

From the Editors

Last August in Toronto, Canada the Research Committee on Food and Agriculture (RC 40) held a mini-conference on food commodity systems and globalization. A wide range of stimulating papers were presented, serving to assess the state of the art of research in this field.

In this issue of the journal we have included five papers that we hope will generate further debate. Unfortunately we cannot include the many other excellent papers that contributed to the success of this mini-conference. The debate, energetic and sometimes polarised, demonstrated the maturity of an approach initiated by Bill Friedland and those associated with him. It was an honour for the members of RC40 to have him present in person in full intellectual flow. Especially, we may add, when he is starting to take more seriously the significance of culture as part of the commodity system approach. This is refreshing and opens up the possibility of new encounters between scholars working across economic, cul-

tural, technological and political fields. In short, the sociology of agriculture is thriving within a changing world which provides ever new challenges for research.

The publication of this issue provides us with an opportunity to say a heartfelt thank you to the outgoing Executive Committee, especially to Bill and Ray for putting so much time and energy into the consolidation of RC40. This leads us to welcome the new officers: Phil McMichael (President), Mustafa Koc (Secretary-Treasure), Monica Bendini, Doug Constance, Laura Reynolds and David Myhre and we look forward to their contributions.

We hope to see all our readers in Montreal.

Yes, We Have no Bananas: Re-Regulating Global and Regional Trade

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I. Introduction¹

The most recent round in the worldwide struggle between trade liberalization and economic regulation is being fought over bananas. The World Trade Organization recently ruled that the European Union's preferential trade regime for bananas from its former colonies violates the General Agreement on Tariff and Trade free market accords. At first glance it appears that free trade interests have prevailed, overriding efforts at national and regional regulation and homogenizing trade conditions under the banner of global economic liberalization. Yet this conclusion may be premature.

The current trade dispute, often called the "Banana Wars," is rooted in

an historical conflict between two divergent commodity systems, each characterized by its own trade geography, state sponsorship, corporate involvement, social relations of production, and environmental conditions. In the most recent skirmish, the US centered "Dollar Banana" system appears to have triumphed over the "ACP Banana" trade between Europe and its former African, Caribbean, and Pacific (ACP) colonies. But while the World Trade Organization ruling favors Dollar Bananas, we argue that it leaves open opportunities for alternative trade systems. Provocatively, our analysis of the faltering ACP commodity system reveals an incipient Fair Trade system — based on a consumer/producer alliance around social and environmental criteria — which could represent an important countermove to global trade liberalization.

This paper begins by locating our research on the banana industry within the agro-food commodity system and global trade regulation literatures. Next we examine the historical construction of two

politically and economically delineated circuits within the world banana trade. In section four we analyze the current social, spacial, and environmental production relations which distinguish the Dollar and ACP Banana commodity chains. Section five investigates the dynamics of the current banana trade and the ongoing Banana Wars between the Dollar and ACP Banana systems. It is in our analysis of these competing production systems and the potential fate of the ACP Banana trade that we find a glimmer of a Fair Trade alternative. As we conclude, this countermovement suggests a possible new form for socially re-regulating production, trade, and consumption.

II. Research Approach

To understand how bananas have been transformed from a common tree crop in Latin America and the Caribbean to a favored fruit on the tables of European and American consumers requires an historical analysis. As has been found in studies of other agro-food commodities, the regional and global

dynamics of the banana trade have been overlaid on divergent local economic, political, and cultural histories (Mintz, 1985). Early mercantilist relationships and successor affiliations between countries of the North and South configured the international banana trade and its two divergent circuits. The world banana market was created by the two hands of colonialism — by the direct rule of European colonial powers and by the indirect rule of the increasingly hegemonic United States and its corporations. As with other key agro-exports (Friedmann and McMichael, 1989), the politics of bananas has been, and continues to be, a central feature of the politics of national development.

We utilize a commodity system approach to analyze the social relations which move bananas through the integrated processes of raw material production, preparation/ /packaging/shipping, and marketing (Friedland, 1984; Hopkins and Wallerstein, 1986). As Gereffi (1994:97) notes, the strength of commodity system analysis is its ability to illuminate (1) the

interlinking of products and services in a sequence of value-added activities; (2) the nature and spatial configuration of enterprises forming production and marketing networks; and (3) the power relations determining how resources are allocated along the commodity chain. In contrast to the unitary approach taken by most commodity system research, our analysis is essentially a comparative one, since ACP and Dollar Bananas have been historically defined as distinct commodities (though they are agronomically the same product). The ACP and Dollar Banana production systems exhibit important organizational and agro-ecological differences — differences which we argue are rooted and maintained largely by social, not technical, factors.

To understand how the divergent ACP and Dollar Banana commodity systems coexist and compete in the world banana market, we analyze the relations of trade and consumption (Arce and Marsden, 1993), as well as production. The coexistence of two such disparate systems challenges industrial

restructuring models based largely on economic criteria or assumed unitary patterns of global competitive organization, and points to the importance of analyzing the ways in which economic advantage is politically, and potentially differentially, constituted (Jessop, 1994). In bananas, as in other commodity areas, the current competitiveness of firms depends in large measure on their ability to reallocate social and environmental costs and influence the mechanisms by which major markets are regulated.

Regulation of the banana trade involves the interaction of competing global, regional, national, and local pressures. There are two conflicting regulatory regimes: the trade in Dollar Bananas is regulated by "free market" conditions; the trade in ACP Bananas is regulated by preferential market agreements. To understand this trade we must analyze processes of international regionalization emanating from the US and European trading blocs as well as global forces (Hirst and Thompson, 1996). While the banana commodity system is configured by pressures from local to

global levels, the nation state remains critical in mediating these competing pressures (Tickell and Peck, 1995).

Particularly interesting in the current conflict between the ACP and Dollar Banana regimes is the role of the World Trade Organization (WTO) in shaping emerging trade regulation. As the new arbitrator of the world market, the WTO is redefining the nature of "free trade" in agriculture, as well as other spheres. The recent rulings of the WTO in the Banana Wars privilege the interests of the United States and large transnational corporations, yet we argue that there may be openings for counter-movements. The future of the banana trade is not decided, but is being hotly contested by international organizations, regional trading blocs, national governments, corporations, producer associations, labor, and community groups.

Our analysis contributes to the literature by transcending two major weaknesses inherent in many earlier agro-food studies: (1) the tendency toward biologically or technologically deterministic explanations of production organization (e.g.

Goodman, Sorj, and Wilkensen, 1987) and (2) the tendency to overstate singular global agro-food production and trade models (e.g. Friedmann and McMichael, 1989). This study highlights the role of political contingency in the global organization of the banana industry, thus responding to the recurrent call for a more nuanced approach to agro-food system analysis (see for example, Bonanno et al., 1994; Goodman and Watts, 1994; McMichael, 1997; and Watts and Goodman, 1997).

III. The Making of the Banana Trade: Divergent Circuits

Bananas have a long history as a major internationally traded commodity, having helped found the global fresh produce market in the 1800s. The banana trade has been particularly important in Latin America and the Caribbean, integrating the region into the international division of labor. Along with sugar and coffee, bananas forged the region's ties to major US and European metropolitan centers. Until the late 19th century the

international banana market was organized by a number of US and European trading companies which bought produce from independent growers in the Americas, Africa, and the Pacific. At the turn of the century the US based United Fruit Company transformed the banana industry, linking the shipping and distribution of bananas — which characterized the earlier mercantilist trade — to major production enterprises. The newly formed United Fruit Company merged large banana operations in Latin America and the Caribbean, major railroad, port, and shipping facilities, and a substantial US fruit distribution network (Davies, 1990:23-36,96).

United Fruit continued to expand its holdings in the early 1900s, consolidating its control over the regional banana industry. In this era, company plantations were relocated every 10-20 years due to the onset of major diseases and the rapid depletion in soil fertility (Bourgeois, 1989:6). Though only a portion of its land was ever under cultivation at any one time, United Fruit acquired some 3.5 million acres in Honduras,

Costa Rica, Nicaragua, Guatemala, Panama, Colombia, Cuba, and Jamaica (LAB, 1987:18). By combining this productive base with expanding shipping, railroad and port facilities, the company successfully drove most of its regional competitors out of business and captured the US consumer market (Bourgeois, 1989:14-7).

In the mid-1900s, an era of rising US hegemony, United Fruit became a significant political as well as economic force in the hemisphere. The powerful banana company was involved in shaping domestic politics within producer nations increasingly dependent on banana revenues. At the same time, the company played an important role in guiding US diplomatic relations toward a region increasingly defined as vital to American interests (Langley and Schoonover, 1995). For example, in 1954 United Fruit played a critical role in orchestrating and gaining US support for the overthrow of Guatemala's president; in 1974 the company was again implicated, this time in bribing the president of Honduras. United Fruit exerted such

influence over the economies and governments of Central America that these countries came to be referred to pejoratively as "Banana Republics." Given its strangle-hold over the region, United Fruit in turn came to be known locally as "el pulpo," the octopus (Kepner, 1936; Langley and Schoonover, 1995).

United Fruit's banana monopoly was so complete that it was challenged repeatedly under US anti-trust laws, resulting in the creation of two spin off banana companies which, after several permutations, were to become United Fruit's major competitors. Standard Fruit, spun off in 1909, became a major producer and shipper of Central American bananas and was purchased in 1964 by the US food company Castle and Cooke, now known as Dole Food Corporation. A 1972 anti-trust action against United Fruit precipitated the sale of banana lands to the smaller US based Del Monte Fresh Produce Company. Despite these divestments, United Fruit remains a major economic and political force in the region. In part to shed some of its notoriety, the United Fruit Company

was reorganized and renamed, first as United Brands, and more recently as Chiquita Brands.

Chiquita, Dole, and Del Monte have largely maintained their preeminence in the Latin American banana industry, despite two major recent challenges to their market dominance. One challenge has come from the rise of independent Ecuadorian banana producers and exporters. Though Ecuador has gained an important share of the banana trade, particularly in Asia, US companies have maintained their market position by buying Ecuadorian produce and expanding their own production in the Pacific (Glover and Larrea Maldonado, 1991). The 1974 creation of the Union of Banana Exporting Countries (Union de Paises Exportadoras de Banano) raised a second potential threat to US based banana company domination, but this group's impact has been largely limited to the imposition of a modest tax on corporate banana exports (Glover and Larrea Maldonado, 1991). While these developments have modified the parameters of the Latin American

banana trade, they have not significantly undermined the market positions of Chiquita, Dole, and Del Monte.

The Divergence of the Caribbean/ /European System

Though initially part of the Latin American banana trade, the development of the Caribbean banana industry diverged sharply, due to the region's prolonged colonial ties to Europe, and the persistence of mercantilist trade policies and statist administrative structures imposed by European powers. The introduction of on-board cooling techniques at the turn of the century facilitated long distance produce shipments and opened up the trans-Atlantic banana trade (Davies, 1990:74). Seizing this opportunity, the British and French made bananas a central vehicle for colonial rule in the region, forging a distinct banana circuit linking the Caribbean to Europe. In contrast to the Latin American banana industry, the key players in this new Caribbean banana circuit were not large-scale

producers, but state administrators and banana shippers.

In the early 1900s British colonial policies transformed Jamaica — previously a minor source of US and European bananas — into the major supplier of bananas to Britain, the largest market in Europe. Mercantilist policies channelled exports almost exclusively to England, where Jamaican bananas were given guaranteed markets. To counter United Fruit's growing monopoly over the banana trade, the British government arranged and paid for the shipping and distribution of bananas by a British trading company, known today as Fyffes Ltd. (Davies, 1990:86). Fyffes was guaranteed 75 percent of the British market and an exclusive contract over bananas from Jamaica, and later Belize and Surinam (LAB, 1987:80). Since Fyffes was not a banana producer, colonial administrators established an association of growers charged with maintaining banana supplies and coordinating links with the shipping firm (Sealy and Hart, 1984).

After World War II, British colonial policies sponsored the emergence of the Windward Islands as a major supplier in the European banana circuit. Borrowing from their experience in Jamaica, colonial administrators created a decentralized banana industry to channel peasant production into the export economy (LAB, 1987:13-44). Peasant smallholders were encouraged to grow bananas, which could be cultivated with relatively few purchased inputs, and market them through a powerful state backed banana growers' association. Again British colonial administrators granted exclusive exporting rights to a major UK food company, this time to Geest corporation (Trouillot, 1988:127).

England's colonies in the Caribbean have won their independence, but their economies still hinge on the smallholder banana industry established by the British. The former colonies have maintained their preferential access to the lucrative British market. Geest and Fyffes have maintained purchasing contracts granting them exclusive rights over exports from the major

Caribbean banana islands. In recent years, Fyffes has controlled 25 percent and Geest another 60 percent of the British banana market (Sutton, 1997:7). Though smaller than the US fruit monoliths, Geest and Fyffes have been central to the European banana trade and have remained largely British concerns.² In 1995 Fyffes purchased Geest's banana division, consolidating that company's position as the largest distributor in the European banana circuit (Grocer, 1996).

Colonial relationships similar to those of Britain have configured other strands of the European banana circuit, creating a network of smallholder production systems in the former colonies which remain linked to the metropolitan centers through preferential trade agreements. The former French colonies of Martinique and Guadeloupe have traditionally provided the second largest share of European bananas under a system which mirrors that in the neighboring Windward Islands. Like their British counterparts, French colonial administrators founded a smallholder

banana export industry coordinated by a state supported growers' association. This decentralized banana industry remains critical to the economies of Martinique and Guadeloupe, which are now French off-shore territories (Welch, 1996). While the locus of the European banana circuit has always been the Caribbean, other former colonies in the Mediterranean and Africa have also helped supply this system.

The Dollar Banana Zone and the ACP Banana Zone

By the 1960s, the political and economic ties between the United States and its Latin American neighbors and European countries and their former colonies had defined two opposing banana zones, each with its own trade geography, corporate actors, and production politics. The Dollar Banana Zone centers on the US market, which has long been the largest market in the world. As noted in Table 1, the United States currently absorbs about 29 percent of total world exports. Reflecting the historical sphere of

influence of the US government and US based fruit companies, imports come almost exclusively from Latin America. This inter-American trade forms the core of the Dollar Banana Zone, with seven countries — Ecuador, Guatemala, Colombia, Honduras, Costa Rica, Mexico, and Panama (in that order) — accounting for the vast majority of US banana imports in recent decades. Latin American bananas dominate the world market, representing about 80 percent of world exports. Trade from Latin American countries takes place on the open market and remains largely in the hands of the big three banana companies. Over the years the Dollar Banana Zone has expanded into the Pacific to accommodate the rise of major markets in Japan, and more recently China. These new Asian markets are sourced largely by corporate operations in the Philippines, augmented by supplies from Ecuador (Glover and Larrea Maldonado, 1991).

The ACP Zone which links former colonies and off-shore territories in Africa, the Caribbean, and the Pacific with the European

Table 1: World Banana Exports and Imports, 1996

Exports		Imports	
Country	Tons (1,000)	Country	Tons (1,000)
<i>Latin America</i>		<i>North America</i>	
Ecuador	3,817	United States	3,317
Costa Rica	2,083	Canada	460
Colombia	1,402	<i>Europe</i>	
Panama	715	EC-12	2,959
Guatemala	647	Former USSR	748
Honduras	529	Poland	211
<i>Caribbean</i>		Czech Rep.	163
Windwards	223	Sweden	158
Martinique & Guadeloupe	311	<i>Asia</i>	
Jamaica	89	Japan	802
<i>Africa</i>		Saudi Arabia	180*
Ivory Coast	192	China	160*
Cameroon	190	<i>Latin America</i>	
<i>Asia</i>		Argentina	219
Philippines	1,235	Chile	153
<i>World Total</i>	11,758	<i>World Total</i>	11,397

Sources: FAO (1997; 1998).

* These figures are for 1995.

market is the world's second major banana circuit. The Lomé agreement between the European Union (EU) and the ACP group of seventy ex-

colonies has upheld the historically rooted preferential trade access and market share of ACP Bananas (Chambron, 1995:2; Sutton,

1997:11). While the EU has become increasingly integrated in recent decades and now absorbs 26 percent world banana imports, its banana trade continues to reflect the varied European colonial legacy. In recent years ACP countries, primarily in the Caribbean, have supplied 21 percent of the EU banana market. European off-shore territories supplied an additional 17 percent and Dollar Bananas made up the remaining 62 percent of the EU banana market (Farmers' Link, 1995:14). Almost all of Britain's bananas come from its former Caribbean colonies. The majority of France's bananas also come from the Caribbean (from its off-shore territories, Martinique and Guadeloupe) with additional supplies from its now independent African colonies, the Ivory Coast and Cameroon. Portugal and Spain acquire most of their bananas from their island territories, Madeira and the Canary Islands. Italy is supplied largely by its former colony Somalia. Only those countries with weak colonial ties, like Germany, Denmark, Belgium, Luxembourg, and the Netherlands, have relied primarily on

Dollar Banana imports (Chambron, 1995:2; Sutton, 1997:6).³

IV. The Banana Commodity Chain and Competing Production Regimes

Bananas move through an intricate set of transnational production, processing, and marketing activities as they make their way from the fields to distant consumers. As with other fresh fruits and vegetables (Friedland, 1994), distributors play the pivotal role in this commodity system since it is they that must guarantee that bananas reach their destination undamaged and ready to eat.⁴ To ensure that bananas are not bruised in transit and are delivered in amounts that will be sold before spoiling, distributors must tightly coordinate activities along the commodity chain. While the perishability of bananas demands that the central tasks of cultivation, washing, packing, local transport, international shipping, ripening, and wholesaling be smoothly linked, these activities may be carried out by distributors themselves or by associated firms.

As depicted in Figure 1, the Dollar Banana system is vertically integrated with the biggest corporations — Chiquita, Dole, and Del Monte — managing most production and distribution activities themselves. Dollar Banana cultivation remains anchored in the huge Latin American plantations acquired by the heirs of United Fruit. The big three banana corporations produce roughly 70 percent of their own produce, acquiring most of the remainder via contracts with large growers. In the event of production shortfalls, Ecuadorian bananas are purchased on the open market (Glover and Larrea, 1991). Interlocking divisions of Chiquita, Dole, and Del Monte are responsible for intermediary produce handling: (1) preparing and packing the bananas, often in boxes from their own cardboard factories, (2) transporting the produce from field sites to the port, often on their own truck or rail systems, and (3) shipping the bananas internationally, often using their own refrigerated containers, their own boats, and sometimes even their own harbors.⁵ Bananas from Chiquita, Dole, and Del

Monte subsidiaries around the world are shipped to corporate ripening centers in major North American, European, and Asian markets. These global sourcing networks help balance out regional production variations and guarantee a consistent supply for sale to supermarkets and institutional food services. Dollar Banana corporations' vertically integrated structure provides important advantages in guaranteeing produce quality and supplies, channeling market information into production planning, and facilitating promotional efforts to expand markets for their brand name fruit.

