural products, including contagion with crop or livestock pests and the danger of pesticide and herbicide contamination. Both public legislators and retailers have attempted to manage these risks through the establishment of labeling requirements and standards. In this connection, the so-called private standards that are individually defined by retailers play an increasingly prominent role. In addition, it appears that the growing concentration in the retail sector has shifted the power relations in favor of the retail buyers of agricultural products.

East Asian Production Boom

The global production of fruits and vegetables has increased by approximately 119 percent between 1980 and 2004. The greatest growth by far has been seen in China, where the production has increased more than sevenfold. The growth in China continues

5 Weinberger, K., T. A. Lumpkin: High Value Agricultural Products in Asia and the Pacific for Small-holder Farmers: Trends, Opportunities and Research Priorities. Mimeo 2006.

to remain strong.[6] In comparison with the rest of the world, East and South Asia have experienced enormous growth in the fruit and vegetable production in recent decades. The Caribbean and North Africa have also registered above-average growth. In all other regions of the world, the production has been stagnant or has only risen slightly since 1980. A few regions in Europe have even recorded a drop in the fruit and vegetable production (Table). The breakdown of the worldwide production shares shows that Asia—especially China—has increased its production at the expense of all the other regions (Figure 1).

Figure 2 shows that the US-dollar value of fruits and vegetables traded internationally has also increased substantially. The trade in other agricultural products, such as oilseeds and grain, by contrast, has remained relatively constant. Even the trade in traditional cash crops and, thereby, in those agricultural products normally deemed for export has only recorded small increases since 1980. In the time period under consideration, coffee, tea, cocoa and spices were the only goods for which imports and exports have risen. Trade volumes in traditional agricultural products, such as grains, oilseeds, sugar, peanuts and textile fibers, have also increased only slightly (Figure 3). This underscores that fruits and vegetables—together with other high-value crops, especially fish—could contribute to rural development.

A more detailed examination of trade flows shows that Europe dominates both imports and exports worldwide (Figure 4). North American imports have been on the rise as well. Since 2002, there has been a worldwide upward trend in the value of fruits and vegetables traded internationally. After Europe, above-average growth has been recorded chiefly in Asia. This is due to an increase in Chinese exports, among other factors. There has also been a significant increase in exports from Latin America.

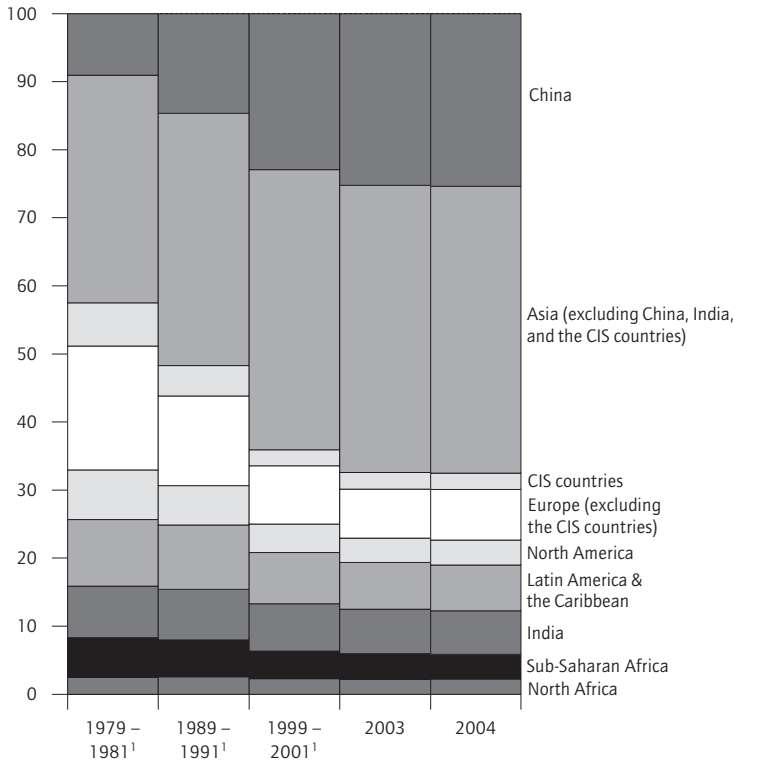
Changing Distribution Structures: Increased Influence of the Retail Sector

