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Tracing Social Relations in Commodity Chains: The Case of Grapes in Brazil

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INTRODUCTION

This chapter's focus is the commodity chain that **links** producers and **consumers** of grapes. I demonstrate that even in the case of such a "simple" (that is, unprocessed) product, consumer demand and consumer culture shape production and distribution practices in powerful ways. Analyses of global food systems have emphasized the growing homogeneity of the consumer environment (Friedmann and McMichael 1989; Reynolds, Myrle, and McMichael 1993; Kloppenburg, Hendrickson, and Stevenson 1996). First world consumers now **can** purchase foods of standard quality throughout the year nearly anywhere in the industrialized world. How does this imperative to homogenize, standardize, and ensure year-round access to fresh produce at the point of consumption affect social relations at the point of production, as well as along the distribution chain? Susan Willis has said that **if**, as Marx suggests, commodities are the containers of hidden social relationships, then these relationships are all the more concealed by the movement of production to the third world (1991, 52). The example of grapes provides an opportunity to make visible some of the relationships hidden in a globally integrated, late-twentieth-century commodity.

A substantial literature on commodity chains now exists. Many scholars believe that the commodity chain is a particularly **useful** unit of analysis for our post-Cold War, post-nation-state world. Recent advocates of commodity chain analysis, such as Gary Gereffi and Miguel Korzeniewicz, argue that since the 1960s, "major breakthroughs in communications and transportation technologies have **shrunk** the world

dramatically in terms of time and space, permitting manufacturers and retailers . . . to establish transnational production and trade networks that cover vast geographical distances" (Gereffi 1994, 14). These authors also argue that economic activities that formerly took place within nations are being reorganized in globally integrated commodity chains and complex regional divisions of labor. Earlier proponents of commodity chain analysis, such as Friedland (1984) and Hopkins and Wallerstein (1986), made more modest claims, simply suggesting that studying the commodity chain is a useful way to trace connections among complicated production and distribution systems and to organize information on processes that cross national boundaries. Hopkins and Wallerstein also suggested that such an approach is valuable in linking the local and the global through its emphasis on process. The method is particularly useful, they argue, for tracing connections **between** producers and consumers without "losing the thread" at the level of global markets and international regulatory practices.

Several important case studies have relied on commodity chain analysis. For example, Sidney Mintz's book, *Sweetness and Power* (1985), details relationships between the growth of Caribbean sugar plantations and increasing sugar consumption among the working classes in Europe. Mintz uncovers the powerful interests, laws, policies, and regulatory mechanisms that connected such dispersed developments, creating a mass market for sugar where it had not existed before. Another such case study is Harriet Friedmann's 1990 essay, "Family Wheat Farms and Third World Diets," which performs a commodity systems analysis of the international grain trade. Friedmann examines how grain farming practices in the first world and the increased consumption of wheat in third world diets are linked through the institutions of the grain trade. She demonstrates how policies designed to support the "family farm" in the United States (including P.L. 480—the Food for Peace Bill) undercut grain farming in the third world, and she traces ramifications of the Fordist **bargain with U.S. workers** for grain to cheapen and pacify labor in Latin America and elsewhere. By focusing on production and global distribution of a single commodity, Friedmann **tells** a new story about how U.S. family farming in the post-World War II period was built successfully on the increased proletarianization and food dependency of the third world. Tracing **the** circulation of commodities in this way can reveal previously unseen connections between production and consumption regimes in places widely separated by distance and culture.

CONSUMING GRAPES

What features of grape consumption are significant for social relations along the commodity chain? First, grape consumption is rapidly expanding in the world's industrialized nations. U.S. imports of this crop grew from about 14,000 metric tons in 1970 to nearly 400,000 metric tons in 1990—an increase of about 2,800 percent (Food and Agricultural Organization 1985–1993). Horticultural trade overall

has expanded as a proportion of world agricultural exports. At 13 percent of world totals, fruits and vegetables now **rank** third (after grains and oil seeds), and they have become more important than either agricultural raw materials or sugar. While Western Europe is the largest import market, the United States and Japan have been the fastest-growing markets over the past twenty years (Islam 1990, 9). In addition, the growth in grape trade is linked to a trend that began in the 1970s toward the consumption of more fresh—as opposed to canned and frozen—fruits and vegetables.