Reflecting its strikingly different historical roots, the ACP Banana production system based in the Caribbean is much less vertically integrated than the Dollar system. As highlighted in Figure 1, ACP Banana distributors are essentially trading companies with limited involvement in cultivation. Over the years the largest traditional ACP firms, Fyffes and Geest, have experimented with plantation production and open market purchases, but the bulk of their produce still comes from

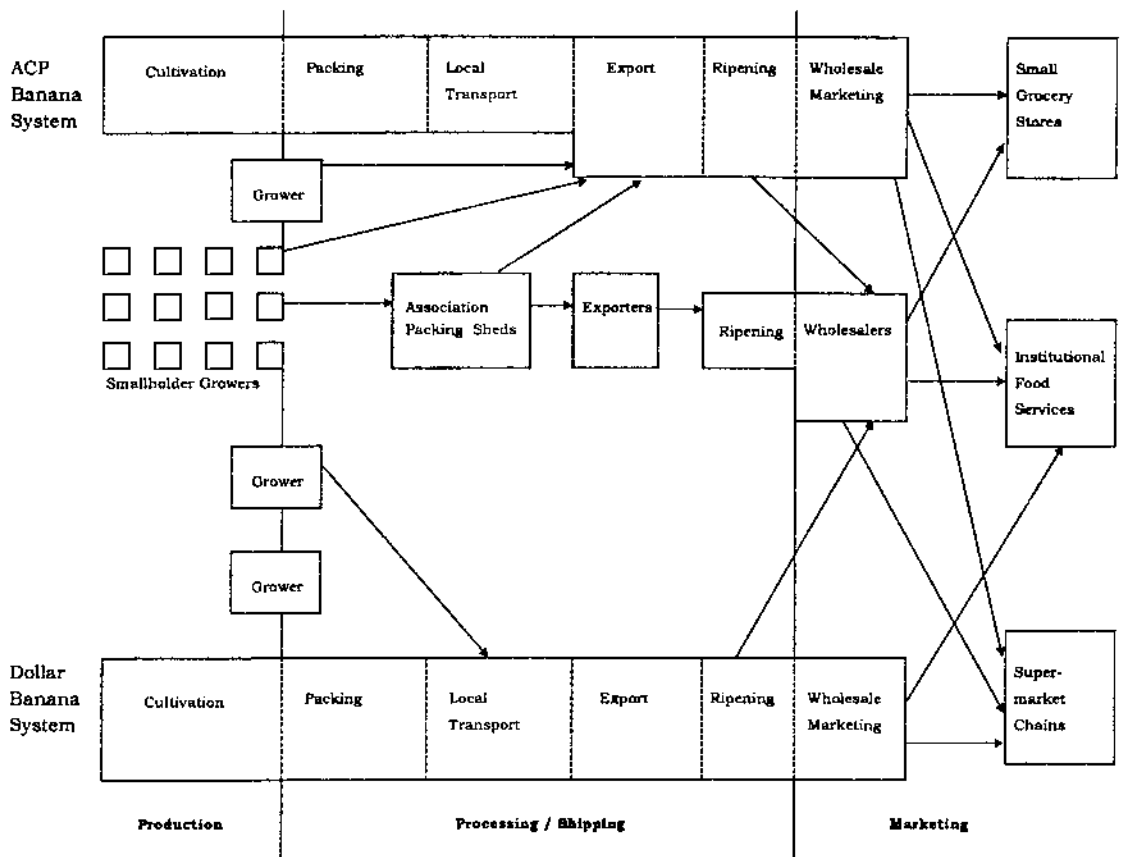


Figure 1: The ACP and Dollar Banana Commodity Systems

contracts with Windward Island smallholders. In Martinique and Guadeloupe, production is channeled through a number of distributors, making the system even more decentralized. On each of the major Caribbean banana islands, thousands of small-scale banana producers are organized into state sponsored

growers' associations which facilitate various production tasks and, most importantly, coordinate banana exports.⁶ Banana growers' associations in Martinique and Guadeloupe rent shipping space for their members, but leave them to market their bananas individually to various European distributors (Welch,

1996).⁷ In contrast the Windward Island banana growers' association, in association with the Windward Island Banana Development Exporting Company (WIBDECO),⁸ has for decades sold all their export quality produce to the same shipper/distributor. Geest, now under the control of Fyffes, ships the bananas on company and rented vessels to its European ripening centers and then sells the produce to supermarkets, institutional food services, and grocery stores. Under the Windward Island banana contract the distributor does not purchase the bananas prior to shipping, but rather agrees to pay WIBDECO for the produce at a rate fixed in Europe, minus shipping and handling fees (Trouillot, 1988). Shipping and distribution costs of ACP Bananas are significantly higher than those for Dollar Bananas, since volumes are lower and vessels must make multiple stops to load their cargo.⁹ While ACP distributors have higher costs and less control over produce supplies than vertically integrated Dollar Banana companies, they are able to shift some costs and risks onto

banana growers, either individually or collectively via growers' associations.¹⁰

Social Relations of Banana Production

One of the sharpest distinctions between the Dollar and ACP Banana commodity systems lies in their divergent mechanisms for assembling land, labor, and capital for production. Dollar Bananas are grown primarily on plantations which often exceed 12,000 acres and are operated directly by the major distributors, Chiquita, Dole, and Del Monte. As suggested in Table 2, Dollar corporations and their huge plantations dominate Latin American banana production.

Chiquita, Dole, and Del Monte all have extensive plantations which provide the core of their supplies and allow them to benefit from important economies of scale. These plantations entail substantial fixed investments, though much of the land is leased from local governments. Chiquita, for example, cultivates 17,000 acres of largely rented land on the border of Panama and Costa Rica, producing

Table 2: Major Dollar Banana Producers

	Major Exporters ^a	Acres Planted	Yield ^b	Holdings	Workers
Ecuador	Noboa; Dole; Del Monte; Chiquita	246,000	12	7,000 medium 20 large	
Costa Rica	Dole; Del Monte; Chiquita	123,000	20	25% medium 75% large	20,000
Colombia	Uniban; Dole	69,000	16	100% medium	
Panama	Chiquita; Dole	40,000	24	25% medium 75% large	13,000 ^c

Sources: APROMA (1992:11-14); ECCR (nd:10-16)

^aFirms listed in order of export shares.

^bTons per acre.

^cThis is the number of workers employed by Chiquita.

almost half a million tons of bananas a year (Bourgeois, 1989:4). Production on this scale permits the efficient use of human, chemical, and mechanical inputs. Particularly important in bananas, is the use of cost-saving scale dependent technologies like the aerial spraying of pesticides and the use of cable networks which transport harvested bananas to packing sheds up to a mile away.¹¹

Even large-scale banana production remains labor intensive since the fragility of the fruit limits mechanization. Chiquita's Panama/

/Costa Rica enterprise for example employs roughly 10,000 workers. Men are hired in the fields to apply chemicals, prune, wrap the stems with plastic, harvest, and load bananas on the aerial cables. Women are mostly hired in the packing sheds to cut up the banana bunches, to select, sort, and wash the exportable produce, and to pack the boxes. Banana harvesting is timed around the shipping dates, causing labor demand to fluctuate. To cut costs, corporations typically employ temporary laborers excluded from

legal minimum wage standards, job security guarantees, and benefits (Bourgeois, 1989; Foro Emaus, 1997). Further weakening the position of labor, most Central American banana plantations hire ethnic minority workers, often migrants working in the country illegally.¹²

Despite the potential efficiency of plantation production, banana transnationals have recently increased their reliance on contracts with large associate growers who now supply about 30 percent of their produce.¹³ There are two major benefits for corporations in using these, typically five year, contracts. First, it allows corporations to avoid increasingly frequent and costly conflicts over the violation of labor, health, and environmental standards.¹⁴ Second, it increases the flexibility of produce supplies. Contracts specify the quantity and timing of banana deliveries, but corporations regularly loosen quality standards when supplies are low and tighten their standards to exclude produce when their supplies are high (Glover and Larrea Maldonado, 1991). Associate growers are paid for their

produce upon delivery, unlike growers in the ACP Caribbean who are not paid until the bananas are sold in Europe.

In contrast to the large-scale production of Dollar Bananas, the majority of ACP Banana production is in the hands of small and medium scale producers. As noted in Table 3, in the Windward Islands there are 27 thousand banana growers, most of whom cultivate less than ten acres. Landholdings are slightly larger in Jamaica and the French Caribbean, but production remains decentra- lized.¹⁵

Small-scale banana production in the Caribbean is economically tenuous and is made possible only by the actions of producer associations which help members coordinate production and access scale dependent technologies. Banana growers' associations may provide research and extension, bulk input purchases, credit advances, collective aerial spraying, local transportation and packing facilities as well as joint shipping and marketing services (Welch, 1996). A major challenge for small-scale producers is getting the

Table 3: Major ACP and Overseas Territory Producers

	Major Exporters ^a	Acres Planted	Yield ^b	Holdings	Growers ^c
Windward Islands	Fyffes/ WIBDECO	42,000	8	53% < 10ac 43% 10-50ac 3% > 50ac	27,000
Jamaica	Fyffes; JAMCO		18	6,000 small 2 large	6,000
Guadeloupe	SICA-ASSOBAG	15,000	12	34% < 10ac 22% 10-50 ac 44% > 50ac	1,400
Martinique	SICABAM	19,000	12	29% < 10ac 17% 10-50ac 54% > 50ac	7,567

Sources: Windward Islands, WINBAN data cited Nurse and Sandiford (1995:45). Guadeloupe and Martinique, SICABAM data cited Welch (1996:288-93).

^aFirms listed in order of export shares.

^bTons per acre.

^cThis is the number of banana growers; if fieldworkers and banana association workers were included, the figures listed here would double (Nurse and Sandiford, 1995:3).

bananas from their dispersed and often distant holdings to the point of export, quickly and undamaged. Windward Island producers have traditionally transported the fruit, often on foot, to centralized association packing stations. Growers' associations recently introduced a system where the bananas are prepared and packed in the field,¹⁶ allowing the boxed fruit to

be more safely and easily transported to the port for shipping.

Caribbean ACP Banana production remains very labor intensive. Small-scale producers rely on unpaid household labor, supplemented by day labor hired to help facilitate the timely harvesting and packing of bananas immediately prior to set shipping days. Caribbean wages are three times higher than

they are in Central America. Since labor may account for up to 75 percent of ACP Banana production costs, this wage differential helps explain why production costs are so much higher in the Caribbean than in the Dollar Zone (Nurse and Sandiford, 1995:52,144).

Environmental Dimensions of Banana Production

The divergent social organization of the ACP and Dollar Banana systems has shaped their divergent agro-ecologies. The Dollar Banana system is characterized by a uniform pattern of chemical and mechanical input intensive, large-scale, monocropping. Bananas are cultivated over large tracts of relatively rich, fertile lowland soil, on terrain that is often graded to facilitate irrigation. The agro-ecology of the Dollar Banana system fosters a number of serious environmental problems. Dollar Banana plantations have fueled tropical deforestation in Latin America. For example, the recent expansion of Dollar Banana production has resulted in the

clearing of thousands of acres of Costa Rican jungle (Foro Emaus, 1997). Paradoxically, the cyclical contractions in banana production may harm the forests more than expansions. During periods of over-production and declining prices, Dollar Banana companies lay off hundreds of workers who are often unable to find other jobs and move into the surrounding rainforest, clearing land for subsistence farming.¹⁷

The preparation of large tracts of land for Dollar Banana production leads to substantial erosion as the forest cover, root systems, and biomatter stabilizing the top soil is removed. During the rainy season, plantation top soil washes into irrigation canals and rivers and on to the ocean. In many parts of Latin America, banana production has become a source of river siltation and water-borne chemical contamination (ECCR, nd; Colburn, 1997). Runoff from coastal plantations has destroyed major reef systems, including up to ninety percent of the reefs off the Caribbean coast of Costa Rica (ECCR, nd). In addition to

damage from siltation and chemical runoff, the reefs are injured by the pesticide-laced plastic bags used to protect maturing bananas. These bags are removed during harvesting and are often left on the ground to be carried off by the rain to the ocean, where they envelop and poison the reefs.¹⁸

One of the most critical environmental problems arising from Dollar Banana production derives from their intensive pesticide use. The large-scale monocropping of bananas has fostered the rise of large pest populations and diseases able to wipe out entire plantations. To combat these threats, Dollar Banana companies rely on an increasing volume and variety of pesticides. Large quantities of fungicides are applied to control Black Sigatoka, while extremely toxic insecticides, nematocides, and soil fumigants are used to control nematodes (Wheat, 1996). A large share of the pesticides are for cosmetic treatments to assure the uniform size and appearance of the fruit. Banana production has increased pesticide use throughout the Dollar zone. Bananas absorb

nearly one-third of all pesticides in Costa Rica, contributing to the country's dubious distinction as the world leader in per capita pesticide use (Murray, 1994). Pesticides, particularly when aerially applied, contribute to both environmental contamination and public health problems.¹⁹ The use of the nematocide, DBCP, has led to the sterility of thousands of Central American banana workers (Thrupp, 1991).

ACP Banana production in the Caribbean is characterized by very different agro-ecological conditions than those associated with Dollar Banana production, conditions which are far less environmentally destructive (CCA, 1991; Vandermeer and Perfecto, 1995). Due to the historical control of the limited rich lowland territory by European settlers, most smallholder banana production in the Caribbean takes place on hillside lands. In sharp contrast to the monoculture characteristic of Dollar Banana plantations, small-scale Caribbean producers typically intercrop their bananas with other fruit trees and

ground crops oriented toward household consumption and local markets. This small-scale intercropping of hillside lands partially explains the more limited yields of ACP Bananas (Nurse and Sandiford, 1995:70-71). Yet, it also helps explain why this system is less environmentally destructive than Dollar Banana production.

Banana production in the Caribbean has historically led to some deforestation, but the damage to local biodiversity and forest ecosystems has been limited by the interspersing of small banana holdings with remaining tropical forest areas. This diversified land use pattern and the intercropping of bananas with other crops help curtail the soil erosion and river siltation so common in Dollar Banana regions (CCA, 1991; Lawton, 1993). Since their farming system gives them intimate long term contact with the land, small-scale ACP banana producers are arguably better stewards of the land than are plantation producers who divide land management responsibilities among a number of workers oriented toward

short-term returns. Land reform initiatives, like that in St. Lucia, have supported the terracing of hillside banana parcels and other soil conservation efforts (Nurse and Sandiford, 1995). Because ACP Banana producers rely on household and local labor, cyclical production downturns do not drive displaced workers to clear forest land as occurs in the Dollar zone.

Pesticide use in the production of ACP Bananas is significantly lower than in Dollar production. The maintenance of agro-ecological diversity within Caribbean banana regions helps control pest populations through natural processes. Although Caribbean producers have generally tried to match the high chemical input use characteristic of Dollar Bananas in order to compete with Latin American producers, pesticide use in ACP Bananas has recently declined, due to producers' budgetary constraints and the inability of banana growers' associations to finance expensive inputs (Welch, 1996:260). In the Windward Islands costly aerial pesticide spraying, with its related environmental and health

hazards, has virtually disappeared. In some cases, small-scale Caribbean banana production has become almost pesticide-free (ECCR, nd).

The divergent social and agro-ecological characteristics of the ACP and Dollar systems both explains how Dollar Bananas can be produced for less than half the cost of ACP Bananas — for US\$ 180 as compared to US\$ 458 per ton f.o.b.²⁰ — and discloses the hidden costs of this production. Vertically integrated Dollar Banana corporations benefit from economies of scale which significantly reduce their production, packing, and shipping expenses, but much of their cost advantage over smaller ACP producers appears to come from the lower returns paid to disadvantaged workers. Similarly though Dollar Banana plantations achieve higher yields than ACP producers, this is largely due to their chemical intensive monocropping system which creates substantial environmental and health problems. In short, while the ACP Banana production system may be more expensive than the Dollar system, this ancillary system represents a

more environmentally and socially sustainable form of production.

V. Trade Regulation and the Banana Wars

Bananas have maintained their historical preeminence as the most important internationally traded fresh agricultural commodity. Valued at over US\$ 7.5 billion, Dollar Bananas account for over 85 percent of the nearly 12 million tons of bananas on the world market (FAO, 1997). Most Dollar Bananas continue to be produced in Latin America. Ecuador, Costa Rica, and Colombia supply 62 percent of the world's bananas, followed by Panama, Guatemala, and Honduras (see Table 1). These Latin American countries have become more diversified than in the era of the Banana Republics, but bananas continue to play a critical role in their economies, contributing from one to ten percent of gross domestic product.²¹

As previously noted Chiquita, Dole, and Del Monte — the big three transnational banana corporations — have oligopolistic control over the

Dollar Banana market. These vertically integrated corporations sell huge quantities of their relatively inexpensive, standardized, blemish-free, input-intensive bananas. They have captured the lion's share of the consumer banana market with the help of extensive costly advertizing for their "name brand" fruit. These corporations have increased their dominance of the banana trade over the past thirty years, with their combined share of the world market rising from 47 to 65 percent (Farmers' Link, 1995:4; Hallam and Peston, 1997:46).

Conditions in the so called "open market" for Dollar Bananas are essentially established by the competitive pressures between Chiquita, Dole, and Del Monte. The world's largest banana distributor, Chiquita Brands, currently controls about 26 percent of the world market. Chiquita is the most aggressive company in the banana industry since almost half of its US\$ 2.4 million in annual sales comes from bananas and it has the largest investments in banana vessels and other infrastructure (Friedland, 1994:182).

Dole Food Corporation controls the second largest share of the world banana trade, with 25 percent of the market. Dole is substantially larger than Chiquita (with sales of US\$ 3.8 million), but is more diversified and thus focuses on increasing markets for its broad produce portfolio rather than concentrating primarily on the banana market (Dole, 1994). The third major banana distributor, Del Monte, is also a potentially powerful international player, although due to repeated internal reorganizations it is not currently taking a lead role in shaping world markets.²²

Chiquita, Dole, and Del Monte have virtually complete control over the US banana market, which is the largest in the world, with 27 percent of total imports (FAO, 1997). Having largely saturated the North American market, these corporations have had to find new markets for their growing exports. Over recent years Dollar Banana corporations have expanded their markets in Japan and other countries in Asia and the Middle East (Hallam and Peston, 1997:24). But the real prize has been the European market.

Since the mid-1980s, Europe has experienced a dramatic increase in consumer demand for bananas, with per capita imports rising far faster than in other regions (FAO, 1997). Banana imports have risen throughout Eastern and Western Europe, with the European Community (EC) now absorbing 26 percent of world imports (FAO, 1998). European unification has made expansion in the EC particularly attractive to Dollar Corporations since it permits them to pursue cost-efficient continent-wide distribution strategies. To take advantage of this growing market, Chiquita, Dole, and Del Monte have expanded their Latin American plantations over the past decade and flooded Europe with Dollar Bananas. Excess production has heightened competition and driven world banana prices down in the 1990s, encouraging Dollar Banana corporations to challenge the position of smaller European banana distributors and the ACP Banana system in prized European markets.