Fruits and vegetables produced in developing and emerging countries are sold in domestic as well as export markets. Domestic distribution includes direct sales by the producers themselves or by merchants in villages or at local market places, as well

Figure 1

Regional Production of Fruits and Vegetables

Percentage shares



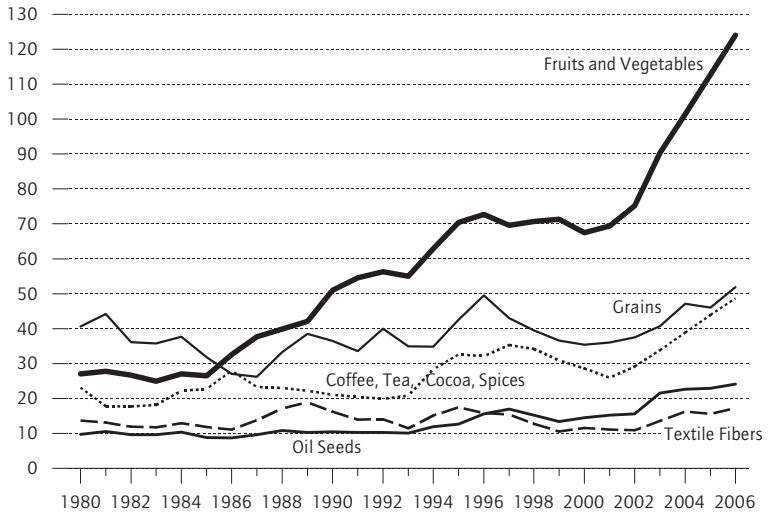
1 Average annual values.

Source: FAO statistics. **DIW** Berlin 2009

Figure 2

World Agricultural Exports

In billions of US dollars



Source: FAO statistics. **DIW** Berlin 2009

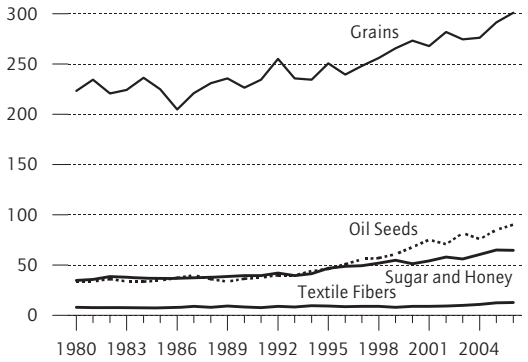
6 The cause of this huge increase in production is the abolition of price fixing for agricultural products, among them for fruits and vegetables. An additional factor is the low ratio of land to population in China. See Lu, F.: Grain Versus Food: A Hidden Issue in China's Food Policy Debate. Food Policy 26 (9), 1998, pp. 1641-1652.

as sales via supraregional wholesale structures.[7] In this regard, supermarket sales, which account for 50 to 60 percent of total sales in South America, East Asia (excluding China) and South Africa, play an increasingly important role. In Central America and Southeast Asia, supermarket sales are lower, but nevertheless reach 30 to 50 percent. In Vietnam, China, and India, by contrast, supermarkets have a market share of only 2 to 20 percent.[8] Nevertheless, the wholesale distribution has an effect on the other distribution channels. The traditional sales structures have been forced to adapt to the purchasing strategies of the supermarkets in order to cope with the increasing competition.[9]

Figure 3

World Agricultural Exports

In millions of tons



Source: FAO statistics. **DIW** Berlin 2009

7 IFAD: The Role of High-value Crops in Rural Poverty Reduction in the Near East and North Africa. Mimeo 2008, http://www.cgiar.org/pdf/cp_cn_highvaluecrops.pdf.

8 Reardon, T. et al.: The Rise of Supermarkets in Africa, Asia, and Latin America. American Journal of Agricultural Economics 85 (5), 2003, pp. 1140-1146.