A second important aspect of grape consumption is that people no longer eat grapes seasonally; rather, they have become accustomed to having year-round access to their favorite fruits and vegetables. This year-round availability requires global sourcing, with different locations contributing their produce to first world markets at varying times of the year. The U.S. market for grapes, for example, is supplied by California producers during the summer and by Chilean producers during the winter. European demand is met through southern European production from July through September, Chilean and South African production from January through March, and Brazilian production from October through December and April through June. Southern Hemisphere grape exports fill "windows"—or gaps—in the availability of first world grapes for first world markets.

Third, because grapes require highly specific agroecological conditions, they are frequently traded across longer distances than most commodities. The average food product consumed in the United States travels 1,300 miles **and** changes hands a dozen times (Kloppenborg, Hendrickson, and Stevenson 1996). Given the long distances grapes travel, transport must be refrigerated, and this cost is a high proportion of retail price.

Fourth, grapes are what Philip McMichael (1990) calls a "luxury crop." **Luxury** crops are those destined for upscale consumers, who emphasize quality, not bulk. These products are not dietary staples; rather, they make the diet healthier or more interesting. Thus consumption of luxury crops is directly tied to quality; because these items are not staples, consumers simply will not buy them if they do not meet their standards. Quality standards vary from country to country (Japan's are the highest, followed by northern Europe and the United States). Individual purchasing agents also demand different grades of produce for the specific market segments they serve within countries.

In her series of essays on commodities, Susan Willis has described the **encounter** between consumers and "luxury" fruits in U.S. supermarkets as follows:

Stepping through the automatic sliding door and leaving behind a **dreadful** winter slush . . . you pick up your shopping **cart** and proceed along the prescribed course which invariably leads to the Land of Oz: a wonderland of brightly colored **fruits** . . . and vegetables. . . whose only acceptable attribute of tropicality is color. Air conditioning . . . swaddles the product in First World antiseptic purity and severs its connection with the site of its production. The shopper who enters the air-conditioned supermarket and chooses between its papayas, mango, pineapples, bananas; its winter **supply**

of peaches, nectarines, plums and grapes from Chile, is as unaware of the factors and labor force behind their production as the tourist whose experience of Mexico is an air-conditioned hotel lobby. (1991, 50–51)

What are the implications of the consumption pattern just described? How do the freshness and quality demanded by first world consumers shape the ways that grapes are produced and shipped, and ultimately the social relationships entailed in production and distribution? The next section explores these questions by presenting the results of research conducted on export grape production in the São Francisco river valley of northeastern Brazil in March 1991 and the summer of 1993.¹ First, evidence from this location suggests that the demands of shipping highly perishable produce for fresh consumption has limited the opportunities for small-scale grape producers to enter the market, despite their lower production costs and their higher quality product.² Second, this case reveals that rigid quality standards—because of the kind and amount of careful, skilled labor grapes require—have shaped labor recruitment practices in third world production sites, leading producers to hire women in export grape enterprises.

POSTHARVEST COSTS LIMIT SMALL FARM COMPETITIVENESS

Grape production in Brazil has begun relatively recently. Although Brazil's grape exports are minuscule compared with those of a country such as Chile, they have expanded from about 1,200 metric tons in 1987 to 12,000 metric tons in 1993 (a 1,000 percent increase in five years). In the lower middle São Francisco valley, encompassing parts of the northeastern states of Bahia and Pernambuco, farmers planted their first grapevines in the early 1980s and exported their first crops in 1987. Between 1970 and the early 1990s, this part of the São Francisco valley was transformed from a zone of low-input cattle ranches to one of intensive fruit and vegetable production—from a drought-stricken zone of *fazendas* (large, traditionally organized farms) employing servile labor to a zone of multinational investment and highly capitalized irrigated production. This transformation required huge investments on the part of foreign capital and the Brazilian state. In 1973, Brazil's military government began building a large hydroelectric dam on the São Francisco River at Sobradinho. Supported by the World Bank and other bilateral and multilateral donor agencies, the dam was designed to provide cheap hydropower in a period of increasing oil prices, to regularize the flow of the São Francisco River, and to make irrigated agriculture possible in the region. The dam was completed in 1979, creating a reservoir of 4,150 square kilometers and forcing the relocation of 65,000 people.