The Single EU Banana Market

As previously noted, the European banana market was until recently structured around preferential trade agreements granted to former ACP colonies under the Lomé agreement. In an effort to harmonize diverse national policies and further unification, a single EU banana market was created in 1993 which regulated market access based on three criteria. First, only bananas from Europe and its overseas territories were given free market access. ACP Bananas were given a tariff-free quota set at the traditional import level of 858,000 tons per year; Dollar Bananas were given a quota of 2,000,000 tons with a 100 ECU per ton tariff.²³ Any further imports were heavily taxed. Second, an import licensing system regulating tariff quota (ie. Dollar Banana) imports was created, with 30 percent of licenses reserved for traditional EU and ACP distributors, 66 percent for Dollar companies, and the remainder for new operators. Third, within these distributor categories, firms involved in importing were given greater access

to licenses than those in ripening or other portions of the commodity chain (Chambron, 1995:4; Solidaridad, 1995:48-54).

Fearing that the single EU market regulation would harm their Dollar Banana exports, five Latin American producer countries brought an immediate legal challenge to the General Agreement on Tariff and Trade (GATT) dispute panel, charging that the banana regulations violated the EU's commitment to the Uruguay free trade accord. To settle the dispute, the EU agreed to reduce the Dollar Banana tariff to 75 ECU per ton, raise the Dollar Banana quota to 2,200,000 tons and grant complainant countries favorable shares of the new quota, and reallocate 70 percent of import licenses to producer countries (Chambron, 1995:3; Sutton, 1997:22).

European responses to the new EU banana market regulations have varied. Countries like Britain and France have supported the system, since it upholds their colonial obligations to overseas territories and ACP countries, and privileges their

traditional ACP import companies. In contrast Germany has largely opposed the regulations, since the new rules taxed their traditionally large Dollar Banana imports and raised consumer prices, and made it difficult for small German banana distributor, ripener, and transport companies to acquire licenses (Chambron, 1995:4; Sutton, 1997:15-6).

ACP countries and European overseas territories have supported the new banana trade regulations which reserve a large share of the EU market for their relatively expensive, variable quality, low-input produce.²⁴ This protected market is particularly critical for the major ACP suppliers, the Windward Islands, where bananas continue to contribute roughly 16 percent of gross domestic product (Hallam and Peston, 1997:4). As noted in Table 4, in the first years, the single EU regulations bolstered ACP Banana imports, increasing the earnings of ACP countries by an estimated US\$ 100 million (Solidaridad, 1995:57). Much of the ACP increase has gone to West Africa. Although the ACP Caribbean

countries have been unable to fill their quotas due to storm-induced crop losses, the EU regulations have allowed them to continue to market their produce at twice the price of Dollar Bananas, augmenting returns to island producers as well as ACP distributors (Hallam and Peston, 1997:60).

Traditional ACP Banana importers have perhaps been the major beneficiaries of the single EU banana market. Geest and Fyffes (the key British banana importers), Ponomo (France's largest distributor), and Iberga (the Spanish supermarket chain) benefit from their control over supplies of tariff-free ACP Bananas

Table 4: ACP and Dollar Banana Shares in EU Imports

	ACP Bananas*	Dollar Bananas	Total Bananas
1991			
Tons (1,000)	1296	2384	3680
Percent	35.2	64.8	100.0
1992			
Tons (1,000)	1422	2487	3909
Percent	36.4	63.6	100.0
1993			
Tons (1,000)	1403	2151	3554
Percent	39.5	60.5	100.0
1994			
Tons (1,000)	1296	2084	3380
Percent	38.3	61.7	100.0
1995			
Tons (1,000)	1310	2140	3450
Percent	38.0	62.0	100.0

Sources: Eurostat and FAO data cited Solidaridad (1995:58) and Hallam and Peston (1997:29).
*Includes ACP countries and European overseas territories.

and from the use and frequent sale of their importing licenses (Kuilwijk, 1996). Instead of simply fueling the growth of the ACP Banana trade, the licensing system has encouraged ACP companies to increase their access to Dollar Bananas via both purchases and the establishment of plantations in Latin America.²⁵ The licensing system has also spurred the concentration of the European banana industry, with large EU produce importing companies buying up smaller distributors and ripeners driven out of business by the difficulty of obtaining licenses (Pitcher, 1995).²⁶ Fyffes has acquired a continent-wide distribution system and greatly increased its share of the European market in recent years. With its purchase of Geest's banana division, Fyffes now controls 85 percent of the British market, and 20 percent of the EU banana market (Grocer, 1996). This EU market reorganization has propelled Fyffes into third place in the banana industry, with sales surpassing those of Del Monte.

Chiquita, Dole, and Del Monte have maneuvered the new EU

regulatory environment with varied success. When the companies flooded Europe with Dollar Bananas in the early 1990s, they reduced their profits but secured their position in the EU market by inflating the base of the subsequent Dollar Banana quota (Shapiro, 1992). To expand sales above this quota, Dollar corporations acquired ACP Banana supplies, gaining control of almost a third of all ACP production (Arthur D. Little, 1995, cited in Southey, 1995). For example, Dole initiated production in African ACP countries to source tariff-free bananas and purchased ripening and distribution centers in France, Spain, and Britain to facilitate access to EU import licenses (Dole, 1994). Since the implementation of the new regulations, Dole has actually increased its share of the EU market from 11 to 15 percent, with European sales rising from 8 to 21 percent of corporate earnings (Dole, 1988; 1995). Del Monte has held onto its 8 percent share of the EU market by pursuing a similar strategy. Only Chiquita has seen a major decline in European sales in the 1990s, with its share of the EU market falling from

25 to 18 percent, due to its failure to break into the ACP Banana trade (Arthur D. Little, 1995 cited in Southey, 1995).

The Banana Wars

Chiquita has virulently attacked the European banana regulations, blaming them for the corporation's recent million dollar losses. In 1994 Chiquita sought action against the EU for violating US Trade Law 301, charging that the single EU banana regulations discriminate directly against US corporations and permit the framework agreement signator countries to discriminate in the distribution of EU banana licenses (US ITC, 1994). Despite the tenuous US national interest in this matter — given that the US neither exports bananas nor has a significant number of jobs in the industry — Chiquita was able to use its substantial political clout to ensure that the US government pursue the case (see Larimer, 1997).

The US government filed Chiquita's complaint against the EU with the World Trade Organization

(WTO), GATT's successor and the new arbitrator of world trade. The multitiered complaint charged that the EU single banana market regulations discriminate against Dollar Banana producers and trading companies, thus violating the GATT Uruguay Round free trade accord. The US government and Chiquita recruited the governments of Ecuador, Guatemala, Honduras, and Mexico — countries which had not been given favorable export shares under the 1995 banana framework agreement — to sign the WTO petition. But Dole and Del Monte refused to back Chiquita, raising serious questions as to the validity of the charge.²⁷

In 1997 the WTO dispute panel ruled that the EU banana regulations did indeed violate international free trade agreements on two counts: (1) in granting preferential banana licenses to traditional ACP Banana importers, and (2) in allocating preferential quota shares to Latin American framework agreement signators. The dispute panel did not fault the use of tariffs to favor ACP Bananas, since this practice is

protected under a previous WTO waiver for Lomé provisions until the agreement's renegotiation in 2002 (de Jonquieres and Urry, 1997).

Chiquita and the US government are heralding the WTO ruling as a victory for free trade. The governments of Latin American Dollar Banana countries which backed the charge call it a deserved boon for their economies. In contrast ACP country governments and producer associations decry the ruling, arguing that if the EU banana regime is dismantled it will force many producers out of the industry and will destroy the banana dependent economies of the Caribbean (Hall, 1997).

In Europe the reaction to the WTO ruling and to proposed EU responses is divided. Initial proposals are being discussed that would scrap the current banana import licensing arrangements, but maintain a revised EU tariff-quota system privileging ACP Bananas. While European countries with strong colonial ties, like Britain and France, support this type of arrangement, others like Germany suggest that it does not go

far enough to bolster free trade (Domberg, 1998).

Whatever the final form of the EU banana regulation, it is clear that it will be increasingly untenable for the EU to give preferential treatment to particular banana distributors or particular banana producing nations. Even if some distinctions between ACP and Dollar Bananas are maintained, when Lomé IV expires in 2002 this too is likely to fade. Higher cost ACP Bananas can expect to be hit hard in a world market regulated by competitive free market pressures and the oligopoly power of large banana corporations.

The Opening for Fair Trade Bananas

Is there a place for alternative bananas distinguished not by distributor or by country of origin, but by environmental and social production conditions? We see the initial definition of such a category of Fair Trade Bananas in Europe which may provide a critical opportunity for threatened smallholder ACP Banana growers, like those in the Windward Islands. As the British Minister for

International Development suggests, "a consumers boycott against Central American Dollar Bananas, as a rejection of plantation production where workers receive low pay, could save Caribbean banana production" (ICTSD, 1997).

The prospects for an alternative banana system derive from shifting consumption patterns in the North which challenge the homogeneity of food products. Over the past decade, mounting consumer concern over pesticide residues and food safety have contributed to a burgeoning market for organic foods. Organics represent one of the fastest growing agro-food sectors in Northern countries, with organics projected to soon account for five percent of the US agricultural economy (PAN, 1995).

In Europe, non-governmental organizations have fueled consumer awareness, broadening the consumer discourse to include not only food safety, but also environmental and social justice issues. In bananas, as well as other selected foods, we have seen the social construction of a new "fair trade" commodity which involves limited pesticide use, gives a fair price

to producers, and internalizes social and environmental costs (Brown, 1993). Introduced just one year ago, Fair Trade Bananas marketed under the Max Havelaar label have captured 10 percent of the banana market in the Netherlands and 14 percent of the Swiss market (Sarno, 1997). England's fifth largest supermarket chain has launched a nationwide promotion to boost sales of Windward Island bananas produced by small farmers using environmentally sound practices (Banana Trade News, 1997a). Similar initiatives are evident throughout Europe and are likely to be quite successful given the apparent untapped market for this produce. According to a recent EC study, there is an annual market for up to 400,000 tons of Fair Trade Bananas in Europe. Seventy-five percent of European consumers report that they would buy "fair trade bananas" if they were available, and most would be willing to pay a 10 percent premium over the cost of "standard" bananas (EC Press Release 11/27/97 cited in Banana Trade News, 1997c).

Fair Trade Bananas for the European market are already being produced in Ghana, the Dominican Republic, Costa Rica, and Ecuador and initial efforts are underway to develop Fair Trade production in the Windward Islands (Banana Trade News, 1997b). According to the distributor, producers of this new commodity are receiving twice what they would get from Chiquita, Dole, or Del Monte (Sarno, 1997). The European Fair Trade market appears to provide an important opportunity for small-scale ACP Banana producers, some of whom are already producing bananas eligible for a fair trade label (EC Press Release 11/27/97 cited in Banana Link, 1997c). This Fair Trade market may represent an opening not only for ACP producers, but also for traditional ACP Banana distributors who are likely to face intensified competition from Dollar Banana corporations in coming years.

IV. Conclusion: Re-regulation in the Free Market Era

The history of bananas could be read narrowly as a description of the ascendancy of the Dollar Banana system and the supremacy of transnational capital in an era of globalization and deregulation. But we suggest an alternative, less deterministic, reading of this account. The dominance of Dollar Bananas is rooted in the intensive exploitation of human and natural resources by transnational corporations and in the success of these corporations in mobilizing national and supra-national state institutions to their cause under the banner of free trade. Historically an important divergent banana commodity system was created and maintained by the national regulation of trade between European countries and their former colonies. While the ACP Banana system appears to be on the decline, there may be a new countermovement shaping the discourse on trade and providing an alternative to Dollar Bananas.

The rise of a new Fair Trade Banana system counters the socially and environmentally degrading character of Dollar Banana production. This challenge emanates from the nexus of consumption, where the conscious support of environmental protection and worker's rights on the part of Northern consumers has created, and given meaning to, a new category of Fair Trade commodities. By revitalizing and solidifying the link between food producers and consumers, the Fair Trade movement provides an alternative to impersonal capitalist market relations. This countermovement suggests a provocative new possibility for socially re-regulating and re-linking production, trade, and consumption in a manner which bridges the widening global/local divide and challenges the domination of the agro-food system by profit maximizing transnational corporations.

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NOTES

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² United Fruit owned a controlling share of Fyffes for awhile, which is why the contract for Windward bananas was given to Geest, but an Irish firm then purchased United Fruits' share in the company (Davies, 1990).

³ Though Dollar Banana imports to the EU faced a common 20 percent import tax, Germany managed to gain a waiver from this tariff and has thus imported Dollar Bananas duty free.

⁴ The importance of banana distributors is related to the fact that the perishability of this produce increases dramatically as it ripens. Green bananas can be, and are, traded on the open market, but ripe bananas need to be handled as little as possible and promptly sold. Some European supermarkets ripen their own bananas; specialized fruit distributors do the ripening in North America and are increasingly doing so in Europe.

⁵ Of the big three corporations, Chiquita is the most vertically integrated. It has its own railroads and cardboard box factories in three Central American countries, exclusive rights to a number of the region's deep water ports, and the world's largest fleet of refrigerated vessels (Burbach and Flynn, 1980; Friedland, 1994).

⁶ Welch (1996) outlines the banana grower association activities, demonstrating that the Windward Island associations are more involved in coordinating production, packing, and transportation than are their counterparts in Martinique or Guadeloupe.

⁷ While one firm, the Compagnie Generale Maritime, controls the shipping of French Caribbean bananas, there are a number of distributors involved. The top distributors, Pomona, Agrisol, and Compagnie des Bananes, together handle only 62 percent of the bananas from

Martinique and Guadeloupe (APROMA, 1992:63).

⁸ WIBDECO is jointly owned by the governments of St. Lucia, Dominica, St. Vincent, and Grenada and by the four national banana associations.

⁹ ACP Banana shippers typically make eight stops in the Caribbean to backhaul cargo and load bananas, in contrast to only three stops when shipping Dollar Bananas to Europe (Hallam and Peston, 1997:52).

¹⁰ In Martinique and Guadeloupe these costs and risks remain with individual producers; in the Windward Islands, WIBDECO must absorb these costs and risks and determine how they will be distributed amongst various members.

¹¹ Chiquita's Panama/Costa Rica plantation has numerous packing facilities each served by an aerial cable system.

¹² In Costa Rica, Atlantic Coast banana plantation workers are largely descendants of 19th century Jamaican migrants; those on the newer plantations come from other parts of Costa Rica, as well as Nicaragua, Panama, and Honduras (Bourgeois, 1989; Purcell, 1993; Vandermeer and Perfecto, 1995:8). In Belize 91 percent of workers on one banana plantation were recent migrants from Guatemala, Honduras, and El Salvador (Moberg, 1996:427)

¹³ In 1978 roughly 25 percent of Dole's and Chiquita's Honduran bananas were

produced on contract (Glover and Larrea Maldonado, 1991:98). Currently, 35 percent of Dole's, 50 percent of Del Monte's, and 25 percent of Chiquita's Costa Rican bananas come from contract growers (Fabre, 1997:15). Glover and Larrea Maldonado (1991) estimate that at least 30 percent of all Dollar Corporation bananas now come from associate growers. The rising use of contracts is confirmed by corporate officials (Dole, 1994).

¹⁴ By not producing the bananas themselves, corporations can escape responsibility for abiding by labor and environmental regulations and discourage increasingly common large-scale strikes (e.g. Hernandez, 1997). Companies can also avoid potential lawsuits like that filed by Latin American plantation workers for pesticide exposure, which recently cost Dole US\$ 22 million (Interpress News Service, 1997). These costs clearly begin to erode the savings from large-scale production.

¹⁵ Production of ACP Bananas in Africa is based on larger holdings, except in Somalia.

¹⁶ With the new system, bananas are selected and divided into bunches, drained of latex, packed in boxes, and a fungicide impregnated pad is attached to deter crown rot (Nurse and Sandiford, 1995:57).

¹⁷ The large numbers of migrant workers hired in Dollar Banana production are

particularly unlikely to be able to find jobs off the plantation (Purcell, 1993; Vandermeer and Perfecto, 1995).

¹⁸ Recent reports from Costa Rica describe the "rivers running blue" after flooding as the blue banana bags are carried off with the seasonal monsoon-like rains (ECCR, nd:8). Scuba divers report dead reefs off the Caribbean coast literally draped in these blue bags.

¹⁹ One study finds that in the aerial spraying of bananas in Costa Rica, 40 percent falls on the ground instead of the plants, 35 percent washes off the leaves in the rain, and 15 percent is carried off by the wind or irrigation water (Foro Emaus, 1997).

²⁰ ACP Banana production costs were calculated as Dominica 515\$, St. Lucia 463\$, St. Vincent 461\$, and Jamaica 391\$; Dollar Banana production costs were calculated as Colombia 200\$, Costa Rica 179\$, and Ecuador 162\$ f.o.b. in 1992/3 (Hallam and Peston, 1997:23).

²¹ The share of GDP from bananas for 1990-92 averaged 9.6 percent for Honduras, 6.8 percent for Costa Rica, 5.2 percent for Ecuador, 0.9 percent for Guatemala, and 0.9 percent for Colombia (Hallam and Peston, 1997:4).

²² With sales estimated at US \$1.5 million, Del Monte has substantial market power, but it has changed hands four times in the past eight years, undermining any attempts at strategic

planning (Company Profiles databank, 1997).

²³ Bananas from ACP countries not traditionally exporting to Europe (e.g. the Dominican Republic) fell under the dollar quota but were exempted from the 100 ECU tariff (Solidaridad, 1995:48).

²⁴ Nontraditional ACP countries like Ghana and the Dominican Republic which are excluded from the quota, find the regulations problematic (Solidaridad, 1995:59).

²⁵ Geest established a plantation in Costa Rica; Fyffes set up operations in Guatemala and Honduras.

²⁶ Fyffes and Geest raised their share of the EU banana market by 65% from 1991-94 (Arthur D. Little, 1995 cited in Southey, 1995).

²⁷ For appearances sake the insignificant and non-exporting Hawaii Banana Industry Association did sign the complaint.

The Viability of Niche Marketing Within Global Commodity Chains: An Example from Beef

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Introduction

For good or for ill, there has been a rapid explosion in the use of the word "globalization" both inside and outside of academia. Concomitant with that has been an increased interest in the study of Global Commodity Chains. The creation of these chains is viewed as one of the more concrete manifestations of globalization, while the firms that create and manage them are thought to be one of the primary institutional actors promoting globalization. Although Global Commodity Chains have existed for centuries, the number and complexity of such chains have expanded in recent years. As social relations are evolving in

response to this expansion, the analysis of Global Commodity Chains provides scholars with a methodological approach for better understanding how national and global development processes are unfolding (Gereffi, Korzeniewicz et al. 1994).