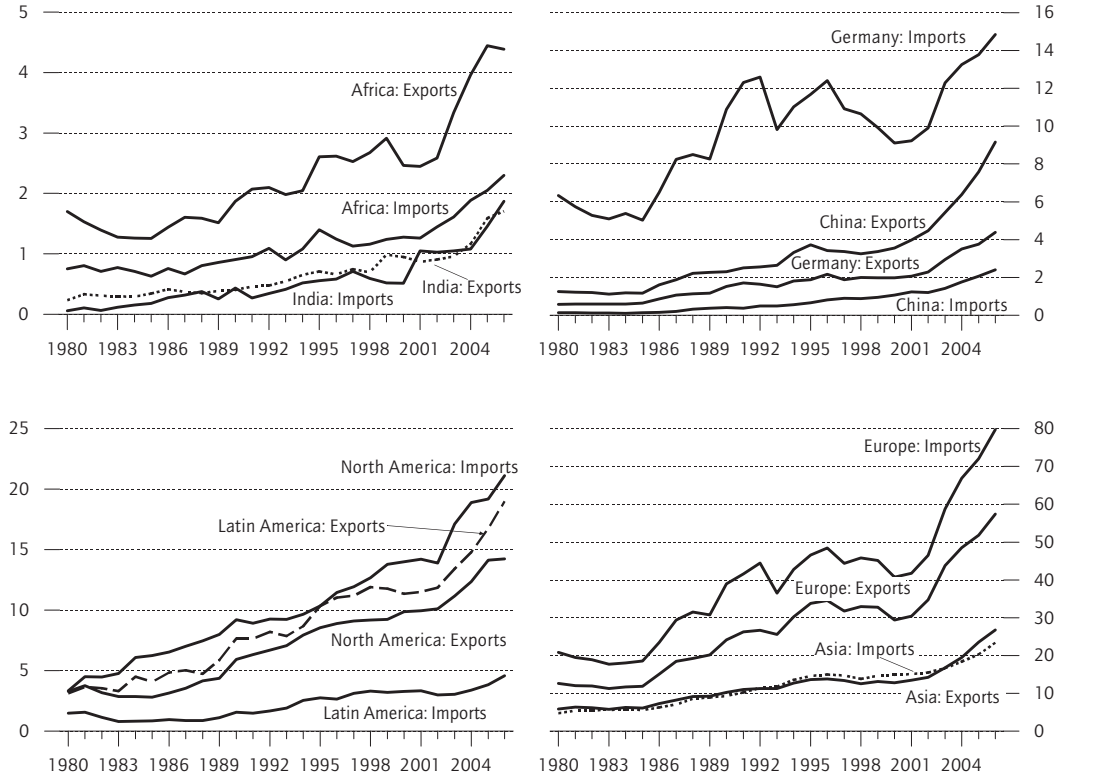
9 Reardon, T., L. Flores: Viewpoint: "Customized Competitiveness" Strategies for Horticultural Exporters—Central America Focus with Lessons from and for Other Regions. Food Policy 31 (6), 2006, pp. 483-503.

A rising percentage of the fruit and vegetable production in developing countries is exported. The large retail chains in the industrialized countries import approximately 25 percent of their fruits and

Figure 4

Regional Imports and Exports of Fruits and Vegetables

In billions of US dollars



Source: FAO statistics. **DIW** Berlin 2009

vegetables from developing countries.[10] The access to international markets is usually provided by exporters, who deal with the primary producers either directly or via intermediaries. These exporters are often not only involved in distribution, but also in production. Some distribute their own products. Others cooperate with primary producers in so-called outgrower schemes, in which they purchase the crops of independent primary producers at negotiated prices, quantities and qualities, while also providing credit, inputs as well as technical support. The advantages for primary producers are guaranteed sales in addition to access to the exporter's services and credit. Yet, an essential element of outgrower schemes concerns the allocation of risk between the primary producer and the exporter. The allocation of risk varies from contract to contract. For example, if a certain delivery quantity has been agreed upon, the primary producer will bear the risk of fluctuations in harvest yields. Conversely, if the exporter agrees to purchase the crops produced on a certain amount of farmland (whatever the yield may be), then the exporter will bear the harvest risk.[11]