Irrigation was initiated by the Brazilian state, which purchased or expropriated lands near the reservoir and organized them into irrigation districts under the supervision of the São Francisco Valley Development Company (CODEVASF). Each

district included a mixture of large, medium, and small enterprises. By 1993, nearly 50,000 hectares were being farmed within the irrigation districts, and nearly an equal amount of private land had been irrigated. New enterprises were growing more than twenty different crops in the region; the most important were tomatoes, mangoes, and grapes.³ Irrigation and climate allowed both tomato and grape farmers in the region to harvest two crops per year.

In 1993, the São Francisco valley had 4,000 hectares in vineyards. Three thousand hectares were controlled by eighteen large firms (averaging a little over 150 hectares per enterprise); the remaining 1,000 hectares were distributed among some 300 small farms of under 6 hectares. State programs offered credit for grape production to both small and large farms, and both had access to at least minimal technical support through CODEVASF. Both small and large farms have succeeded in growing grapes that meet export standards. Indeed small farms have a slightly better record: an average of 45 percent of their grapes were exportable in 1993, compared with 40 percent for larger farms (Collins 1995a). Farmers sold unexportable grapes on the domestic market for one-third to one-half the export price.

Producing grapes on farms of any size is labor intensive, and even more so when grapes are destined for export. Export grapes must meet standards for features such as bunch size, grape size, weight, sugar content, absence of blemish, and absence of pesticide residue. Tasks involved in producing grapes to meet these standards include removing old growth from vines; tilling; fertilizing; securing new growth to arbors; trimming nonproducing branches; monitoring for rate of growth, blemishes, and signs of disease; applying pesticides biweekly; selecting the two best bunches on each branch and culling the rest; trimming bunches to export size; harvesting; grading; packing; and transporting to refrigerated warehouses.

Small farmers would seem to possess several advantages in export grape production. Economists have noted that small farms have a cost advantage for producing crops with high interactive labor intensity—that is, crops that are highly responsive to constant and careful manipulation and monitoring (Carter et al. 1993). This advantage occurs largely because family labor performs the crucial (and expensive) supervision tasks that ensure such careful, interactive labor. Indeed overall production costs for small grape farms in northeastern Brazil were 45 percent lower than those of larger farms, and the labor bill for small farms was 70 percent lower.⁴ Grapes are among those "nontraditional" exports, which would seem, on the basis of production characteristics, to present good opportunities for small farmers who wish to enter export markets.

Labor costs for large farms were high for two reasons. First, in order to reduce labor turnover and retain skilled workers large farmers invested in on-farm housing and services. Second, they were forced to implement a system for controlling and monitoring work in the vineyards. Firms with the highest percentage of exportable grapes used a three-tier system. For every twenty workers there was a monitor who constantly checked task performance. For every five monitors (100 workers) there was a supervisor who oversaw both efficiency and technical aspects of production.

One manager estimated that this three-tiered monitoring system cost his firm 25–30 percent of gross returns. In addition to this monitoring, many firms provided incentives for productivity, rewarding workers for high yields and high levels of exportability. Managers sought to combine skilled, almost "artisanal," care of grapes and vines with piece-rate compensation, monitoring and control. Managers who spoke about the need to standardize procedures, at the same time referred to their workers as **artisans—emphasizing** the care required in the execution of tasks.