From a theoretical perspective, one essential goal of studying how Global Commodity Chains are organized is to identify commonalities that exist across different chains (Smart 1994). This would include not only commonalities in the ways in which chains are operated, but also similarities in the social, economic and political impacts of the creation of those chains in particular localities. The main challenge to doing this is that there is a great degree of variability between and within commodity systems (Jussaume 1995; Reynolds 1994). This is particularly true for food and agricultural systems. Because of the biological and environmental aspects of agricultural commodity production, different social forms can develop in response to the vagaries of producing a particular commodity.

This challenge has become even more noticeable in recent years as a result of the growing complexity of commodity systems. Reynolds (1994) has argued that the "fordist/post-fordist" dichotomy that has been used to compare different commodity systems or the same system over time has been overstated. Commodity systems can easily adopt elements of both fordist and post-fordist production systems. Indeed, as we hope to demonstrate in this paper, fordist and post-fordist variations within a commodity system can not only exist side by side, but can even be embedded within each other. In other words, rather than speak of fordist and non-fordist systems, we argue that it is more appropriate to analyze how a commodity system integrates fordist and post-fordist elements.

The goal of this paper is to demonstrate this by presenting an analysis of how some participants in the beef commodity chain in the United States are attempting to diversify their production strategies in an attempt to sell to an overseas niche market. Although our analysis

focuses on chain members within the U.S., these individuals can be said to be participating in a global commodity chain because some of their product is marketed overseas. In addition, the strategy we focus on is the adoption of genetic material from Japan in order to develop a product that meets a niche market for high quality beef in that country. Some of those utilizing this strategy are doing so in order to maximize income in the face of oligopolistic control of the meatpacking industry by multinational corporations. Thus, this study provides some insights into how post-fordist elements are being adopted into, but not displacing, a well established global fordist production system.

"Post-Fordism" and Commodity Chains

It is not necessary to review the history of the evolution of the fordist/post-fordist debate in this paper as that has been done in detail elsewhere (Bonanno and Constance 1996). While this debate has strong linkages to French "regulation"

theory, we would like to emphasize that the development of the post-fordist concept was sparked by a strong interest on the part of many scholars in the theory and praxis of regional economic development. A primary motivation was to investigate how social institutions at the community level could take advantage of local human resources to create industrial districts of small, local firms that could compete in global markets (Becattini 1990). Piore and Sabel (1984) built upon this and posited how a new industrial revolution could be constructed on the production of high quality industrial goods by workers who were more akin to craft specialists than industrial line workers.

This idea of skilled labor creating high quality goods in spatial and historical opposition to the production of inexpensive mass goods by a low-paid, routinized labor force has gone through many iterations. It is often expressed by the terms fordism and post-fordism, and has been adapted to debates on agricultural development. Kenney et al. (1989) argued that a fordist model of agriculture was

created in the United States in the 1930s and 1940s, but began to weaken in the 1970s as a result of the oil crisis, global food shortages and increased international competition in commodity markets. Others have countered that the fordist model continues to be viable in agri-food production systems (Kim and Curry 1993).

Clearly, the production of high quality commodities for specialized markets, a.k.a. product diversification, is being promoted as a development strategy in agriculture that could help preserve family farming and stimulate rural economic development (Lyson and Geisler 1992; Saitoh 1986). While in many cases the primary markets for foods and agricultural commodities produced under such systems are seen as being local, similar to the example of post-fordist industrial regions, high quality, niche market goods can be produced for international markets as well. At issue is whether the increased number of examples of post-fordist strategies in agriculture and other industries is a harbinger of a clear historical shift in how goods are

produced and consumed (Raynolds 1994).

This issue of whether fordist and post-fordist production systems are distinct forms of capitalist development is reminiscent of a long-standing debate on modes of capital accumulation in agriculture and the difficulties encountered in applying a capitalist industrial model to agriculture. Neo-Marxist political economy theory has long speculated about the sites and rapidity of capitalist penetration into agricultural production (Buttel, Larson et al. 1990; De Janvry 1981; Friedland, Barton et al. 1981; Kautsky 1900; Mann and Dickinson 1978; Mooney 1983; Newby 1983), with a main point of contention being the degree to which capitalist development in agriculture will parallel development in other industrial sectors. While there are many intriguing unresolved theoretical debates that emanate from this research tradition, the fact that some of these debates still are unresolved suggests that the capitalist penetration of agriculture has been a complex and uneven process, leading one scholar to observe that, "there is

not a single deductive logic underlying or determining all relations in a capitalist formation, but there are different, historically contingent principles which we can only investigate through empirical research" (Vandergeest, as quoted in Buttel et al. 1990:92).

It is our contention that Vandergeest's conceptualization of multiple capitalist development logics also can be applied to the fordist/post-fordist debate and an analysis of how Global Commodity Chains are evolving. We argue that not only do post-fordist strategies vary by commodity, but that, depending on historical and cultural contingencies, a post-fordist strategy can be identified with the penetration of capitalist relations as well as with resistance to that penetration. In other words, our research suggests that agricultural niche markets can *simultaneously* offer an alternative to vertically integrated, capital controlled mass production/consumption regimes while also providing a means for the reproduction of those very same regimes. We illustrate this process by analyzing how a small number of

individuals in the beef commodity chain in the U. S. have begun to introduce *Wagyu* cattle genetics from Japan into their herds in order to produce a higher quality beef product for specialty markets in Japan and the United States. To better appreciate how this process of innovation has taken place, we first present a brief sketch of the beef commodity system in the United States.

The Structure of Beef Production in the United States

The beef industry in the United States is relatively unique in comparison to other agricultural commodities in terms of the number of stages of production and the variation in the degree of competition at each stage. The beef industry is known for being highly industrialized and oligopolistic (Niiyama 1992; Andreas 1994). However, this concentration takes place at the meatpacking level, which involves the slaughtering and processing of the beef. In the U.S., four agri-food firms dominate the industry as a result of

numerous mergers that began in the 1970s and a lack of antitrust law enforcement of antitrust laws during the 1980s (Azzam and Pagoulatos 1990; Marion and Kim 1991). As a result, "In the beefpacking industry specifically, there is agreement among several studies on the existence of a negative relationship between packer concentration and price of slaughter cattle in regional procurement markets" (Schroeter 1990: 1227).

However, although meatpacking is highly industrialized and oriented towards mass production, cattle ranchers are typically raising cattle in a manner similar to that of their parents and grandparents before them. The cattle crop that is sold to feedlots is the product of a chain that includes more than one petty commodity producer. First, there are ranchers who specialize in the production of purebred bulls and heifers that are sold to ranchers who produce calves. Cow-calf ranchers then utilize these animals, or semen and eggs purchased from breeders, to develop a cow herd, often mixed-breed, to produce calves. Those offspring not used to replace cows,

including bull calves that become steers, are sold to feedlots, many of which are still operated by families, although the number of feedlots has decreased in recent years as their size has grown.

While meatpacking is highly oligopolistic, the opposite is true for ranching. This is because ranching generally takes place on the most marginal lands that can not be used for the production of other agricultural crops. In extreme cases, it may take more than 20 acres of land to sustain a single cow, and her calf, for a single year. Thus, cattle and calf operations are the single most numerous type of family farm operation in the United States, with the largest average size of farm, but relatively low incomes and a high rate of off-farm employment (Tweeten 1994). In Washington State, for example, nearly half of all farms with cattle and calves in 1992 had a herd of less than 20 head (Table 1).

The production of cattle is categorized by a large number of small ranchers producing a relatively undifferentiated commodity (beef) for prices that are controlled by a small

number of oligopolistic firms. This mass-production system has developed alongside a parallel system of mass consumption. During the post-WWII era, in particular, beef has become one of the centerpieces of the U.S. diet, at the same time that small butcher shops were being replaced by supermarkets that moved from a system of cutting to order by in-house butchers, to the selling of pre-packaged, pre-cut meats (Walsh 1993). Once again, many of these changes have been driven by the large meatpackers, who sit at the fulcrum of an integrated beef production system.

***Wagyu* and Meat Eating in Japan**

To properly understand the significance of introducing *Wagyu* genetics into United States beef herds, a brief review of the history of beef consumption and production and Japan is constructive. Until 1882, the eating of the meat of four legged animals, including beef, was frowned upon in Japan, due to Buddhist influences (Simpson et al. 1985). Beef consumption has grown slowly in

TABLE 1

Number of Farms and Cattle on Farms in Washington State

Number of Cattle and Calves on Farm	1974		1992	
	# of Farms	# of Cattle and Calves	# of Farms	# of Cattle and Calves
1 to 9	1,335	6,077	4,015	20,423
10 to 19	1,235	17,381	2,664	36,048
20 to 49	2,929	95,891	2,902	89,353
50 to 99	2,381	166,995	1,504	103,744
100 to 199	1,633	219,569	1,039	144,784
200 to 499	908	261,389	975	290,031
500 to 999	165	110,276	260	175,101
1,000 to 2,499	64	92,808	87	120,677
2,500 or more	22	161,358	23	78,729
5,000 or more	not reported	not reported	15	211,385
Total	10,672	1,131,744	13,484	1,270,275

Source: U.S. Department of Commerce, Bureau of the Census, *Census of Agriculture*, Vol. 1, Part 47.

Japan since that time, but due to a variety of factors, including the amount of beef consumed¹, and the ways in which beef is prepared and eaten, the quality and cuts of beef purchased are relatively unique.

Previous to the revocation of the ban against eating meat in 1882, cattle were present in Japan, but were

used primarily as a source of animal power in certain regions of Japan. As a result, these animals were bred differently, and developed as a small, fine-boned animal. At the turn of the century, in an effort to improve these native cattle for use as beef stock, European cattle genetics were imported and blended with the native

stock. This crossbreeding eventually led to the development of the four modern Japanese breeds (Japanese Black, Japanese Brown, Japanese Poll and Japanese Shorthorn), which are known collectively as *Wagyu* (literally: "Japanese Cattle") (Longworth, 1983).

These cattle, which until recently were only found in Japan, produce a genetically unique type of beef that is highly valued by consumers because of its wonderful taste and extreme tenderness, due in large part to the *Wagyu's* ability to marinate extensively with little backfat. Not only have the Japanese developed a liking for a different kind of beef, but also prepare and eat it differently as well. One of the most preferred styles of cooking beef in Japan is found in the dishes *Shabu-Shabu* and *Sukiyaki*. In both cases, the meat is thinly sliced and is placed in boiling water along with a variety of vegetables, and resembles a traditional method for cooking fish and vegetables. *Shabu-Shabu* and *Sukiyaki* require the use of heavily marbled beef to maintain tenderness during the boiling process. *Wagyu*

beef is well suited for this cooking process.

During the 1950s and 1960s, *Wagyu* cattle were produced as a sideline, often one or two head at a time, by farm households. Over the past three decades, average herd sizes have increased as production has shifted to farms that focus on meat production. Unlike the U.S., however, farmers that produce *Wagyu* calves also feed these calves to market, and sell their animals through cooperatives at publicly managed meat wholesale markets. In comparison to the U.S. system, animals are fed for extended time periods and farmers spend a great deal of effort on every individual animal, which are sold at auction on a carcass-by-carcass basis.

Wagyu meat is very highly prized in Japan and commands a significant price premium in comparison with domestic dairy fed beef and imported beef. Depending on the cut, wholesale prices in Japan for selected *Wagyu* beef cuts can be 50 to 75 per cent higher than for comparable dairy steer cuts that are produced domestically (Mori and Gorman

1995)² *Wagyu* accounts for approximately 40 percent of all beef produced in Japan, and 15 to 20 percent of all beef consumed in that country. *Wagyu* Cattle are fed for extended periods and producers receive price premiums if they are successful at producing a superior product that is highly valued by consumers. Standardized U.S. and Australian beef that is imported into Japan can not capture such price premiums. As a result, interest has begun to grow on the part of a few individuals in the U.S. and Australia, as well as by some Japanese firms, in obtaining *Wagyu* genetics and producing a culturally specific product for export to the Japanese market.

U. S. *Wagyu*

In 1976, four *Wagyu* bulls were imported into the United States from Japan. At the time, the breed was no more than a curiosity in the United States, and there was little interest in developing it for the Japanese market or for Japanese restaurants in the United States. However, selected individuals became interested in the

breed in the late 1980s as a result of the formal announcement of Japan's beef import liberalization policy. This interest was stimulated in part by inquiries made by Japanese firms into the feasibility of producing *Wagyu* cattle under U.S. conditions. Two universities (Washington State University and Texas A&M University) began conducting research on the breed and the meat it produced, and began working with interested producers on developing the breed in the U.S.

Our research project began in the Fall of 1996 and had as its primary objective an evaluation of whether the *Wagyu* research being implemented at Washington State University was benefiting cow/calf producers, feedlot operators and local communities. This was part of a larger effort to evaluate the social and economic impacts of agricultural research being conducted at land grant institutions. Thus, our analysis is based upon the experiences of producers affiliated with Washington State University's *Wagyu* research program. After briefly describing our research methods, we explore the

various factors that are shaping *Wagyu* production and distribution strategies.

Methods

This study was initiated with a series of exploratory qualitative interviews with *Wagyu* researchers and other key informants who had intimate knowledge of beef cattle production. Because the initial interviews revealed a great deal of diversity among users of *Wagyu* technology and a complex production and distribution system through which the technology moves, further qualitative interviewing, rather than a standardized mail survey, was deemed to be a more appropriate method for completing the technology assessment. Because of time limitations and the geographical scattering of potential participants, we opted to use a semi-structured telephone interview for the remaining interviews. The data collection phase of this research concluded with the completion of 15 face-to-face and 20 telephone interviews. Face-to-face interviews were recorded and detailed

notes were taken of all interviews. All notes and recordings were transcribed.

Purposive snowball sampling was used to locate potential participants. Sampling was initiated with a list of participants in Washington State University's *Wagyu* research program. Each contact from the list was asked to name other *Wagyu* producers not on the list so we could trace the diffusion of the technology as well as sample a broad spectrum of producers. Interviews were also conducted with several cattle producers and a packing plant executive who had either declined to use *Wagyu*, or had been, but were no longer involved, with *Wagyu*, in order to determine similarities and differences between *Wagyu* adopters and non-adopters and to gain a better understanding of *Wagyu*'s potential place within the beefcattle industry. Sampling continued until saturation of theoretical categories was achieved (Glaser and Strauss, 1967).

Analysis

According to nearly every individual interviewed for this research, the beef cattle industry in the U.S. is in the midst of a deepening crisis. There was also fundamental agreement about the nature and sources of this crisis. In recent years, overall beef consumption has been flat while consumption of other meats has been increasing, indicating that beef's "market share" has been in decline. Most of our interviewees believe that part of the reason for this development is that there is little quality consistency in the beef being marketed in the United States.

Furthermore, the small cattle rancher feels that ranchers everywhere face increasing difficulty in weathering the fluctuating economic cycles of the beefcattle industry. The sources of the crisis include the disjunctures created by the oligopolistic control at the fabrication/distribution end of the commodity chain, and the persistence of small entrepreneurial, family owned ranches at the cow-calf end of the chain. The disjunctures are exacer-

bated by the traditional practices of cow-calf producers and the control of cow-calf production by a multiplicity of producers who vary greatly in motivations, skill and knowledge, breeds of cattle used, and available resources and capital. Further complicating the situation is the fact that each sector of the industry desires different product characteristics. With each iteration, beef quality is de-emphasized.

These factors, which have led to an unhappy situation for many producers, small feedlot operators, the occasional independent packers, and beef consumers, are shaping the ways in which post-fordist elements are being adopted into, and embedded within, the existing beef production system. The following analysis will show that attempts to successfully produce and distribute *Wagyu*, both to Japan and within the U.S., are taking two predominant forms, and that these divergent strategies reflect the complex interactions of these various factors.

The Tao of Wagyu

"Wagyu are unexcelled in calving ease and palatability — especially compared to Semintols — they were a joke. I used to say to the vet: 'sew a zipper in that one so we don't have to do another c-section.' When using Wagyu on first-calf heifers I don't even get up at night. I just get up in the morning and count how many new ones I have." (Wagyu producer)

"To look at 'em in a pen of fat cattle — they don't look good — but when you hang them up on a rail, that Wagyu cut outgrades them all and that's worth a lot more money" (Wagyu producer)

"We smoked a 3/4 Wagyu bull for our daughter's wedding reception. Everybody that had it said they've never had such nice beef." (Wagyu producer)

"They all think they deserve more money for their

pet breed. They all want value-based marketing, but everything can't be better than everything else" (packing plant executive)

Hopes and dreams for better future arrangements are contained in the narratives of *Wagyu* producers. Indeed, the enthusiasm for *Wagyu's* positive attributes, when not dampened by resistance within other sectors of the beef production system, can take on nearly mythic dimensions. Most *Wagyu* producers anticipate tapping into the Japanese market, as well as participating in the development of domestic niche markets for a premium grade of beef. It is hoped that the creation of domestic outlets for *Wagyu* will lead to a greater emphasis on quality industry-wide, and a more favorable economic environment for smaller producers who would otherwise remain locked into a beef commodity system where they are disadvantaged relative to the packing sector.

According to many of our interviewees, *Wagyu* may signal a turning point for the American beef

cattle industry for several reasons. First, it is one of the few breeds ever imported for its quality rather than quantity characteristics. The American GI's serving in Europe during WWII were enamored of the size of the continental breeds and the emphasis on pounds has subsequently become institutionalized in the beef cattle industry. Progressive cattle growers deem *Wagyu* as a mechanism for shifting perceptions within the industry that in recent decades has been focused more on quantity than quality.

Second, one of the most costly aspects of cattle production is dystocia (birthing difficulties). The loss of calves, the labor needed to monitor calving herds and to "pull" calves, particularly with first-calf heifers, and the subsequent loss of heifers or their inability (or latent ability) to breed back, has constituted one of the most significant sources of income loss for the cow-calf producer. For many ranchers, this is also a significant source of emotional trauma, as they feel responsible for the suffering born by the mothers. As *Wagyu* calves tend to be smaller than

most other breeds, dystocia is not as problematic when non-*Wagyu* cows are bred to *Wagyu*.

Third, heifers crossed with *Wagyu* produce calves that develop into high quality carcasses. Many U.S. ranchers typically breed their first-calf heifers to Longhorns, which offer low birth weight calves, but also sub-standard quality beef. Ranchers can be docked as much as ten cents per pound for their Longhorn calves, so producers who use *Wagyu* genetics on first-calf heifers can hope to avoid a price penalty.

Fourth, resources such as grain have become relatively scarce and thus expensive, offering another advantage to the *Wagyu* producer: "A positive thing about *Wagyu* is you can leave them on grass a little longer." (*Wagyu* marketer) *Wagyu* cannot be "crowded" on feed as they take longer than other breeds to mature, and gain weight slower than other breeds. While slow growth rates have been viewed traditionally as undesirable, this trait in *Wagyu* may work quite well with the changing resource base of cattle ranchers, if it can help producers create a high quality

product on less expensive resource inputs (i.e. grass vs. feed grain).