Due to the growing concentration in the retail sector—particularly in the European food industry[12]—, the balance of power in the trade relations has shifted in favor of the retail buyers of agricultural products. Exporters in developing countries benefit less from deregulated markets when they are confronted with oligopolistic structures in industrialized countries. Greater concentration on the demand side reduces the exporters' outside options and, as a result, weakens their bargaining position. The competition among the suppliers for the limited shelf space increases, which could eventually lead to lower prices in the supplier markets. Retailers profit from this situation by further decreasing the number of their suppliers. One of the leading retail chains in the United Kingdom, for example, has reduced the number of its suppliers of fruits and vegetables from 800 in 1987 to 80 in 2000.[13]

Alongside the consolidation processes in the retail sector, it can also be observed that the distribution structures further up the value chain, namely the channels through which the large retail chains are supplied from all over the world, become more and more centralized. In this connection, year-round supply can be guaranteed in particular by specialized vendors who purchase their goods from a multitude of producers from various countries.

Quality Assurance is Vital for the Supply Chain

The food scandals of the 1990s have demonstrated the significance of quality risks in supply chains. Quality and safety assurance along the entire supply chain is, therefore, decisive for the successful market access of high-value crops. In this regard, the major challenge is that the sellers usually know the quality of their products better than the buyers do as the latter can determine the product characteristics often only after the purchase, or in some cases never.[14] In addition, buyers usually cannot verify the adherence to regulations concerning production processes. The resulting asymmetric information between buyers and sellers can lead to opportunistic behavior on the supply side: sellers of lower-quality products may claim they are offering high-quality goods. The anticipation of the sellers' behavior, in turn, may cause the buyers to make their purchase decisions based on the expected—rather than the actual—qualities of the product. If there is a high degree of uncertainty on the buyer side and if the sellers cannot credibly communicate the quality of their products, high-quality products can no longer realize higher price mark-ups. The result is a reduction in the incentive to offer high-quality products at all. In the worst case, this can lead to the collapse of the market, such that the respective products are no longer traded (market failure).[15] This kind of market failure can be overcome and, thereby, the functioning of markets be restored by market-endogenous solutions or by government interventions.[16] Expensive product warranties or high advertising expenses are two examples of market-endogenous solutions that can prevent market failure when it comes to one-shot customer relationships. Such expenditures serve as a signal to buyers because they are only incurred by those companies that are confident in the high

10 OECD: Private Standard Schemes and Developing Country Access to Global Value Chains: Challenges and Opportunities Emerging from Four Case Studies. http://www.olis.oecd.org/olis/2006doc.nsf/linkto/ agrca-apm(2006)20-final.

11 Glover, D. J.: Contract Farming and Smallholder Outgrower Schemes in Less-developed Countries. World Development 12 (11/12), 1984, pp. 1143–1157.

12 OECD: Buyer Power of Large Scale Multiproduct Retailers. Background Paper by the Secretariat, Roundtable on Buying Power 1998; European Commission: Buyer Power and its Impact on Competition in the Food Retail Distribution Sector of the European Union. Report produced for the European Commission, D IV, Brussels 1999.

13 Dolan, C., J. Humphrey: Changing Governance Patterns in the Trade in Fresh Vegetables between Africa and the United Kingdom. Environment and Planning A 36 (3), 2004, pp. 491-509.

14 While search attributes claimed by the seller can be verified by the buyer at the time of the purchase (color), experience attributes can only be verified after the purchase (taste) and credence attributes almost never (contaminations).

15 Akerlof, G.: The Market for 'Lemons': Quality Uncertainty and the Market Mechanism. Quarterly Journal of Economics 84 (3), 1970, pp. 488–500.

16 Hagen, K. et al.: Verbraucherpolitik als Motor der Wirtschaft. Schriftenreihe des Bundesministeriums für Ernährung, Landwirtschaft und Verbraucherschutz, Reihe A: Angewandte Wissenschaft. Heft 518, Filderstadt 2007.