Although small farms had lower labor and production costs, they could not necessarily continue to participate in exports. This uncertainty arose because small farmers were at a disadvantage in obtaining access to the postharvest services necessary to export. Grapes depend on the maintenance of an elaborate "cold chain," from packing shed to final destination. The fruit must be refrigerated within a few hours of harvest and, once cooled, the cold chain cannot be broken without damaging the produce. Small farmers are at a disadvantage in negotiating access to refrigerated warehouses at the point of production and on the docks, as well as to refrigerated trucks for ground transport and the refrigerated tankers that carry the fruit to Rotterdam. Operating on their own, small farmers cannot guarantee sufficient quantities of produce to make it worthwhile for shipping companies to show up at the right time, or to justify competitive shipping rates. Small farmers must also gain entry into foreign markets through foreign buyers or agents. Gaining entry is itself a complex task that involves, at a minimum, finding such a partner, negotiating terms of exchange, transferring goods, monitoring terms, and enforcing the contract.

Accomplishing all of these tasks is not only expensive, but requires access to banking and legal systems, and often some political influence as well. As Carter and his colleagues (1993) suggest, small farms are often at a significant disadvantage in performing many of these tasks. In the São Francisco valley, small producers' lower production costs were offset by the higher prices they paid for some materials (such as boxes) and services (such as technical assistance for setting up and regulating irrigation and drainage systems). Additionally, they were unable to export grapes directly, relying instead on intermediaries.

One such intermediary was the Brazilian Grape Marketing Board (BGMB), an association of seven of the valley's largest grape farmers. Large farmers organized BGMB in 1992 with two goals in mind: first, to overcome the high cost of shipping by bulking produce, and, second, to avoid competition among producers. In this sense, BGMB functioned as a sort of cartel, setting a common price and working to manage supply. As long as production in the valley was not yet meeting European demand during the market "windows," BGMB members were willing—indeed eager—to buy export quality grapes from small producers; they then sold these fruits together with their own produce. BGMB members also offered technical assistance to small growers, supervised harvest and packing, and assumed responsibility for transport and for locating the produce on the market. These services allowed them to "regularize throughput" (Watts 1994) in the event of production problems

on the estate, as well as to expand exports once their own vineyards had reached the maximum feasible size.

The other export option for small farmers was to sell grapes through the export firm Cacique, which was owned and run by the French government. Although the firm originally specialized in tobacco products, it began to diversify into veterinary supplies and fruit exports approximately fifteen years ago, when significant public health campaigns against smoking began. Cacique's fruit operations relied on the marketing infrastructure of the original tobacco firm. It began operations in the São Francisco valley in 1990, providing export services to large firms. As these firms began to develop the contacts and infrastructure necessary to export on their own (culminating in the establishment of the BGMB), Cacique turned its attention to small producers, buying their grapes and handling refrigerated transport, quality control, shipping, export papers, and so on.

Because both BGMB and Cacique were operating in 1993, small farmers benefited from the competition between them. Were either of these two marketing channels to disappear, however, small producers would face significantly higher charges for postharvest services. If both were to disappear, they would lose access to markets altogether. Small farms possess advantages in producing fresh fruit, but the cost and complexity of the distribution infrastructure work against them. The high cost of the refrigerated infrastructure has led to the relative monopolization of the distribution system. Such monopolies appear wherever perishable fruit is shipped for fresh consumption. Thus consumer demand for a year-round supply of fresh fruit—particularly delicate or tree-ripened fresh produce—requires access to a distribution system that is rarely available to small producers. It is therefore unlikely that small-scale producers can participate in this export market.

QUALITY PRODUCE AND FEMALE LABOR

Aspects of consumer demand—particularly the rigid quality standards applied to grapes—have also structured production and the labor process. Export grapes are evaluated according to dozens of attributes, and an immense number of tasks must be performed during each production cycle. Some firms in the São Francisco valley reported labor-intensity quotients in irrigated grape production (with two crops each year) as high as 1,500 person days per hectare each year, compared with approximately 500 person days per hectare each year in mango production, and even less for most field crops.

Such a labor-intensive process is quite costly for three reasons: (1) the absolute number of labor hours required; (2) the large amount of high-cost supervisory labor required; and (3) the preference for a skilled, relatively fixed labor force. Labor reductions have an immediate impact on the quality of grapes produced. The largest export grape producer in the São Francisco valley said that his two "secrets" were

maintenance of the cold chain and having plenty of well-monitored labor. He employed a variety of the three-tiered monitoring system described in the previous section.