In the Shadow of the Giants

"Wagyu meat is like Starbucks's coffee or micro-brewed beer, but we can't use it to our advantage because of the distribution system. Gotta find someplace where you can kill 'em, get 'em inspected, get 'em fabricated, and get 'em delivered." (Wagyu producer)

"It's a shame that the beef industry has been lost by the people that care about it the most and it's controlled by the people that care the least for the quality" (Wagyu producer and veterinarian)

"The 'big three' aren't interested. They buy cattle on averages and so a value-added product like Wagyu doesn't fit their system. A commodity operation means beef is beef" (Wagyu marketer)

"The reward system isn't there to promote quality" (Wagyu breeder)

Each of the above comments made by Wagyu producers are representative of sentiments expressed by nearly all the participants in this research, and implicate the large packing companies that dominate the beef fabrication and distribution system in the U.S. as being responsible for the industry's troubles and the producer's inability to market Wagyu within the domestic system. Certainly, the concentration of control under a few packers has led to an institutionalization of their interests, and consequently presents obstacles to successful entrepreneurial innovation. Meatpackers typically buy cattle according to a commodity pricing formula rather than per carcass performance. The producer is paid the same amount for his or her lowest and highest quality carcasses, with the packer capturing any profits from prime carcasses that happen to be produced. The producer neither realizes he/she has produced a prime carcass, nor receives any feedback

The Role of Tradition and Cultural Differences

that he/she can utilize to reproduce that quality. Retained ownership has been promoted as an alternative, but this strategy is very risky because cow-calf operators are not in control of the feeding process, have to wait until slaughter before they can receive any income, and must assume the risk of lower prices if a carcass does not grade well.

Many interviewees appear to be attracted to *Wagyu* as a means for recapturing some of the profits that accrue to large meatpackers by producing beef of such consistent quality that this risk is minimized, and they can be rewarded for their extra efforts. The difficulty in engaging in such a strategy is that it is difficult to market a product outside of the standard, oligopolistically controlled channels. *Wagyu* participants are hopeful that an alternative *Wagyu* marketing system can be developed to sell their product to Japan as well as to domestic niche markets. The viability of *Wagyu* will be heavily dependent on the ability to create an alternative marketing system.

"Cattle people are the hard-headedest. They look at the wrong things to judge quality. They think Wagyu looks like a dairy cow" (Wagyu producer)

"I think we're going to have to start answering to the consumer. Those days of saying we'll produce it, someone will buy it is no longer true, because we've seen a decline in the consumption of beef since the 1970s and it's not getting any better" (Wagyu producer and genetics broker)

"I always hear the Japanese are tough, "but if you read the fine print and sell them what they want, they are easy to deal with. And they always pay their bills not like Americans who often try to cut the bill one way or another" (Wagyu breeder)

One of the interesting contradictions that the introduction of *Wagyu* has helped to highlight is how the weight of tradition within the industry at the cow-calf level can serve to hold back the development of the industry in a way that could challenge the influence of the large meatpackers. Although many producers, including those who do not produce *Wagyu*, commonly criticize the structure of the industry, they also do not feel comfortable in engaging in an alternative strategy, like *Wagyu* production, that would necessitate their adopting some new management practices. Many producers have been reared to be "good cattlemen" (and occasionally "good cattlegirls") and are not comfortable dealing with marketing issues, particular those related to understanding the needs of non-U.S. markets. We believe it may be significant that many of the producers that we interviewed who have adopted *Wagyu* have had previous work experiences in marketing, either outside or inside of the beef industry. In addition, some producers are understandably nervous about

adapting what some see as a new "fad," given that many have lost money to other fads in the past.

Other Problems

"The other super big problem would be our grading system. It's basically back in the dark ages" (Wagyu producer)

"It was important that the genetics be given to research institutes to prove the worth of the cattle from an unbiased position." (Wagyu producer)

"So the Japanese are starting to invest their dollars into what really drives a business and that is the packing end of it — the fabrication of beef. The Japanese like investing in the West Coast. They're used to dealing with us" (Wagyu producer)

"Right now we feed them all the same. We don't care, we put them all in these great big feed lots with 500 head in the pen, even though we

know the end result is cattle are different" (Wagyu producer)

The biggest problem with the development of *Wagyu* is that the current Fordist production system is not geared towards its adoption. As some of our interviewees noted, the dominant system in the industry does not send consistent signals, and is not very flexible, because each stage of the system is focused on different aspects of the final product. As one interviewee put it:

Each sector of the industry defines quality differently. The producer defines a quality calf as one that has hybrid vigor, gains weight, and weans easy. The feeder defines it as gainers that don't get sick. Packers look solely at pounds.

This is one reason why most *Wagyu* producers only adapt part of their operations to *Wagyu*. They do not concentrate solely on *Wagyu* nor do they abandon their participation in the dominant system. To do so is too risky. In addition, the major alternative to the U.S. system that

exists is being financed to a large degree by Japanese firms. Producers who adopt *Wagyu* are part of a system that they can not escape from, and their only recourse is to develop a mixed approach that can leave them with some breathing room within the dominant system. They can not freely and wholeheartedly adopt an alternative production strategy because there is no viable alternative to the current system. So, innovative producers fold *Wagyu* into their existing operations as an element of a complex strategy that hopefully is useful in maximizing income and reducing risks.

Yet many producers hold out hope for a truly alternative system, one that would reward them for their extra efforts and their interest in producing a high quality product. Their hopes have been buoyed by inquiries from potential domestic clients outside of the dominant system for high quality beef. However, the ability to create an alternative system is dependent on raising capital not available to those outside the dominant system. For example, during the interview process, several interviewees were excited by rumors

of a cutting edge processing facility in North Dakota that would be geared for export fabrication, but would also process for domestic niche markets. Further inquiries revealed, however, that the company was unable to raise the \$43 million in capital necessary to go into business. Thus, while some producers can blend *Wagyu* into their normal practices, hopes for creating an alternative system are elusive.

Of Panaceas

"So the sleeper is, if you could figure out how to come up with a better than prime carcass consistently, and then develop a domestic market for it, I think you'd do fine. If you can get the genetics right, then the infrastructure will develop to accommodate it — though it may be on a small scale at first." (Wagyu producer)

Individual producers need to cooperate and change strategies to compliment the alliance. Seeing the transition phase now. Old habits die

hard — especially among cattle people." (Wagyu producer)

Wagyu producers are at a stage where they need to begin thinking about what kind of commodity system they should support to help provide a foundation for the new kind of marketing strategy they envision. One option is strategic alliances, where producer or packer/producer co-operatives are formed and where each producer is responsible for utilizing feedback from the packer to improve quality standards. The other option, which is already being developed by a regional capital that has ties to Japanese interests, is a system of contract buying where individual growers yield nearly all production decisions to the integrator who maintains relationships with Japanese buyers. One is a vertical, hierarchical arrangement, while the other is horizontal. The strategic alliances strategy would distribute knowledge and benefits more equally, while the other benefits the integrator more than the producers, though the

latter do benefit financially in comparison to the current system.

From a theoretical perspective, we are left with a dilemma. Can either or both of these alternatives be classified as post-fordist?³ More importantly, can either be successful, and if the answer is yes, then which is more likely to be viable? Given the size of the market for *Wagyu* and the current structure of the U.S. beef commodity system, we feel that it is unlikely that both strategies can exist side by side. Furthermore, it is unlikely that either system can exist without the financial support of some large firm, although this conceivably could be a non-U.S. firm.

Because those who engage in *Wagyu* production are such a diverse group, with multiple interests, we feel that it is unlikely that a truly horizontal system can develop. The traditional culture of the cattle industry is one that is centered around individuality. The vertical strategy appears to be more viable, in part because it makes use of a form of contractual relationship that parallels the one used in the current system. In other words, a *Wagyu* system that

has elements of the dominant system may be more likely to survive than an alternative, post-fordist system.

Conclusion

Our research suggests that while new agricultural products destined for niche markets, like *Wagyu*, may offer a post-fordist alternative to mass production/consumption regimes, and therefore a marketplace advantage to small producers who have been unable to increase their profitability in the face of oligopolistic control of the beef industry, they also offer a site for large firms to appropriate new innovations introduced into the marketplace. While there may be potential for *Wagyu* to contribute to a new industrial revolution, our research shows that there also is a very real possibility that this potential could be largely captured by a few opportunistic entrepreneurs who might become, in addition to the current major meatpackers, a new source of domination in the cattle industry.

This is what compels us to argue against the notion that fordist and

post-fordist are concepts that should be used to identify separate production regimes. Clearly, *Wagyu* genetics are being utilized by a distinct group of entrepreneurs who are interested in producing a differentiated, high-quality product for specific niche markets. Yet, ranchers who are employing *Wagyu* genetics are doing so on a limited scale, in part because no alternative post-fordist marketing system has been, or is likely to be, created. This does not mean that the current system is static, or that alternative marketing possibilities do not exist. However, *Wagyu* genetics and quality based production practices geared towards global niche markets are being adopted *within* a fordist system that is well entrenched and not likely to wither away in the future. For this reason, we do not believe fordist and post-fordist systems are distinct, and would call for further empirical evaluation of other commodity systems to determine if the embedding of post-fordist elements with fordist systems is a comparatively rare or commonplace occurrence.

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Notes

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¹ Which is low in part because Japanese consumers continue to consume large quantities of fish and soybeans (Yamaji 1987).

² Chadee and Mori (1995) report that in June 1994, the wholesale price for *Wagyu* sirloin was -5,589 per kilogram, for Japanese fed dairy steer was -1,760 per kilogram, and for Australian beef was -1,030.

³ A third strategy that is being engaged in by some producers is one in which they use *Wagyu* genetics for calving ease only. However, the progeny are not differentiated when sold, and so can not be considered to be part of any attempt to achieve greater economic returns or market a higher quality product, so we do not consider it here.

The Global Economy and Democracy: the Tuna-Dolphin Controversy Revisited

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and
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Introduction

The dolphin-tuna controversy emerged as one of the most important battles fought and won by the environmental movement. Its implications at the social, economic and political levels touched a large variety of subjects and institutions world wide. Indeed, it was its global dimension which differentiated this case from other contemporary instances of environmental struggles (e.g., Bonanno and Constance 1996). The last few years have been characterized by renewed activities concerning the fishing of tuna by setting on dolphins. This very profitable and highly productive technique is called purse-seine fishing and involves visual contact with groups of dolphins

which swim together with schools of tuna. Once located, the dolphins and the tuna are encircled with nets and captured. In this process a large number of tunas are caught, but also many dolphins die suffocated in the nets. This environmentally dangerous practice became illegal in the United States after the adoption of the Marine Mammal Protection Act (MMPA) of 1972. In the last twenty five years, this act has been modified a number of times to establish very stringent requirements for the tuna fishing industry. Indeed, the victory of the environmental movement consisted of the fact that in the United State in order to sell tuna commercially, it must be caught with techniques other than the purse-seine encirclement. Only in this case tuna could gain the commercially required label of "dolphin-safe".

Opposition to the MMPA led to the signing of the *Panama Declaration*, a twelve nation international agreement which allows the use of the purse-seine technique and redefines the concept of "dolphin-safe" tuna. In this case, only tuna which is caught while dolphins are actually killed is

banned from commercial use. Observers on board fishing vessels are in charge of determining which catch is condemned. The *Panama Declaration* mandates that the United States change its domestic legislation (e.g., the MMPA) to accommodate these new requirements.

The paper explores the context and implications of the signing of *Panama Declaration* and the actions of the major actors involved in the case. It is argued that the *Declaration* represents a pro-transnational corporations (TNCs) action as it favors the strategies and interests of this segment of the tuna industry. It also indicates that TNCs were able to enlist the support of the U.S. Government in this project. The Clinton Administration has been very supportive of the reform of MMPA. In this respect, the case can be viewed as an example of the vitality of the nation-State in the global economy but also of its subordination to the class project of TNCs.

Support of pro-TNC stands also comes from segments of the environmental movement and labor. In the paper we argue that these two

movements view the *Panama Declaration* as a compromise and possible solution to the long standing dispute between environmentalists and workers in the tuna industry. The latter considered the banning of the purse-seine technique as the primary cause for the crises which affected tuna boats and canneries in the U.S. and Latin America after the implementation of MMPA. Labor charged the environmentalists with disrupting their livelihood for the exaggerate protection of dolphins.

The paper is also concerned with the implications that the signing of the *Panama Declaration* has for democracy. According to significant segments of the literature on globalization (e.g., Danley 1994; Harvey 1990; Reich 1991; Spybey 1996), democratization processes have been hampered by the ability of TNCs to by-pass nationally based legislation. This phenomenon, it is contended, devalues decision-making processes which involve subordinate segments of society. Because of this redefinition of democratic free spaces in society, the restructuring of the global order requires attention and moni-

toring. The paper illustrates that the environmental movement is split into two groups and that only one of these two fractions retains the original anti-purse-seine posture. This change has been interpreted as the subordination of the environmental movement to the hegemonic project of TNCs. The dominance of pro-TNC discourses is interpreted to indicate that under globalization the contested terrain is redefined in terms that restrict democratic free spaces. Simultaneously, it is argued that TNCs' actions are not free of contradictions. The requirement of capital realization and that of broader forms of coordination can limit the power of TNCs and open possibilities for resistance by subordinate groups. In this respect we conclude that despite the growing power of TNCs and the limiting of democratic spaces, conditions for resistance still exist.

Globalization and Democracy

The globalization of the economy and society is arguably one of the most debated topics in today's social sciences. The impetus with which it

has been studied is reflected in various and contradictory interpretations characterizing relevant literature. Some authors underscore the homogenizing character of the new global order. In many instances, emphasis is placed on emerging common cultural characteristics forged by the advancements in technology, cybernetics and the diffusion of media delivered messages (e.g., Featherstone 1990; Giddens 1994; Robertson 1992). In other views, globalization is understood in terms of the rupture of institutional structures which allowed the fragmentation of life and politics and the recomposition of links and solidarities which transcends established national and/or cultural enclaves (e.g., Beck 1995; Lash and Urry 1994). In this context, democracy becomes highly problematized. The exhaustion of traditional structures eliminates established channels for the development of democratic discourses and creates the condition for a *struggle for democracy* (Beck 1995). Simultaneously, new avenues for democratic discourses emerge outside the

sclerotized paths of traditional politics. This “*subpolitics*” contains the elements for the establishment of democracy from below through the revitalization of participatory and inclusionary strategies (Giddens 1994). Though centered on local efforts for the satisfaction of local needs, it entails global links as the interconnection of today’s social phenomena does allow the provincialization of politics. As Anthony Giddens points out, there are “...shared values that come from a situation of global interdependence, organized via the cosmopolitan acceptance of difference. A world with no others in one where — as a matter of principle — we all share common interests, just as we face common risks” (Giddens 1994:253). To be sure, these theorists are interested in substantive democracy. This is the system through which substantive participation in decision-making processes is established for broader segments of society and in which these groups can address their social, political and economic needs (Beck 1995).

Emphasizing economic dimensions, other accounts point to the renewed possibilities of growth that globalization entails. They speak of globalization in terms of the elimination of barriers to the circulation of commodities and capital and the reduced willingness of nation-States to impose restrictions to this free flow of resources (e.g., Fukuyama 1992; Kindleberger 1986). In these views, globalization often assumes a positive connotation as it is opposed to state regulated economic policies centered on obsolete Keynesian economic strategies. Echoing calls of neo-liberal theorists (Friedman 1982), these accounts present conservative views in which the unrestricted global market is considered the force able to produce new energies to overcome the exhaustion of post World War II growth models. Primary agents of this process of economic revitalization are TNCs (e.g., Rubner 1990). TNCs have been able to fuse economic efficiency with a vision for growth and markets expansion. Because of their scope and organizational capabilities, they do not require governmental support which, in turn, frees corporate and

individual resources which are no longer drained away from the economic circles (Kindleberger 1986).

Progressive accounts also produce positive views of globalization. According to these works, the dissolution of post World War Two socio-economic models has been replaced with new and much more *flexible* forms of accumulation (e.g., Piore and Sable 1984; Hirst and Zeitlan 1991). Flexibility indicates the ability of capital and labor to maneuver with renewed freedom in production and distribution spheres. New arrangements emerged whose positive effects are felt at various levels; for example, the alienated character of earlier forms of capitalism is now replaced by a system with much more inclusive capacities. Democracy, therefore, is enhanced as participatory and decentralizing mechanisms allow the involvement of broader varieties of actors in the production of social life.

Despite these views, works generated with the progressive camp have been overtly suspicious of assumed democratization processes triggered by globalization (e.g., Harvey

1990; Reich 1991). For the majority of them, globalization represents the synthesis of attempts of corporate groups and their allies to respond to inroads made by subordinate groups. In this context, globalization, above all, indicates the flexibility of TNCs to bypass situations (rigidities) which favor social groups such as labor and minorities, as well as alternative views such as those supported by the environmental movement. In these accounts, the enhancement of global arrangements produces renewed economic opportunities for the upper classes in a context in which economic polarization, the shrinking of the middle class, and attacks on the welfare state characterize the reorganization of the world order (Mishel and Bernstein 1993; Strobel 1993). Despite some accounts which describe TNCs as endowed with unchallengeable powers (e.g., McMichael 1996), the globalization of the economy and society is generally viewed as a contested terrain in which TNCs are dominant actors, yet their actions encounter resistance for a variety of groups (e.g., Bonanno et al. 1994; Lash and Urry 1994). The

struggle for democracy, in these views, is a central concern. Sharing the same disconcert of writers who underscore that the crisis of established institutions left traditional forms of democracy questionable, these authors document the manners in which TNCs and their opponents attempt to shape social, economic and political institutions.

In the area of Sociology of Agriculture and Food, the concern over the crisis of democracy in the global context has taken a variety of forms. For example, some authors focused on the limits that the expansion of global arrangements brings to democracy within institutions such as science, technology and research and instruction centers (e.g., Busch 1994; Busch et al. 1991). Others pointed out the existence of the de-democratization patterns associated with the various aspects of food production. The centralization of decision-making processes and control of resources as well as the seduction generated by the expansion of market options, it is claimed, eliminate free spaces (e.g., Friedland 1994; 1995; Friedmann and

McMichael 1989; Heffernan and Constance 1994; Rieff 1993). Another group of authors explored the issue of democracy in terms of the North-South relationship. Here attention is paid to the consequences that the creation of global circuits has for the enhancement of processes of democratization and socio-economic growth in developing nations (e.g., Llambí 1994, Llambí and Gouveia 1994; Marsden et. al 1996). Finally, a variety of authors focused on the relationship between democracy and social movements in the global context (e.g., Buttel 1992; Marsden 1994; Bonanno and Constance 1996). Resistance to global powers and attempts to democratize social relations are the foci of these works. Simultaneously, they offer analyses of instances in which corporate actors' flexibility and hyper-mobility limit democratic spaces.

The case study presented in the following pages contains insights which can be employed to address some of the issues dealt with in these debates. It is the continuation of a struggle for the maintenance of democratic spaces which directly

pertains to the issues of the protection of the environment and economic development. In many fundamental ways, it represents a test of the ability of new social movements to lead the struggle for democracy. But it also is an indication of the type of opposition that these efforts encounter in the global economy and society.