Box 1

Examples of Private Standards

Standard	Since	Initiators	Contents/Objectives	B2B/B2C	Area of Applicability
Certificate of origin for Parmigiano Reggiano hard cheese, Italy	1934	A consortium of regional Italian milk producers, cheese dairies, and packaging companies	Certification of region of origin, standardization of production processes, monitoring of production and marketing, product differentiation	B2B, B2C	All value-added steps for Parmigiano Reggiano cheese
KAT ("Verein für Kontrollierte Alternative Tierhaltungsformen e.V."), Germany	1995	Egg-industry association	To ensure origin and traceability of eggs from alternative chicken housing systems in Germany and neighboring EU countries; animal protection	B2B, B2C	All value-added steps for eggs
SQF 1000 (Safe Quality Food)	1994	Australian producers with retailers, processors and experts for food safety (later taken over by the Food Marketing Institute; stronger connection with retailers)	International management system for food safety and quality; food safety; environmental, animal, workplace, and health standards	B2B	Multiple value-added steps in the food industry
Scottish Quality Crops (SQC)	1994	Producers and industry	Production standards, food safety, environmental protection, traceability	B2B	Agricultural production level; initially for grains, now for all combinable crops
Graincare, Australia	2000	Producers (Grains Council of Australia) and industry	Quality standard for grain production	B2B	Agricultural production level; for cereals, pulses and oilseeds
QS seal of approval from "QS Qualität und Sicherheit GmbH," Germany	2001	Food industry associations and organizations	Monitoring of process quality as well as elements of product quality relevant to safety	B2B, B2C	All value-added steps for meat, meat products, fruits, vegetables, and potatoes
Filière Qualité Carrefour, France	1991	Carrefour	Individual retail product label; quality standards, environmental and workplace standards, food safety, product differentiation	B2B, B2C	All value-added steps for perishable products (fruits, meat, cheese, etc.)
Tesco Nature's Choice, United Kingdom	1991	Tesco	Individual retail product label; quality standards, environmental and workplace standards, food safety, product differentiation	B2B, B2C	All value-added steps for fresh fruits and vegetables
BRC Standard (British Retail Consortium)	1996	British retailers (to satisfy the requirements of the 1990 Food Safety Act)	Food safety standards for retail brands	B2B	All value-added steps of food industry downstream from agriculture
GlobalGAP (Global Partnership for Good Agricultural Practices; formerly EUREPGAP)	1997	European retailers belonging to the Euro-Retailer Produce Working Group (EUREP); now increased cooperation with additional interest groups	International management system for food safety and quality; harmonized quality standards as well as environmental, animal, workplace, and health standards; food safety and sustainable agriculture	B2B	Agricultural production stage, particularly for fruit and vegetable cultivation
Global Food Safety Initiative (GFSI)	2000	Group of international retailers (Global Food Business Forum)	Benchmark criteria for private standards, including environmental and workplace standards; long-term goal: harmonized standard; food safety, cost efficiency	B2B	All value-added steps in the food industry
International Food Standard (IFS)	2002	German, French, and Italian retailers	Management system for food safety and quality, for the auditing of retail and wholesale brands; food safety, cost efficiency, transparency in the value-added chain	B2B	All value-added steps of food industry downstream from agriculture

Sources: OECD: Final Report on Private Standards and the Shaping of the Agro-food System. http://www.olis.oecd.org/olis/2006doc.nsf/43bb6130e5e86e5fc12569fa005d004c/4e3a2945ffec37eec12571bc00590ce3/$FILE/JT03212398.PDF; Parmigiano-Reggiano: http://international.parmigiano-reggiano.it/pages/de/21590/Garantie_und_SchutzmaSnahmen.aspx and http://international.parmigiano-reggiano.it/pages/de/21586/Parmigiano_Reggiano_DOP.aspx; KAT: http://www.de.was-steht-auf-dem-ei.de/de/verein/kat; SQF: http://www.sqfi.com/about_us.htm; SQC: http://www.sfqc.co.uk/farm_schemes/scottish_quality_cereals_sqc; Graincare: http://www.graincare.com.au/About%20Graincare.htm and http://www.graincare.com.au/Files/Graincare_InfoSheet.pdf; QS: http://www.q-s.info/unternehmenorganisation/entstehungentwicklung/; Carrefour: http://www.carrefour.com/cdc/commerce-responsable/securite-et-qualite-des-produits/; Tesco: http://www.tescofarming.com/tnc.asp; GlobalGAP: http://www.globalgap.org/cms/front_content.php?idcat=19; IFS: http://www.ifs-online.eu/index.php?SID =ecc1855b76d9f4e3dcdc1173b459557c&page=home&content=faq&desc=

quality or commercial success of their products.[17] In repeated customer relationships, market failure can also be overcome through the establishment of reputation. However, this will only be an option if the market allows for price mark-ups. The higher these mark-ups, the lower the incentive for sellers to risk the loss of future profits by making a single