Today there is no technology available to reduce labor inputs. Seedless grapes are hardier and thus require significantly less labor, but they have not yet been successfully adapted to the region. In the absence of such technology, large exporters have responded to high labor costs by turning to women, who can offer skills and low turnover at a lower price than traditional workers. Large exporters have employed women for most tasks in vineyards and packinghouses (Collins 1995b; 1995c). In 1993, 65 percent of the workers in export grapes were women. Men did tilling, irrigating, and carrying. Women selected, culled, trimmed, harvested, and packed—performing tasks that had most significance for the product's final quality.

Hiring women reduced the cost of labor in four ways. First, as evidence from many parts of the world has shown, the very fact that work is performed by women tends to reduce the skill level attributed to it (Glenn and Feldberg 1977; Compton and Jones 1984). What would ordinarily be construed as skill (including grafting of grapevines) is coded instead as manual dexterity, delicacy, and nimbleness of fingers. These attributes, while valued, are considered mindless and manual and thus do not increase women's wages. Men who operated rototillers in vineyards of the São Francisco valley received one and a half times the minimum wage in 1993, while women who grafted vines received the minimum.

Second, the notion that women have primary responsibilities in the home, and thus require "flexible" schedules, provides firms with a justification for hiring them on a series of temporary contracts. Such temporary hiring releases firms from the obligation to comply with a number of state labor regulations and to provide certain benefits. Of course "flexibility" is always defined from the perspective of the firm and may entail women working twenty hours per day during harvest, a practice that is hardly consistent with child care and other home responsibilities.

Third, because rural unions have discriminated against women, firms perceive women as less likely to participate in union activities. Hiring women supplies firms with a stable, skilled, controllable, and nonunion labor force at a lower cost than they would face if they hired men.

Finally, women are more desirable employees in export grape production because firms perceive them to be less likely to chafe under the heavy supervision implied in three-tier monitoring systems. Thomas, describing labor control practices in the California lettuce industry, quotes a male worker as saying, "to a man, that [treatment] would be a challenge to a fight. To a woman, it's not right, but women are treated that way" (1985, 180). The gender relations and gender ideologies implied in this remark also operate in northeastern Brazil, and the supervision of work in grapes is much more intensive than that in lettuce.

For most women who work in fruit and vegetable production in the São Francisco valley, that labor is their first experience with waged work outside the home. Since women have very few alternatives in the local labor market, firms can draw

"advantages from women's disadvantages" (Arizpe and Aranda 1981). For some women the wages earned in fruit production supplemented family income, but for others these earnings substituted for income lost when a family's formerly sharecropped lands were flooded by the dam at Sobradinho, or when owners converted such land to irrigated production.

Hiring women for export fruit production is not unique to the São Francisco valley, but is characteristic of many parts of the world. Over half of the labor force in fruit and vegetable production in Mexico is female (Barrón 1992; Roldán 1982). In Chile, where the fruit industry contributes almost 20 percent of national exports, the labor force is predominantly (and increasingly) female (Lago 1987; Rodríguez 1987; Rodríguez and Venegas 1989; Goldfrank 1992, 3; Gómez 1992, 17). Female labor is also important in fruit and vegetable production in the Dominican Republic (Mones and Grant 1987; Raynolds 1992, 18), in Senegal (Mackintosh 1989), and in the export flower industry throughout the Southern Hemisphere (Gruhn 1992, 20; Medrano 1980; Silva and Corredor 1980). A recent Del Monte advertisement in *The Packer*, the trade magazine for fruit and vegetable growers and distributors, referred to labor as its "secret ingredient"; smiling laborers portrayed in the ad were women. If commodities are the containers of hidden social relationships, this is a rare instance where the firm allows us a peek inside. Del Monte is telling us that the quality we demand in our supermarkets is linked significantly to their employment of third world women workers.