The Case

The case proceeds in three parts. First some background on the tuna-dolphin controversy is presented to provide a historical context to interpret the implications of the new developments to this case. Next, the specifics of the *Panama Declaration* are presented. Then, the main body of the case delineates the competing discourses regarding the necessity and implications of the *Panama Declaration*. First the view from Latin America is presented. Then the views from the U.S. in support of, and in opposition to, the *Panama Declaration* are presented. The competing discourses from the U.S. focus on two arenas: the political and the environmental.

Historical Background

In the Eastern Tropical Pacific (ETP), a stretch of ocean that reaches from California to Chile and extends about 700 miles west into the Pacific, dolphins swim above schools of tuna. In the 1950s this natural habit was capitalized on by tuna fishermen as they began using immense purse-seine nets that encircled the dolphin herd and then pulled tight like an enormous draw-string purse. Huge catches of valuable yellowfin tuna generated enormous profits for the tuna fishermen and tuna processing firms. At this time, fishing crews did not work to help dolphins, turtles, and other marine life to escape from these nets. Accordingly, since 1959, about 6-7 million dolphins (depending on whose numbers are used) drowned in the nets.

In the late 1960s and early 1970s, public outrage over the slaughter of dolphins to harvest tuna brought about the passage of the Marine Mammal Protection Act of 1972 (MMPA) which mandated that dolphin deaths associated with tuna fishing be brought down to "insignifi-

cant levels approaching 0". For the next 20 years the environmentalist coalition that secured the passage of MMPA used their allies in the legislative and judicial branches of the U.S. Government to try to enforce the intent of the law and the tuna industry used their allies in the executive branch to stall its implementation (see Bonanno and Constance 1996).

In the 1970s and 1980s many Latin American countries rapidly expanded their tuna fishing fleets and processing capacities to take advantage of the new lucrative purse-seine technology and thereby service the U.S. market, the largest in the world. Indeed, as a result of MMPA, much of the U.S. tuna fleet reflagged under Latin American and other flags to avoid the restrictions associated with MMPA. These restrictions included the adoption of new technologies such as the "backdown procedure" and the "medina panel" as well as the requirement for U.S. tuna vessels to have an onboard observer to document the number of dolphin deaths associated with the tuna fishing. By the mid-1980s the number of

dolphins killed by U.S. tuna fishermen had been greatly reduced, but still in 1986 over 100,000 dolphins still died in the purse-seine nets, almost all of them accounted for by tuna boats under foreign flags.

In the late 1960s and 1970s tuna processing companies vertically integrated through the development of long term contracts with tuna fishermen or by owning their own boats to guarantee product for their processing plants. Because of MMPA and the increasing necessity for U.S. based tuna firms to source "dolphin-safe" tuna, the firms reversed this trend towards vertical integration, sold their tuna boats, discontinued their long-term contracts, and sourced their product on the international spot market. Also, because of MMPA, almost all of the remaining U.S. fleet moved their operations to the Western Pacific where tuna and dolphin do not associate with each other as regularly. At the same time, two of the three largest U. S. based firms sold their tuna operations to Asian firms. In 1988, Ralston Purina sold its Van Camps "Chicken of Sea" operations to Mantrust of Indonesia

and in 1989 Pillsbury sold its "Bumble Bee" brand to Unicord of Thailand. Heinz's "Star Kist" brand, the world's largest tuna company, remained U.S.-owned.

During the 1970s the Inter-American Tropical Tuna Commission (IATTC) became increasingly involved in trying to resolve the tuna-dolphin controversy. The IATTC is a non-governmental organization made up of the tuna fishing countries that fish the ETP. In 1988 the IATTC began to staff observers on the foreign tuna boats to document the dolphin kills. This was necessary because the 1984 and 1988 amendments to MMPA required that for foreign countries to import tuna into the U.S., they had to prove that their dolphin kill rates were no more than 1.25 times that of the U.S. fleet. The adoption of the backdown procedure and Medina panels were also suggested as part of this voluntary program sponsored by the IATTC.

In 1990 four events took place that set the stage for the later signing of the *Panama Declaration*. First, beginning with Heinz, and quickly followed by Unicord's Bumble Bee

and Mantrust's Chicken of the Sea, the BIG 3 tuna processors announced that they would only accept "dolphin-safe" tuna for processing. Second, with the help of a supportive judge, the environmentalist coalition obtained an embargo on all tuna that was not proven to be "dolphin-safe". This embargo affected the nations of Mexico, Venezuela, Ecuador, and Vanuatu. Third, these four countries filed a complaint with the General Agreements on Tariffs and Trade (GATT now WTO or World Trade Organization) that the U.S. law was unfair "environmental" (or green) trade protectionism and should be overruled. And fourth, through the work of Senator Barbara Boxer (D.-Calif.) and others, the *Dolphin Protection Consumer Information Act of 1990* was passed which defined "dolphin-safe" as being tuna that was not caught through the technique of encircling dolphins with purse-seine nets and legislated that only such tuna could bear the label "dolphin-safe" and only "dolphin-safe" labeled tuna could be sold in the U.S.

In 1991, the Bush Administration tried to utilize bilateral negotia-

tions to resolve the ongoing controversy. Because the North American Free Trade Agreement (NAFTA) was being negotiated, the Bush Administration did not want negative publicity regarding environmental issues such as the tuna-dolphin controversy. Indeed, the administration did not want to be seen as committing "environmental backsliding" and the implications of a WTO ruling in favor of Mexico would reveal that the NAFTA economic treaty threatened democratically instituted laws such as MMPA in the U.S. In 1991 the WTO ruled in favor of Mexico and stated that a product could not be embargoed because of the way it was produced. Because of the NAFTA negotiations, the U.S. requested that Mexico not press for the enforcement of the WTO ruling but again promised to try to resolve the disagreements by getting the U.S. laws changed which would then allow those countries to import their tuna. The Bush Administration was not successful in bringing about this agenda.

In 1992 the environmentalist coalition, again through the help of a

supportive judge, secured a second embargo to stop "tuna laundering" through third party countries. The second embargo initially affected many countries in Latin America, Europe, and Asia. Several European countries along with Thailand again appealed to the WTO arguing that the embargo was unfair trade protectionism. In 1994 the WTO again ruled in their favor. The WTO also stated that the controversy should be resolved via an international forum if possible. Once again, bilateral and multi-lateral agreements between the U.S. and the petitioning countries were attempted but failed. One such attempt was the IATTC sponsored *La Jolla Agreement of 1992* which formalized the voluntary program of on-board observers and dolphin protection techniques on foreign tuna vessels. Environmentalists groups welcomed the IATTC efforts but did not accept them as an adequate guarantee of continued dolphin protection. Also, the *International Dolphin Conservation Act of 1992* which would have placed a 5-year moratorium on purse-seine tuna fishing and included severe trade sanctions on violating nations

was passed in the U.S. but never signed by the governments of Mexico and Venezuela.

The Panama Declaration

On October 4, 1995 the *Panama Declaration* was signed by the governments of Belize, Columbia, Costa Rica, Ecuador, France, Honduras, Mexico, Panama, Spain, USA, Vanuatu, and Venezuela. The 12 governments promised to formalize by January 31, 1996 this binding legal instrument that would incorporate numerous changes to the resolutions adopted by the IATTC concerning the regulation of the tuna/dolphin fishery since 1992. To accomplish this task, U.S. law in the form of the MMPA of 1972 and 1988 needed to be changed as follows (Felando 1995):

1) the existing primary and secondary embargoes be lifted for tuna caught in compliance with the *La Jolla Agreement* as modified by the *Panama Declaration*.

2) the access to the U.S. market be opened to tuna from states who are members of the IATTC and from

states who have initiated steps to become members.

3) that a change in the labeling of canned tuna as "dolphin-safe" be made to mean that such term may not be used for any tuna caught in the eastern Pacific Ocean by a purse-seine vessel in a set in which a dolphin mortality occurred as documented by observers.

Written support for these legislative changes to accommodate the *Panama Declaration* was provided by five mainstream environmental organization: the Center for Marine Conservation, the Environmental Defense Fund, Greenpeace, the National Wildlife Federation, and the World Wildlife Fund. The Clinton Administration and prominent conservative members of Congress also supported the *Declaration*. These environmental groups pledged to work with the foreign governments and the U.S. Congress to bring about the final ratification of the *Panama Declaration* but they noted that it was a significant challenge to obtain the legislative changes in U.S. law before the proposed January 31, 1996 deadline (Blum 1995; Felando 1995;

Fiore 1995). This concern was based on the fact that just before the signing of the *Declaration* in Panama on October 4, on October 2 four members of the U.S. Congress, two Congressmen and two Senators, wrote a strong objection to the *Declaration* to President Clinton. Although this objection did not influence President Clinton to change his stance away from support of the *Declaration*, it did presage a new chapter in the ongoing tuna-dolphin controversy.

The *Panama Declaration* is a modified version of the *La Jolla Agreement of 1992* adopted by the IATTC which instituted a seven-year program of declining annual limits on dolphin mortality starting in 1993. The agreed mortality limit in the *La Jolla Agreement* was set at 9,000 for 1996 and then declined to 5,000 for 1999. To implement this program, individual-vessel-dolphin-mortality limits were established on an annual basis. For instance, for the second half of 1995 the dolphin-mortality limit for each vessel was 57 animals (Felando 1995).

The *Panama Declaration* substantially modified this program to include a total annual mortality that does not exceed 5,000 dolphins that is to be used to determine the mechanism for issuing mortality limits. Further modifications include promises by participating governments to establish a new per-stock, per-year cap that would be adjusted down in future years. The participating governments also agreed to establish a per-vessel, maximum-annual-dolphin-mortality limit that is consistent with the established per-year mortality caps (Felando 1995).

Besides these modifications of the *La Jolla Agreement*, the 12 governments promised to bring about significant changes in other areas that include a series of options designed to ensure compliance. Additionally, the *Declaration* contains promises to establish a system that provides incentives to vessel captains to continue to reduce, and eventually eliminate, dolphin mortality. Finally, in recognition of the need for qualified advice for achieving the objectives of the *Declaration*, the parties promised to establish or strengthen *National*

Scientific Advisory Committees which would include “qualified scientists from the public and private sector and non-government organizations” who would base their decisions “on the best scientific evidence... designed to maintain or restore the biomass levels” of harvested and associated stocks at or above levels capable of producing maximum sustainable yield (Felando 1995). Regarding the issue of changing the meaning of the term “dolphin-safe”, the existing U.S. law states that for tuna harvested in the ETP by a purse-seine vessel, such tuna is only “dolphin-safe” if an observer certifies in writing that the purse-seine net was not intentionally deployed during the entire fishing trip on, or encircling, dolphins. This current law makes encirclement of a mixed school of tuna and dolphin the test and not whether the fishermen were successful in releasing the dolphins from the net without mortality. The *Declaration* changes “dolphin-safe” to include tuna harvested when the net is used on or to encircle dolphins if no dolphin mortality is noted by an observer. According to proponents of the

Declaration, this change in the definition of “dolphin-safe” is designed to recognize that currently in the ETP tuna fishery most of the purse-seine nets set on a mixed school of tuna and dolphin result in zero dolphin mortality. Fishermen have complained that the current U.S. law is unfair because it does not recognize the common existence of zero-dolphin-mortality fishing sets. Advocates of the *Declaration* argue that the existing “dolphin-safe” rule condemns an entire load of tuna even though zero mortality occurs during the entire fishing trip. Just one set of the net on a mixed school of tuna and dolphin during the entire fishing trip, whether mortality occurs or not, is sufficient to declare the entire load not suitable for “dolphin-safe” labeling. This proposed new labeling definition is designed to give incentives to fishermen to seek zero dolphin mortality for every fishing set (Felando 1995).

The adoption of the *Panama Declaration* would end the unilateral U.S. embargo on yellowfin tuna imposed at present on Columbia, Costa Rica, Italy, Japan, Mexico,

Panama, Vanuatu, and Venezuela which allow their fishing fleets to "set on dolphins" or buy tuna from fleets that "set on dolphins". More controversially, it would change the legal definition of "dolphin-safe" for tuna can labels from the present one (encirclement was not used to harvest the tuna) to a new one (no dolphins were seen by accredited observers aboard the tuna fishing vessels to die in the harvest). The other signers of the *Declaration* are now waiting for the U.S. to ratify the agreement, action already long past the January 31, 1996 deadline. These other signers insist on the required change in U.S. "dolphin-safe" definition, and some threaten to bolt from the *La Jolla Agreement* if the United States fails to act. Opponents of the bill argue that encirclement amounts to harassment of dolphins that can eventually kill them out of the sight of observers (Felando 1995).

The Discourse from Latin America

Imports from Latin American countries that use the purse-seine method in the ETP have been blocked

since the 1988 amendments to MMPA. Mexico and other Latin American countries came under an embargo in 1990. Across Mexico, the tuna industry estimates that due to the U.S. embargo, about 15,000 jobs directly and indirectly tied to tuna fishing are gone - about half of them in the town of Ensenada on the Baja California. Mexico argues that it has greatly reduced the dolphin kills associated with its tuna fishing operations and that the embargo is a "disguise to keep high quality Mexican yellow-fin tuna off the American market" (Frazier 1996). The fact that the U.S. ignored the WTO ruling stating that the embargo is illegal is presented as evidence of such green protectionism. "Dolphin-safe" fishing, Mexican fishermen contend, has environmental baggage far heavier than the threat to dolphins, virtually all of which are freed from the nets unharmed by technology developed in recent years (Frazier 1996).

There are three ways to fish for tuna. One involves following the dolphins which associate with mature yellowfin tuna and using purse-seine

nets to catch the tuna, but also often catch the dolphins which sometimes drown in the nets. Another involves setting nets around floating objects such as logs where tuna tend to gather. The third is simply the visual sighting of schools of tuna. Only tuna fishing using the last two methods can be labeled "dolphin-safe". But these two methods produce a heavy bycatch of other species, especially infant or juvenile tuna which have not yet reproduced, have no commercial value, and are returned to the sea, often dead. While the ETP tuna fishery is among the most healthy in the world, industry spokesmen say the wide demand for "dolphin-safe" tuna could endanger that. According to Carlos de Alba, a scientist with the Mexican Chamber of Fishing Industries, "Fishing dolphin-safe is the only way we can export. But if we keep fishing this way, or increase the dolphin-safe catch, the tuna population in the Eastern Pacific will drop by half in three years because of the bycatch of immature tuna"(Frazier 1996). He said that detailed reports kept by observers on Mexican tuna seiners show that more than 99

percent of the dolphins now encircled by the tuna nets are freed unharmed. "To have a dolphin-safe trip you have to fish without a single set on dolphins. Even if you don't kill any dolphins, that catch cannot be sold as dolphin-safe. We are fighting to change that to no mortality. If you set on dolphins and there is no mortality, that tuna can be dolphin-safe", said de Alba (Frazier 1996).

As part of the *La Jolla Agreement of 1992*, observers certified by the IATTC are on board all tuna boats with capacities of 40,000 tons or more — which is most of the Mexican fleet — to verify "dolphin-safe" catches. "You don't see that in other areas, like in Africa, or France or Spain, where the captains of the boats make the certification," said Jose Velasquez, owner of the 205-foot Quijote. "We had a trip where we made 52 sets on dolphins and didn't kill a single one" Velasquez complained. "But that tuna was not dolphin-safe because we fished on dolphins" (Frazier 1996). He said the American fleet, much of which is based in the Western Pacific at American Samoa, often sets on

dolphins at night, increasing the risk of dolphin kills. "We haven't done that for years", said Velasquez (Frazier 1996).

Dr. James Joseph of the IATTC said there are dolphin kills in other fisheries such as the Atlantic, around Sri Lanka south of India, and around the Phillippines, but that there are no good statistics on how many deaths because those boats don't carry observers. Authorities stated that the dolphin-kill by Mexico and other ETP countries dropped from about 140,000 a year in the mid-1980s to about 3,500 in 1995. In 1986 ETP tuna fishermen were killing about 15 dolphins with each set. By 1991, when the embargo took place, the number averaged 3.1, and it was less than 1.0 per two sets by 1995. Between the backdown procedure and the finely-meshed medina panels the number of dolphin deaths has been greatly reduced (Frazier 1996).

Mexico has replaced its U.S. markets with exports to Europe and Japan, but because of environmental pressures, most of that tuna must also be "dolphin-safe". It exports about 50,000 tons a year, much of it

in frozen form to Japan. Mexico has increased domestic consumption of tuna by tenfold in the past decade although most of it is canned not in Ensenada, but in Mazatlan, Manzanillo, or other ports closer to domestic markets. When Pesca de Pacifico was operating it turned out 88,000 cases of canned tuna a month, a lot of it for American firms who put their own label on it. The plant also suffered when the Mexican government privatized it under the administration of former President Carlos Salinas de Gortari. Its top selling brand, Dolores, was sold separately, leaving the new owners with no familiar brand. They introduced a new brand that has not caught on yet. "Some of our workers went to other canneries, some left the area, some are selling tacos," said plant manager Jose Luis Gonzalez. "This town (El Sauzal, a northern suburb of Ensenada) used to be a fishing village. Just about every family had someone who worked here" (Frazier 1996).

"Those boats that are gone aren't coming back," said Alfonso Rosinol, vice president of Mexico's fisheries

chamber who has sold one of his three boats. "The boats were sold to Korea, to the United States, two to Iran. They are fishing many places" (Frazier 1996). With the fleet aging and decimated, processing tuna for foreign boats may be what's in store for Ensenada, if the embargo is lifted. "They can bring the American boats here to unload and we can ship if precooked, frozen if they want, to the United States and they can put their own brand on it," Rosinol said. Uncanned Mexican tuna enters the U.S. duty-free. "We are efficient, we have low labor costs", Rosinol said. "This could happen for Ensenada" (Frazier 1996). But Rosinol, who spends a lot of his time in Washington pushing for the removal of the embargo, knows many factors are at work. "The Flipper movies are back in the theaters again," he said. "Now I hear they have one about a pig named Babe. Pigs are supposed to be smarter than dolphins, so the pork industry better be careful. It could be next" (Frazier 1996).

The Political and Environmental Discourses from the United States

Discourses in Support of the Panama Declaration

The *Panama Declaration* became the basis for a bill introduced in the 104th. U. S. Congress by Senator Ted Stevens (R-Alaska) Chairman of the Senate Subcommittee on Oceans and Fisheries. The Clinton Administration sided with Senator Stevens as did the five mainstream environmental organizations: Environmental Defense Fund, World Wildlife Fund, Center for Marine Conservation, Greenpeace, and the National Wildlife Federation. The proponents argued that the *Declaration* would protect dolphins and other sea life in the ETP. More specifically, they argued that the alternatives to "setting on dolphins" have proven destructive to both tuna populations through the increased bycatch of juvenile tuna that do not then have the chance to breed as well as others species such as turtles, sharks, billfish, and other important marine life. They also argued that unless the Latin American nations

were rewarded for their efforts to reduce dolphin mortality, they would revert back to their old methods which often kill dolphins. Similar legislation introduced by Reps. Randy "Duke" Cunningham, R-Calif. and Wayne Gilcrest, R-Md. cleared the house in May of 1996 (Linden 1996; Odessey 1996). This bill would implement the *Panama Declaration* and provide for U.S. participation in the *International Dolphin Conservation Program* by modifying U.S. law to end the existing tuna import embargo and to permit tuna caught with purse-seine nets to be labeled "dolphin-safe" as long as no dolphins were killed when the tuna was caught (Linden 1996).