17 Varian, H.: Grundzüge der Mikroökonomik. Munich, Vienna, Oldenbourg 2007.

sale of inferior-quality products. Strong competition and/or buyer power limit the effectiveness of the reputation mechanism as they restrict the potential for price mark-ups. Furthermore, sellers have the possibility of third-party certification of the quality of their products.[18]

Beyond this, the significance of private standards which are individually established by importers, processors and, in particular, retailers has dramatically increased as a result of the food scandals (Box 1). This applies to both business-to-business (B2B) and business-to-customer (B2C) relations.[19] Provided that retailers have enough market power, individual standards can represent a method for credible quality assurance and product differentiation.[20] Yet, they can also facilitate the optimization of the bargaining game in supplier markets. It can be shown that retailers tend to set extremely high quality standards when the mutual dependency between supplier and retailer is relatively low, namely when both parties have good outside options at their disposal. This leads to welfare losses and disproportionately burdens the supplier. If, however, retailer and supplier strongly depend on one another, the retailer will choose an optimal level of quality.[21]

If the market failure cannot be overcome or can only partially be overcome by market-endogenous solutions, government interventions—for example, public minimum standards or product certifications—may be justified.[22] Such interventions can be implemented at the national or international level (Box 2). Minimum standards can reduce product variety and increase barriers to market entry. Therefore, they tend to result in market inefficiencies—despite the reduction in distortions resulting from information asymmetries.[23] Certifications increase efficiency more readily when product labeling is optional rather than when it is mandatory.[24] Furthermore, in the light of the reduction in international tariffs, there is an ongoing debate about the extent to which public quality and safety standards are used as non-tariff trade barriers to protect domestic producers. In any case, efforts are made to limit the use of standards for protectionist purposes within the scope of the World Trade Organization regulations (SPS and TBT Agreements). There are also initiatives to harmonize public standards internationally (Codex Alimentarius).

Harmonized Public Standards Facilitate Market Access

On the supply side, both public and private standards form a precondition for sales in markets with higher margins. Although standards place requirements on product characteristics, define production processes and, thereby, implicitly entail a knowledge transfer from the retailer to the producer, they also increase the risk of bilateral dependencies. In certain circumstances they may, therefore, facilitate the exploitation of producers in upstream markets. Standards also reduce the producers' ability to differentiate their products with respect to quality. As a result, the suppliers become more interchangeable, which leads to a strengthening of the retailer's bargaining position vis-à-vis the suppliers. Moreover, the compliance with standards is typically associated with higher production and transaction costs. Often, third-party certification of the products is required as well. Regardless of whether standards are established individually by retailers or the government, the suppliers have to make specific investments. Both exporters and primary producers must adjust their production processes to the requirements of specific buyers. This reduces the number of potential trading partners, leading to an increase in the suppliers' dependence on certain buyers and, therefore, in the risk that the suppliers will be exploited.[25] The harmonization of standards could reduce the problem of bilateral dependencies by increasing the number of potential buyers. Complete harmonization, however, is only realistic in the case of public standards as, on the one hand, it is difficult for private firms to reach international agreements and, on the other hand, private firms have an incentive to deviate from collectively defined standards.

18 However, markets for certificates are often characterized by a high level of concentration and high prices. See Strausz, R.: Honest Certification and the Threat of Capture. International Journal of Industrial Organization 23, 2005, pp. 45–62.

19 See OECD: Final Report on Private Standards and the Shaping of the Agro-food System. http://www.olis.oecd.org/ olis/2006doc.nsf/43bb6130e5e86e5fc12569fa005d004c/ 4e3a2945ffec37eec12571bc00590ce3/$FILE/JT03212398.PDF.

20 However, the role of B2B standards is unclear in this case since they are not always communicated to the final consumers.