CONCLUSION

What we eat is not naturally determined (although there are some natural limits and boundaries). Rather, as Sidney Mintz's (1985) classic treatise on sugar has taught us, our consumption is a product of historically situated and shifting cultural preferences and economic interests. Chilean agronomists argue that "the essential new fact" accounting for the Chilean agroexport boom is dietary change in the first world, particularly the current emphasis on health, fitness, low fat, and freshness, which opens a new space for fresh fruits and vegetables (Gómez 1992, 10; Goldfrank 1994, 269).

As Kloppenburg, Hendrickson, and Stevenson have observed, however,

The distance from which [our] food comes represents [our] separation from the knowledge of how and by whom what [we] consume is produced, processed and transported. . . . Provided with a cornucopia of continuously available foods, few consumers have much knowledge of the biological, social or technical parameters and implications of food production in the global village. (1996, 123)

Few of us realize, for example, that the homogeneity of quality and supply that we experience in our supermarkets, as a product of global procurement strategies,

depends on the creation of new forms of *differentiation* in the labor force in other parts of the world—that is, on the creation of new forms of gender segmentation in the **agricultural** labor force. Few of us consider that fresh consumption requires **access** to transport technology that puts export strategies beyond the reach of small producers.

During the past two decades, the fruit and vegetable **industry** has become more global, more vertically integrated, and more concentrated. Highly **capitalized industry** leaders such as Dole and Del Monte tend to set quality standards and adopt packaging and labeling practices that provide consumers with brand recognition. Although negotiations at the World Trade Organization and other international venues have raised issues of whether states **can** impose consumer safety standards (such as regulating pesticide residues) or industry health standards (such as testing for presence of pests on imported fruits), vertically integrated retailers **can** define whatever standards they wish when they purchase from local producers. Standards associated with luxury foods of high value, as Stanford's chapter in this volume also demonstrates, have implications for how food is produced, and by whom.

As the introductory chapter, as well as other chapters in this volume, points out, the value we attach to particular commodities is partly cultural, but it also reflects power relations. Some groups **can** make their cultural preferences or values felt through the market or by other means. Northern consumers, in constituting a market for a year-round supply of flawless fresh fruit and vegetables, underwrite the displacement of existing cropping systems by production regimes that are complex, irrigated, and highly technical. As Friedmann (1990) describes, wheat produced on North American farms, distributed through food aid in the 1960s and 1970s, undercut production of basic **grains** (wage foods) in the developing world. In the 1980s and 1990s, demand for luxury foods such as year-round fresh fruits and vegetables has become a new force **that** supplants both self-provisioning and the production of wage foods for local consumers.

Berry (1992); Friedmann (1990); Kloppenburg, Hendrickson, and Stevenson (1996); and others have suggested that one response to this situation would be to "draw in our economic boundaries and shorten our supply lines." Berry suggests that "the closer we live to the ground, the more we will know about our economic life, and the more able we will be to take responsibility for it" (1992, 35). These scholars' works provide a powerful justification for the Community Supported Agriculture movement and the regionalization of consumption patterns. Another—and perhaps complementary—response to growing distances between point of production and point of consumption is to develop new analytical tools that will allow us to uncover connections between production and consumption practices in different parts of the **world**. As the example of grapes suggests, such approaches would allow us to move past models of local communities connected to abstract global forces and to conceptualize relations between producers and consumers **linked** through humanly produced institutions of regulation and trade. Like "shortening our supply lines," **such analysis** would enable us to **break** open the "black box" of the commodity

to see the social relations it entails and to make informed choices about how and what we will consume.

NOTES

1. Research was funded by the National Science Foundation and **affiliation** and support were provided by the Federal University of Pernambuco. The author thanks collaborators Andrea Melo and Jose Ferreira Irmão for their **participation** in the research.
2. See Lois Stanford's chapter on Mexican melon producers in **this** volume.
3. These crops **included** acerola, alfalfa, asparagus, banana, beans, cantaloupe, chili peppers, citrus, cotton, grapes (table and wine), guava, hybrid seed, mango, **maracuja**, onions, papaya, rice, squash, sugarcane, sweet peppers, tamarind, tomato, and watermelon.
4. These figures are **drawn** from a detailed analysis of accounts of **fifty-two** fruit **farms** in the São Francisco Valley, conducted by the author in 1993.

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