Jerry Leape of Greenpeace said that he hoped the Senate got a strong message from the House vote. "I think there will be discussions over the August recess and an effort to get this issue addressed in September," he said. "We're not cocky about our chances" (Odessey 1996). He further stated that the 100 or so Democrats in the House that voted for the bill should encourage some Democrats in the Senate to vote for it as well. He

also indicated gratitude for the overwhelming Republican support in the House. "While many think that environment is just a Democratic issue," Leape said. "I think this shows that it can and should enjoy bipartisan support" (Odessey 1996). Although the Clinton Administration and other supporters worked to get a companion bill passed in the Senate after Congress returned from its summer recess in September, they were unsuccessful due to opponents' threat of a filibuster (Linden 1996).

In presenting the *International Dolphin Conservation Program Act* (S1420) to the U.S. Senate for approval, Senator Stevens (R-Alaska) stated (Congressional Record, 1996):

Our legislation is supported by: (1) U.S. tuna boat owners; (2) the mainstream environmental community including Greenpeace, the Center for Marine Conservation, the Environmental Defense Fund, the National Wildlife Federation, and the World Wildlife Fund; (3) the American Sportfishing Association; (4) U.S. Labor, including the National Fisherman's Union, Seafarers International, and the United

Industrial Workers; (5) the 12 nations who signed the Panama Declaration (Belize, Colombia, Costa Rica, Ecuador, France, Honduras, Mexico, Panama, Spain, Vanuatu, and Venezuela); and (6) the Administration. I ask for unanimous consent that the letter I received from Vice President Gore in support of S1420 be printed in the Record.

The degree of cooperation between the Clinton Administration and the republican backers of the bill is exemplified by the following letter regarding the *International Dolphin Conservation Program Act* sent by Vice President Al Gore to Senator Stevens, Chairman of the Subcommittee on Oceans and Fisheries (Congressional Record, 1996).

The Vice President, Washington, June 3, 1996. Hon. Ted Stevens, Chairman, Subcommittee on Oceans and Fisheries, U.S. Senate, Hart Senate Office Building, Washington, DC. Dear Ted, I am writing to thank you for your leadership on the International Dolphin Conservation Program Act, S1420. As you know, the Administration strongly supports this legislation, which is essential to

the protection of Dolphins and other marine life in the Eastern Tropical Pacific. In recent years, we have reduced dolphin mortality in the Eastern Tropical Pacific tuna fishery far below historic levels. Your legislation will codify and international agreement to lock these gains in place, further reduce dolphin mortality, and protect other marine life in the region. This agreement was signed last year by the United States and 11 other nations, but will not effect unless your legislation is enacted into law. Sincerely, Al Gore.

The Center for Marine Conservation, World Wildlife Fund, Environmental Defense Fund and Greenpeace International, led by its offices in Mexico, Brazil, Guatemala, and Argentina, helped draft the *Declaration*. According to Nina Young, marine mammal specialist at the Center for Marine Conservation, "The issue really has gotten more complex than it used to be" (Greene 1996). From a similar perspective, National Wildlife Fund biologist Rodrigo Prudencio explained that the *Panama Declaration* would be permanent and replace current voluntary and difficult

to enforce "dolphin-safe" agreements such as the *La Jolla Agreement*. According to Prudencio, "Levels of protection provided by the agreement are based on population estimates of each species of dolphin. Some mortality is permitted but only if populations are not affected" (Prudencio 1997). Instead of lumping all dolphin species into one category, countries will be obligated to keep careful track of the status of specific species of dolphins. Furthermore, the program provides accurate information on bycatch numbers as well as dolphin deaths (Prudencio 1997). From the viewpoint of these groups, the *Declaration* will improve the overall ecological health of the ETP and strengthen program which actually ensure that the tuna caught in the ETP is indeed "dolphin-safe".

These supporters of the *Declaration* also want to change the definition of the "dolphin-safe" label to mean no dolphins died to catch that tuna. The current "dolphin-safe" label does not guarantee that no dolphins died in the harvesting of the tuna, it only means no dolphins were encircled by fishing nets. According to the

Environmental Defense Fund (EDF 1996):

Ironically, the sales ban still prevents tuna caught this way — without killing a single dolphin — from being labeled dolphin-safe or sold in the U.S. By contrast, tuna caught by setting nets on floating logs and schools of tuna can get the dolphin-safe label, even when these methods kill dolphins and other marine life. Foreign fleets that have reduced their dolphin deaths — but still can't sell their tuna in the U.S. — have threatened to leave the voluntary program.

Rather than banning a fishing technique, they believe that orienting the label towards the desired result of dolphin protection will give consumers the best information possible, and fishing fleets the best incentive to reduce dolphin deaths. Beyond the issue of the label, these organizations want to protect dolphins in non-ETP waters which requires U.S. leadership and international cooperation. The current version of the law means that U.S. consumers now buy tuna harvested from other oceans which do not require on-board observers and

therefore cannot guarantee the safety of dolphins during tuna fishing outside the ETP. Meanwhile, dolphins continue to be encircled by nets in the ETP regardless of the U.S. embargo and regardless of the current “dolphin-safe” label. This tuna is being sold in growing non-U.S. markets (Prudencio 1997).

To resolve this escalating dilemma, these environmental organizations worked together with 12 participating countries that fish in the ETP to secure strong, binding protection for dolphins and other marine life. The *Panama Declaration* and associated U.S. legislation would replace the “intentional set” rule — a technology based standard that inadvertently increases deaths of other marine life — with a performance-based approach ensuring that no dolphins are killed to catch “dolphin-safe” tuna. While some groups continue to oppose the *Panama Declaration* fearing that setting nets stresses dolphins and causes hidden mortality, “there is insufficient evidence to determine whether setting nets effects individual dolphins” (EDF 1996). The legislation

does require research on this question and if such evidence would be produced, then the legislation requires that U.S. vessels stop setting nets. Said EDF international counsel Annie Peterson, “We are urging Congress to lock in the strengthened dolphin and ecosystem protections provided in the Panama Declaration” (EDF 1996).

Discourses in Opposition to the Panama Declaration

At that time Senator Stevens introduced his bill, Barbara Boxer (D-Calif.) introduced a competing bill that would also lift the sanctions on Latin American nations but maintain them on individual vessels that catch tuna by encirclement of dolphins; Boxer’s bill was defeated. The letter sent to President Clinton in opposition to U.S. support for the *Panama Declaration* by Senators Barbara Boxer (D-Calif), Joseph Biden (D-Del) and Representatives George Miller (D-Calif) and Gerry E. Studds (D-Mass) expressed grave concerns over the measure charging that the “delegation in Panama sold out the dolphins to

free trade" (Linden 1996:57). Furthermore, they asserted that the *Declaration* would let foreign companies use a "dolphin-safe" label even if their practices continued to endanger dolphin populations and said that it "is nothing short of consumer fraud" as it would deceive conscientious consumers (Enviro-News Service 1995). For Anthony O'Reilly, chairman of H.J. Heinz Co. which owns Star Kist, the world's largest processor of tuna, this creates problems associated with the possible misinterpretation of these events by "dolphin-loving consumers". O'Reilly said, "I believe the definition should not be changed in the absence of consensus of scientists and public opinion" (Linden 1996:57).

Environmental organizations and individuals that backed the Boxer position were Earth Island Institute (EII), Humane Society of the United States, EARTHTRUST, Cetacean Society International, Sierra Club, Public Citizen, Friends of the Earth, Defenders of Wildlife, ASPCA, Sea Shepherd, Human Dolphin Foundation, Jean-Michel Cousteau, Jacques Cousteau, and several others (EII

1977). Boxer's proponents argued that complicated enforcement procedures and the potential for corruption under the Stevens bill meant that dolphin deaths would rise again. They stated that the proposed change would allow tuna fishermen to chase, herd, and encircle dolphins which is cruel and stressful, separates dolphin mothers from their calves, and keeps populations from thriving (Linden 1996).

"The whole thing is a scam being put over on us by the Mexican government and Venezuelan government that want access back into the U.S. market for tuna that is not dolphin-safe," said David Phillips, executive director of the Earth Island Institute (EII), a San Francisco-based environmental group fighting the *Declaration*. Phillips calls the bycatch argument "completely spurious". "If you look at the amount of the bycatch since the dolphin-safe issue came up, it has gone down, and the reason it has gone down is because the fishing effort in the eastern tropical Pacific has gone down" said Phillips. "The fishery is in excellent shape. The size of the fish is up, the reproductive

potential is up. If there were some indication that the level of the juvenile catch is causing problems for the fishery, you would have seen it long ago" (Linden 1996:57). According to Phillips, the bycatch argument is "just an excuse. What they really want is to bring dolphin-unsafe tuna caught by killing dolphins back to the lucrative U.S. market" (Linden 1996:57).

According to Cockburn (1996), "One of the great triumphs of grass-roots environmentalism in this country was the battle of the late 1980s to ban the sale of 'dolphin unsafe' tuna, meaning fish caught by purse-seine nets that would also ensnare dolphins". Over the fifteen years using this method more than 7 million dolphins died. In the summer of 1995 Mexican government informed Mickey Kantor, the U.S. Government's Trade Representative, that under the terms of NAFTA and WTO it should be permitted to sell its canned tuna in U.S. markets. Kantor and Al Gore told President Zedillo that Clinton didn't want embarrassing public demonstrations of how U.S. laws could be overturned by WTO and

that they would seek a legislative fix in Congress (Cockburn 1996). Cockburn (1996) states:

It will be recalled that at a crucial moment in the NAFTA battle in late 1993, the Clinton Administration was able to brandish a statement of support for the free-trade agreement from seven major environmental organizations. Among them the Environmental Defense Fund, the National Wildlife Federation, Greenpeace, The World Wildlife Fund and the Center for Marine Conservation. Staffers at the Environmental Defense Fund and National Wildlife Federation drafted the language of the dolphin-death bill, with the help of Bud Walsh, an attorney who has labored for the Wise Use Movement. The House bill fronted by the big green group guts the current dolphin protection law and will permit unlimited sale of dolphin-lethal tuna in the United States.

The mainstream green groups call it a victory for the environment. Cockburn disagrees. Sounding very much like a fully fledged free-market environmentalist, Greenpeace president Barbara Dudley says her

organization supports the bill because "it tears down unfair trade barriers" for Latin American countries such as Mexico, Colombia, and Chile (Cockburn 1996).

Greenpeace's support of the *Panama Declaration* has also been heavily criticized by animal rights and marine mammal rights groups. On September 27, 1996, the whales rights group known as the Dolphin Within Society, arranged a demonstration outside the Greenpeace offices in Sydney, Australia and "entered the office in masses". They claimed that Greenpeace' support for the *Panama Declaration* would result in a weakening of the U.S. "dolphin-safe" tuna legislation, allowing tuna from "dolphin-dangerous" fishing fleets to enter the U.S. market (High North News 1996).

Opposition to the *Declaration* was also advanced by marine mammal scientists. Two prominent marine mammal scientists, Dr. Albert Myrick Jr. and Dr. John Hall, spoke out against misleading and discredited testimony made by proponents of bills in support of the *Panama Declaration*. According to these

scientists, such legislation would in fact harm dolphins and does nothing to protect other species in the fishery, such as sea turtles and immature tuna. These two scientists were joined by a third scientist, Dr. Roger Payne of the National Academy of Scientists tuna/dolphin panel, in denouncing the proposed legislation. Drs. Myrick, Hall, and Payne contended that the scientific statements of supporters of the *Declaration* were couched in dubious science and therefore make serious errors (EII 1996).

Discussion

The case study can inform contemporary debates on at least three aspects of global capitalism. The first concerns the role and forms of the State. The second deals with the actions of social movements. In this case, this situation refers to the positions of the environmental and labor movements. Finally, the case study sheds light on the actions of TNCs.

The Role of the State in Global Capitalism

Contemporary works on the role of the State in global capitalism increasingly question the ability of nation-States to mediate opposing classes' actions while fostering capital accumulation (e.g., Giddens 1994; Harvey 1990; Hirst and Thompson 1996). These accounts view fundamental aspects of the globalization of the economy and society as limiting the State's capacity to assert its relative autonomy. Global capitalism, they maintain, diminishes the State's ability to control social actors and processes within its jurisdiction. Extreme accounts contend that the State is withering away as transnational corporations can by-pass State established and enforced requirements and laws (e.g., Ross and Tratche 1990). Other accounts point to the increasing control that transnational economic elites exercise over the State. In essence, according to these views, the State is increasingly turning into an instrument of global economic elites and their allies (e.g., McMichael and Myhre 1991).

It has also been argued that the role of the State in society cannot be eliminated without creating insurmountable negative consequences to a variety of actors (e.g., Danley 1994; Spybey 1996). These views point out the difference between the concept of the State and that of the nation-State. The nation-State, it is maintained, is simply one historical form of the State and therefore it is not the only possible form of the State. The crisis of the nation-State signals, according to this position, the crisis of the historical forms of the State which emerged in the early phase of capitalist development. Simultaneously, the emergence of new State forms, and in particular the emergence of the embryonic transnational State form, indicates the emergence of new patterns of capitalist development associated with globalization (e.g., Bonanno and Constance 1996; Danley 1994; Spybey 1996).

The case study speaks directly to these debates. It indicates that though the State is still able to perform its historical roles, the evolution of global social relations has important repercussions on State

actions and forms. As far as the ability of the U.S. State to perform its historical roles is concerned, the case indicates that the Clinton Administration¹ acted to increase capital accumulation. Simultaneously, it legitimized this action by addressing concerns voiced by segments of the labor movement and by enlisting the support of environmental groups. The latter refers to main stream environmental groups' endorsement of changes in the MMPA. These historical roles of the State, however, were performed in a context in which its national form is in crisis and transnational (hemispheric) solutions are sought to overcome this impasse.

State actions in favor of capital accumulation are exemplified by two issues characterizing the Clinton Administration's proposed legislation. The first refers to the rehabilitation of the purse-seine technology. The second deals with its justification arguing that the feared negative environmental consequences associated with dolphin mortality are vastly exaggerated and/or simply not existent. As far as the ban of the purse-seine technology is concerned,

it has been documented that the use of this technology was at the core of the battle surrounding the implementation of the MMPA (Bonanno and Constance 1996). In that case, a radical pro-environmental position prevailed as it viewed the consequences of the use of this technology as incompatible with a sound management of marine resources. The succeeding view was that the negative consequences of purse-seine use could not be controlled by human surveillance nor could they be resolved by technical adjustments. Accordingly, the most effective solution to the problem of dolphin mortality was the elimination of the use of encircling technology in tuna fishing. In effect, this position gained momentum and eventually prevailed partially due to the fact that the U.S. administration allowed grave violations of the original 1972 MMPA. For instance, while the law mandated zero dolphin mortality, its actual implementation allowed the killing as many as 20,000 dolphins per year. Perhaps the most important reason for the U.S. Administration early tolerance of this limited interpretation

of the MMPA rests on the positive impact that the purse-seine technology had on productivity and on the expansion of the tuna industry as a whole. Tuna TNCs as well as tuna fishing and processing based communities viewed the benefits of the expansion of the industry as outnumbering its assumed negative environmental consequences. In essence, the amendments to MMPA which banned purse-seines reflected the victory of a pro-environmental discourse over a pro-accumulation pro-TNC discourse.

The reintroduction of the use of the technology reverts this position by giving primacy to a pro-accumulation and pro-TNC discourse. This discourse contains at least two significant elements which favor TNCs' interests. The first refers to the subordination of environmental concerns to economic concerns. Departing from the content of the MMPA, under the proposed legislation market mechanisms take primacy over ethical issues regarding the safeguard of the environment. Here, the focus is shifted from the ethical question of the long term ability of

society to maintain a safe environment to the narrower position of short term economic gains². To be sure, this posture is similar to arguments proposed by a variety of international organization in recent years. WTO, for instance, ruled that the primary focus of this type of international relations is the free circulation of commodities. The manners in which these commodities are produced, it is argued, should not affect their presence on the market. The *Panama Declaration* maintains the same position. Indeed, as indicated in the narration of the case, the government of Mexico has insisted on reminding the U.S. Administration that according to WTO rulings, that country's tuna producers are allowed to sell tuna regardless of the way in which it is produced. Obviously, the elimination of ethical concerns from the realm of trade provides TNCs with significant economic advantages. It would not only reduce costs of production, but it would allow corporations to free themselves from constraints which hamper their flexibility to operate in the market in the past.

The second pro-TNC element is represented by the expansion of markets that the redefinition of the "dolphin-safe" label would generate. It is probable that the proposed legislation would fragment the now homogenous market into at least two parts. The first would be characterized by tuna caught following the current "dolphin-safe" requirements. The second would be made up by those catches generated by less stringent rules. It is safe to assume that the first market segment would be characterized by more expensive products which would appeal to more affluent and environmentally concerned fractions of consumers. This group would be largely composed of members of the upper and middle classes. These people have historically been better able to respond to environmental concerns even in the case that this preference translated into higher food prices. The second segment of the market will consist of cheaper products which would appeal to lower segments of the spectrum of consumers. In this case, it can be argued that support for the existence of this type of commodity will come

largely from members of the working class. As indicated by literature on the topic (e.g., Harvey 1990; Jameson 1994; Rieff 1993), market fragmentation is an often employed corporate strategy aimed at increasing consumption in the global economy. One of its characteristics is that it reaches previously untapped market segments with specialized products. In this instance, the introduction of a new kind of "dolphin-safe" tuna would perform the role of a "specialized" commodity for the working class. This situation could also result in working class support of TNCs' actions as the former would view favorably the availability of a less expensive food commodity.

U.S. State attempts to foster accumulation processes are not confined to the enhancements of production and productivity and widening of markets. They are also indicated by the redefinition of environmental protectionism assumed by the new discourse. In this case, environmental protectionism is redefined in much more relaxed terms. The new legislation supports the idea that it is environmentally

acceptable to kill a number of dolphins as long as this practice does not exceed mortality limits within each of the various dolphin species. These are thresholds which indicate the minimum number of individuals necessary to maintain adequate dolphin population levels. In the event that killings remain within mortality limits, there is no actual danger to dolphins. In effect, this discourse implies that dolphin killings are beneficial to the entire eco-system as they function as instruments of population control. Additionally, the notion of harm to dolphins and other marine species is redefined in much narrower terms. Indeed, under the proposed legislation, the only sphere of concern remains the observed killing of dolphins in the immediate process of tuna fishing. Simultaneously, concerns about the accuracy of observations and limits of their capacity to carry out tasks are also cast aside. In previous instances, crew members often harassed observers through intimidation and overt physical violence to the point of severely hampering their ability to report law

violations (Bonanno and Constance 1996).