21 Baake, P., V. v. Schlippenbach: Quality Uncertainty in Vertical Relations: Mutual Dependency Mitigates Inefficiencies. Unpublished manuscript 2009.

22 Minimum standards ban all levels of quality below the required minimum. Certification, in contrast, does not limit the spectrum of qualities, but requires that specific standards be met to be awarded a specific label.

23 Leland, H.: Quacks, Lemons, and Licensing: A Theory of Minimum Quality Standards. Journal of Political Economy 87 (6), 1979, pp. 1328-1346; Scarpa, C.: Minimum Quality Standards with More than Two Firms. International Journal of Industrial Organization 16, 1998, pp. 665-676.

24 Mandatory certification can have an ambiguous effect on market efficiency as it reduces the possibilities of product differentiation and, therefore, leads to increased competition and potential market exits. See Roe, B., L. Sheldon: Credence Good Labeling: The Efficiency and Distributional Implications of Several Policy Approaches. American Journal of Agricultural Economics 89 (4), 2007, pp. 1020-1033.

25 In addition to that, there is a risk for small farmers, in particular, to be excluded entirely from the centers of economic activity if they cannot meet the quality standards due to high costs, or if they cannot afford third-party certification.

Box 2

Examples of Public Standards

Standard	Since	Initiators	Contents	Objectives	Miscellaneous
International Regulations					
International Plant Protection Convention (IPPC)	1952	FAO	International treaty on legal and technical measures to prevent and combat the introduction and transmission of plant diseases; binding international standards for phytosanitary measures	Plant protection, harmonization of standards	Modification of the convention in 1979 and 1997 (effective 2005)
Codex Alimentarius	1963	FAO and WHO: Establishment of Codex Alimentarius Commission	International agreement on food standards, procedural rules, guidelines and other recommendations by the Codex Alimentarius Commission for foodstuffs at all value-added steps	Food safety and consumer health protection, fair organization of the international trade in food, coordination of food standards worldwide	International reference point for food quality; implementation in national law on a voluntary basis; of an increasing binding nature (application in trade disputes) through integration of the standards as benchmarks in the SPS and TBT agreements
HACCP System (Hazard Analysis and Critical Control Point)	1971	NASA	Management system for food safety, assessment and monitoring of as well as safeguarding against specific health risks	Food safety	Application of HACCP concept recommended by Codex Alimentarius since 1993, integration in the German Food Hygiene Act since 1998, mandatory in the EU since 2004/2006
SPS Agreement (Agreement on the Application of Sanitary and Phytosanitary Measures)	1994	GATT/WTO	The health and plant protection standards of WTO members should only be used for health protection and may not discriminate against certain countries	Health protection without protectionism; orientation on international standards for food safety (Codex Alimentarius)	
EU Regulations					
Regulation (EEC) No. 2092/91	1991	Council	EU ecological certification for companies that produce, process, or import plant or animal products and market them as organic	Food safety and quality	
Regulation (EC) No. 761/2001	2001	European Parliament and Council	Eco-management and audit scheme (EMAS) to communicate company adherence with environmental protection standards	Environmental protection	
Regulation (EC) No. 178/2002	2002	European Parliament and Council	General principles and requirements of food law (traceability of food products and animal feed), procedures for food safety (expansion of early warning system), European Food Safety Authority	Food safety, health protection, greater responsibility of private sector for monitoring of food safety	Traceability requirement in effect since 2005
Regulation (EC) No. 852/2004	2006	European Parliament and Council	Basic food hygiene regulation for all enterprises in all areas of the food supply chain, particularly requirements for self-monitoring according to the principles of the HACCP concept (including documentation requirements for HACCP-related measures) for all value-added steps downstream from agriculture	Food safety, greater responsibility of food companies	Component of EU hygiene package
Regulation (EC) No. 853/2004	2006	European Parliament and Council	Specification of hygiene regulations for animal products	Food safety, protection of public health, greater responsibility of food companies	Component of EU hygiene package
Regulation (EC) No. 854/2004	2006	European Parliament and Council	Common framework for public monitoring of animal products designated for human consumption	Food safety, greater responsibility of food companies	Component of EU hygiene package
Regulation (EC) No. 510/2006	2006	Council	Protection of geographical indication and labels of origin for agricultural products and foodstuffs	Food quality, product differentiation	Logos for "protected designation of origin" and "protected geographical indication"

Sources: Roe, B., L. Sheldon: Credence Good Labeling: The Efficiency and Distributional Implications of Several Policy Approaches. American Journal of Agricultural Economics 89 (4), 2007, 1020-1033; Codron, J.-M., E. Giraud-Héraud, L.-G. Soler: Minimum Quality Standards, Premium Private Labels, and European Meat and Fresh Produce Retailing. Food Policy 30, 2005, 270-283; FAO: www.fao.org/Legal/TREATIES/004s-e.htm; FAO/WHO: Understanding the Codex Alimentarius. Third Edition, Rom 2006; FDA: HACCP: A State-of-the-Art Approach to Food Safety. FDA Backgrounder, US Food and Drug Administration, 2001, http://www.cfsan.fda.gov/~lrd/bghaccp.html; EEC: http://eur-lex.europa.eu/LexUri-Serv/site/de/consleg/1991/R/01991R2092-20070101-de.pdf; EC: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2001:114:0001:0029:DE:PDF; EC: http://eur-lex.europa.eu/ LexUriServ/LexUriServ.do?uri=OJ:L:2002:031:0001:0024:DE:PDF; EC: http://eur lex.europa.eu/LexUri-Serv/LexUriServ.do?uri=OJ:L:2004:139:0001:0054:DE:PDF; EC: http://eur-lex.europa.eu/ LexUriServ/LexUriServ.do?uri=OJ:L:2004:139:0055:0205:DE:PDF; EC: http://eur lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:139:0206:0320:DE:PDF; EC: http://eur-lex.europa.eu/ LexUriServ/LexUriServ.do?uri=OJ:L:2006:093:0012:0025:DE:PDF.

Reducing the risk of exploitation within the supply chain is especially relevant for the integration of small-scale farmers. Without the provision of capital and other inputs by exporters, smallholders are often unable to participate in international value chains. The lower the probability to be exploited by buyers—in this case by retailers—, the higher the exporter's willingness to provide the small-scale farmers with the necessary inputs and to facilitate their market access. Conversely, the stronger the bilateral dependencies due to individual standards, the less willingness there is to integrate small-scale farmers.

For the successful establishment of public standards, it is important that private firms will have no incentive to create their own (individual or collective) standards. Yet, this will only be the case if public minimum standards are set sufficiently high. It is necessary to conduct negotiations with the suppliers of products that comply with the individual requirements of retailers. This generates higher costs for the retail sector, costs which can no longer be covered by the benefits from private standards as public minimum standards rise and, therefore, reduce the potential for product differentiation in the consumer markets.[26] Consequently, sufficiently high public standards can prevent retailers from establishing individual standards, and, at the same time, promote the participation of small-scale farmers in international value-added chains. However, excessively high quality and safety standards can also reduce investment incentives.

Conclusion

In developing and emerging countries, the cultivation of high-value crops holds significant potential for increasing agricultural incomes and reducing poverty. Alongside an insufficient transportation infrastructure and a limited access to essential production factors, numerous further obstacles hinder small-scale farmers, in particular, from accessing global markets. First, an increasingly concentrated retail sector accounts for an ever larger share of domestic and international fruit and vegetable sales. Second, the reduction of quality uncertainties along the supply chain plays an increasingly important role. Both of these trends can have an ambivalent effect on market access. The business relationships with expanding retail chains can represent an opportunity for producers. At the same time, they entail the risk that the retailers will abuse their buyer power. This is especially the case when retailers set individual standards, thereby requiring their suppliers to make specific investments. The suppliers' dependency on the retail sector and their resulting risk of exploitation by the retailers can be overcome by uniform public minimum standards. Since they increase the willingness to invest, relatively high public standards can have a positive effect on the integration of small-scale farmers into the market, despite their attendant distortions to supply structures.

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26 See Codron, J.-M., E. Giraud-Héraud, L.-G. Soler: Minimum Quality Standards, Premium Private Labels, and European Meat and Fresh Produce Retailing. Food Policy 30, 2005, pp. 270-283.

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