As far as the legitimization role performed by the State is concerned, the case indicates that the Clinton Administration justified its pro-accumulation, pro-TNC attempts to reform the MMPA by addressing some of the concerns expressed by organized labor in the U. S. and Latin America. The State, in other words, was able to enlist the support of labor for the project of reforming the MMPA. It achieved this result by supporting changes in some of the components of the law which have been indicated as hampering employment and growth in the tuna industry.

To illustrate this point it is important to recall that over the years, the implementation of the MMPA and the counter actions of TNCs led to significant negative consequences for labor both in the United States and abroad. TNCs' attempts to bypass MMPA led to the crisis of the tuna fishing sectors along with crises in the processing sectors in California, Puerto Rico and subsequently in Latin American countries such as

Venezuela, Mexico, Colombia and Ecuador. A related result was that in these regions labor opposed the environmental movement's actions in favor of MMPA (Bonanno and Constance 1996). In essence, the implementation of MMPA was a victory for the environmental movement which generated grave consequences for labor. It follows that the lessening of the requirements for the "dolphin-safe" label has been viewed as a measure which could revitalize the tuna industry in its entirety. Simultaneously, similar hopes exist in Latin America where the closing of canneries and the crisis of the tuna fishing sector have been particularly severe. In effect, the opening of the U.S. market to the new "dolphin-safe" tuna would signify renewed economic opportunities for Latin American residents.

The case indicates also that the U.S. State was able to legitimize its actions by drawing support from segments of the environmental movement. Main stream environmental groups, such as Greenpeace, the World Wildlife Fund, the Environmental Defense Fund, the

National Wildlife Federation and the Center for Marine Conservation, backed the Clinton Administration sponsored legislation. More radical environmental groups, however, strongly opposed the initiative. In effect, the State was able to reorganize the composition of the opposing camps whose interaction generated the original MMPA. In that case, the environmental movement was unified and provided successful opposition to the designs of TNCs and the Bush Administration. Today, significant segments of the environmental movement agree with TNCs in supporting the new legislative measure. More importantly, environmental groups have also accepted discourses which share the neo-liberal tone characteristic of corporate postures. As indicated above, for instance, the president of Greenpeace defined the MMPA in terms of "green protectionism" evoking the free market rhetoric used by corporate entities to allow internationally produced tuna into the United States.

The State fostering of accumulation and pro-TNC positions and its ability to legitimate these actions to

segments of opposing groups not only indicate the vitality of the U.S. State but stress its class character. The current version of the MMPA forced the State to face the contradiction between demands stemming from the environmental agenda and those required to further capital accumulation. The former hampered the latter. The course of action selected by the State resolved this contradiction by redefining discourses and reshaping alliances which ultimately strengthened the interests of corporate actors. The class character of this action, then, rests on the State's inability to promote pro-environmental discourse in the face of pressure to revitalize accumulation strategies. The events of the case demonstrate that confronted with the historical possibility to fortify alternative positions, the State remained anchored with its support of capital accumulation strategies.

Contradictions for the State remain, however. The events of the case support the argument that the nation-State does not have the instruments to fully regulate the actions of actors whose scope

transcends the State national jurisdiction. Three items deserve to be briefly mentioned. First, the discourse within which the new legislation develops stresses transnational concepts such as "*hemispheric interests*" and "*global concerns*." The latter indicate the broader than national dimension necessary to regulate capital accumulation and social legitimation. Second, the *Panama Declaration* mandates changes in the U.S. legislation. That is, it is the transnational arena which contextualizes the actions of individual nation-States. This is important because, as in the cases of WTO and NAFTA, the ability of the State to address internal issues (in this case the dispute between environmentalists and TNCs) is framed by decisions which are made outside the State sphere of action. Finally, because the nation-State alone is not able to provide sufficient support to the various groups involved in the case, we see the emergence of transnational forms of the State. In this case, the regulation of the flow of actions and resources is increasingly delegated to the "hemispheric" level³.

The Positions of the Environmental and Labor Movements

Debates on social movements and change underscored the importance of new social movements as agents of emancipatory actions (e.g., Habermas 1987; Mayer 1991; Melucci 1989; Touraine 1981). In particular, it has been argued that in the postmodern post-Fordist phase of capitalism, traditional movements, such as labor, have exhausted their emancipatory charge as struggles shifted away from the economic area into the social arena (e.g., Gorz 1982; Lash and Urry 1994; Melucci 1989). The environmental movement emerged along with the feminist and civil rights movements - as perhaps the most powerful counter to the rise of global capital. In the view of many (e.g.; Buttel 1994; Gorz 1992; Melucci 1989) this movement is capable of generating the necessary charge for the establishment of new and more democratic arrangements in society. The events of the case study address the role of the environmental movement and its assumed ability to be the catalyst of emancipatory struggles.

These events indicate that the environmental movement is divided and encounters significant problems in organizing anti TNC actions. Two elements emerging from the events of case study should be stressed here. The first refers to the unifying and hegemonic⁴ powers of the environmental movement. The second concerns its anti-TNC posture.

As far as the unifying and hegemonic powers of the environmental movement are concerned, the events of case study point out that the environmental movement went from a situation of unity to one of division into two camps. This split is based on serious philosophical disagreements on the issues of dolphin safety and understanding of the impact that purse-seine technology has on the environment. The environmental organizations which joined the pro *Panama Declaration* camp regard current "dolphin-safe" standards to be too stringent and, in effect, detrimental to the sound reproduction of the tuna and other marine species populations. The other camp is determined to maintain "dolphin-safe" procedures as estab-

lished by the MMPA. Give the situation illustrated above, it can be argued that the conditions and means for a process of reunification of the movement are dormant at best. The different visions held by the two environmental camps speak also to the ability of the movement to forge alliances with, and direct the actions of other subordinate groups. Large and more established fractions of the movement were able to occupy a position which is supported by labor. However, they also find themselves aligned with corporate positions. Smaller and more radical fractions of the movement strongly oppose TNCs' positions but have not been able to draw support from labor. The current situation, then, sees a much more fragmented environmental movement which has not been able to address the strategic challenges left unresolved after the implementation of MMPA. That is, it is a movement which doesn't have the instruments to generate emancipatory strategies while aggregating alternative forces around its project.

The environmental movement being split into two camps is also

telling of the extent of its anti-TNC strategy. Main stream organizations' acceptance of the tuna industry's position of the use of the purse-seine technology indicates the willingness to compromise between environmental protection and tuna industry's needs for capital accumulation. Simultaneously, it points to the acceptance of a view in which TNCs are no longer identified as the primary opponents in this matter. This is significant as it signals the subordination of main stream environmental movements to the rationale of TNCs. The situation of smaller and more radical fractions of the environmental movement is different. In this case, the pro-purse-seine proposal of the tuna industry is rejected. However, this position is not accompanied by proposals which could address the needs of the industry. In particular, the needs of the workers in the sectors are left unaddressed.

The labor movement's position is also contradictory. On the one hand, labor organizations both in the U.S., but above all, in Latin America, have been strongly critical of environmen-

talists' attempts to implement MMPA. On the other hand, labor organizations positioned themselves, along with TNCs, in favor of the liberalization of fishing techniques and trade. In essence, various segments of the labor movement selected a course of action which ties their demands to the growth of the industry as a whole and to the rejection of measures which ban encircling technology. Support of the tuna industry as a whole has been justified in terms of the establishment of projects which could revitalize national economic sectors through the expansion of production and trade. Expansion of production is deemed possible through the reintroduction of the purse-seine technology while increases in trade are linked to the elimination of tuna embargos. Like in the case of mainstream environmental movements, labor downplays the concerns of more radical environmentalists and charge them with placing animal and ecosystem concerns over those of the well-being of human beings. In so doing, limited attention is paid to the potentially negative consequences of TNCs'

expansion. In particular, this situation refers to the effects of TNCs' hyper-mobility and their decentralization strategies. In the case of hyper-mobility, the tuna-dolphin controversy demonstrated that TNCs can rapidly relocate their investments with serious consequences to communities which depended on TNCs' investments for socio-economic growth. In the instance of decentralization, TNCs have been able to delegate production risks to weaker segments of the industry exposing the latter to potential crises.

The Strategy of TNCs

One of the most significant aspects of global capitalism is the emergence of TNCs. Differing from their multinational predecessors, these corporations increasingly severed their activities from linkages and loyalties to countries and/or regions of origin (Antonio and Bonanno 1996; Harvey 1990; Spybey 1996). Under global capitalism, TNCs have been viewed as extremely powerful entities whose actions can be hardly opposed by counter

movements and groups (e.g., Heffernan and Constance 1994; McMichael and Myhre 1991; Ross and Trachte 1990). Simultaneously, they have also been described as enterprises whose global scope allows the flourishing of new initiatives and the unleashing of new resources which revitalize stagnant economic situations (e.g., Kindleberger 1986; Strange 1996). Other interpretations picture TNCs in terms of their strengths but also vulnerabilities (e.g., Hirst and Thompson 1996). The early phase of the tuna-dolphin controversy has been interpreted in terms of this latter view. Referring to that case, it has been maintained that environmentalists were able to force TNCs to adopt the "dolphin-safe" label despite the fact that it involved abandoning the use of the lucrative purse-seine technology. However, it has also been indicated that TNCs were able to continue the use of the technology by decentralizing and moving fishing and processing operation outside the jurisdiction of the United States. *The case indicates that the current status of affairs is favorable to TNCs. They enjoy the support of the State,*

important segments of the environmental movement and labor, and the existence of a dominant discourse which redefines environmental protection in terms amenable to capital accumulation.

Perhaps the most interesting aspect of the strategy adopted by tuna TNCs in the continuation of the tuna-dolphin controversy is their limited involvement in the events of the case. In the early phase (1972-1992), TNCs were the subjects of direct attacks from environmentalists and consumers (boycotts) and the State (court rulings against them and legislative actions). In the contemporary phase, the controversy finds environmental groups, labor and various nation-States occupying center stage. More importantly, the relative absence of TNCs from the dispute is replaced by a situation in which contenders are former members of the anti-TNC front. Key in the development of this situation is the decentralization process initiated by TNCs as a response to the action of the environmental movement. Resistance to the use of purse-seine technology prompted TNCs to dissolve

previously established processes of vertical integration. Indeed, from a system in which TNCs directly owned and controlled the various phases of the production process, new decentralization projects were initiated. Fishing boats, for instance, were left in the hands of captains and their crews who were charged with bringing catches to the open market. There, catches were purchased by canneries which then were contracted by TNCs to produce tuna on their behalf. In essence, maneuvers of cost reduction were accomplished by delegating production and leaving market uncertainties to weaker segments of the production structure.

TNCs' hyper-mobility allowed them to shift operation from regions in which conflict was higher to areas where a much more enhanced pro-business climate existed. However, TNCs' maneuvering away from contested regions did not eliminate their presence on the market. In fact, their new scope of action allowed them to source globally for factors of production yet to maintain their presence in primary markets such as the U. S. In other words, TNCs were

able to decouple production and consumption sites which translated into crises for the local tuna related labor forces but also generated advantaged for environmentally conscious U.S. consumers. What was left then was a situation in which labor opposed environmental movement actions and various nation-States were left to resolve the contradiction between the emergence of negative economic consequences (the crisis of the local tuna industries) and legitimation of demands stemming from environmentally conscious segments of the population.

The result of TNCs' "disappearance" was that the situation was framed in terms of a dispute between labor and the environmentalists. As indicated above, this conditions emerged also because the weaknesses of the environmental and labor movements. Yet, the TNCs' hegemonic project was clear and working. By decentralizing production and splitting resistance, TNCs put lower segments of the society against environmentally conscious members of the middle and upper classes and enlisted labor and environmentalists

to support the reintroduction of purse-seine technology and the redefinition of the concept of "dolphin-safe". In the end the tuna-dolphin controversy was "colonized" by a view which supported capital accumulation and a much more limited definition of environmental protection.

Conclusions

As far as democracy in the global economy is concerned, the events illustrated above have a number of implications. Following optimistic readings of globalization, it can be argued that the establishment of a dominant discourse — which redefines the concept of "dolphin-safe" and allows the enhancement of capital accumulation — not only favors TNCs, but also a variety of other groups. The position of labor, for instance, is explained by the expectation that the overturning of key components of the MMPA could generate employment opportunities. This is a position expressed by labor groups in the U.S., but it is also a long standing position of Latin

American labor organizations and governments. Mexico, Venezuela, Colombia and Ecuador have been explicit about the negative consequences that MMPA caused among fishing and canning communities in these countries. They view the redefinition of the "dolphin-safe" label as a vehicle to re-launch the local industry and exports to the affluent U.S. market. From this perspective, then, the amelioration of the conditions of subordinate segments of society can be interpreted as an inclusionary measure which testifies to the opening of free spaces that globalization entails.

Related considerations can be made for the case of the environmental movement. Segments of the environmental movement recognized the efforts made by the tuna industry to comply with environmental safety. This action established grounds for cooperation between these two groups which did not exist in earlier phases of the case. Simultaneously, and as supported by a series of expert opinions, the changes in the MMPA can be viewed as an improvement of the conditions of a variety of marine

species including dolphins. In these accounts, population control and the maintenance of conditions of equilibrium within ecosystems are considered more desirable than the current status of affairs.

One of the problematic dimensions of the above position rests in the fact that claims about the establishment of democratic spaces are maintained without challenging the hierarchies of the global system. This consideration is relevant because it legitimizes TNCs' powers over processes which directly touch a variety of social actors, and because it limits the sphere of democratic solutions to the context established by TNCs' hegemonic project. Furthermore, this position does not address the concerns raised by broader segments of the literature. According to these works on globalization, one of the most characterizing actions of TNCs has been their ability to bypass nation-State-based rules and regulations. More specifically, it is maintained that TNCs have been able to disengage from democratic rules by avoiding restrictions imposed by participatory decision-making

processes. This condition is viewed as one of the most important indicators of the erosion of democratic spaces in global capitalism.

The case, however, indicates a worsening of this scenario. It shows that TNCs not only exercised their ability to bypass national decision-making processes, but that through this action they have been able to colonize areas of resistance within national contexts. Indeed, the case points out that a pro-TNC position is now characterizing new legislation in the United States and in a number of other countries. This situation represents a double victory for TNCs as they furthered their dominant position both at the local and global levels. In light of the latter, it is obvious that claims about the strength of local resistance and the historical possibility of establishing democratizing processes based on the local must be scrutinized with additional care (see also Swyngedouw 1997).

Despite the apparent overwhelming advantage gained by TNCs, the events illustrated above also can be interpreted to indicate the fact that

the global society and economy are still contested terrains in which struggles, alliances and solidarities are created, dissolved and renewed. More importantly, basic contradictions pertaining to the requirements of capital accumulation have not been resolved by the enhanced scope of TNCs' actions. The latter can give subordinate groups ammunition for challenging the hierarchies of the global order and creating opportunities for establishment of democratizing processes.

It is obvious that the creation of new markets, the proliferation of commodities, the hyper-mobility of capital and other significant characteristics of the global economy and society have weakened traditional forms of resistance (e.g., Spybey 1996; Lash and Urry 1994). Labor, for instance, has been often used as an example of this situation. Despite claims that capital mobility is not as great as previously hypothesized and that locality has significant restrictive impacts on processes of accumulation (e.g., Gertler 1997), the hypermobility of capital allows TNCs to pit distant and unrelated labor markets one

against the other thereby weakening traditional forms of labor struggle and subordinating processes of socio-economic growth to TNCs' decisions to invest in these markets. This situation, in turn, is a precondition of global sourcing for the most desirable forms of labor use (Harvey 1990; Heffernan and Constance 1994). Indeed, it is not a coincidence that the recent and most effective forms of resistance to TNCs' power developed outside traditional patterns of mobilization and counter action.

However, it is also obvious that the characteristics of the global economy and society have not altered the requirements of the commodification of production (Marx 1977: 188-198; 210-247). In other words, processes of capital accumulation are still based on two fundamental conditions. **First**, TNCs must realize capital (see Sweezy 1942), that is, they must transform commodities into money. This requirement makes TNCs vulnerable as they become exposed to counter actions which can affect their ability to realize capital. Lash and Urry (1994:1-5) partially address this issue in their discussion

of the significance of the circulation of capital in the postmodern era. The element that is implicit in their argument and that emerges from the case study is that "consumers" can be the subjects of these counter actions. In principle, at least, the vulnerability of TNCs rests on their inability to find receptive markets for their products. While following Marx, it can be argued that globalization has accelerated processes of exploitation at the production level (global sourcing), contradictions remain both at the production and realization levels. But unlike the case of labor, contradictions are historically much more mature in the case of the realization level. This acceleration of the circulation of commodities in global circuits transformed realization, but it is also opened up spaces for the "politicization" of commodities (Lash and Urry 1994). The creation of "dolphin-safe" tuna is an example of this process of politicization which, albeit in a temporary form, forced TNCs to come to terms with the designs of alternative groups.

The issue of the organization of consumers as subjects of resistance

is beyond the scope of the paper. In the past, the environmental movement has been able to mobilize consumers against TNCs. However, it was not able to develop solidarities and alliances with other groups. This situation prevented them from creating a unified front which could mobilize resources to address unwanted consequences of their actions. The environmental movement, in other words, was not able to create a political front which could address the labor problems associated with the boycott of dolphin unsafe tuna. The most recent events of the case indicate that attempts to generate broader solidarities have been carried out, but they have been contextualized outside an anti-TNC project. However, and despite the evolution of the tuna-dolphin controversy, the contradictions of global capitalism provide subordinate groups with the possibility of carrying out emancipatory projects.

Second, TNCs need forms of organization and coordination of their activities which transcend their own organizational capacities (Bonanno and Constance 1996). The fragmen-

tation of production and markets and the global scope of their actions require forms of coordination which have been historically performed by the nation-States. This situation makes TNCs still dependent on the State which, however, remains also open to influences from subordinate groups. In this respect, the evolution of the State, from its national form into its supranational form, has been viewed as a new contested terrain for the establishment of freer social relations (Bonanno and Constance, 1996; Danley 1994). The dependence of TNCs on State forms of coordination, therefore, is a potential contradiction which can be exploited by alternative groups. The events of the case indicate, however, that emerging supranational forms of the State have been characterized by the hegemonic project of TNCs. While the contradictions opened up by the transformation of State forms still remain, their historical evolution has been increasingly controlled by pro-TNC discourses.

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NOTES

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¹ In this case the Clinton Administration is equated with the concept of the U.S. State. Though the concept of the State involves a broader group of agents and agencies, in this instance we employ the action of the U.S. Administration to illustrate State actions. It is also

important to note that opposition to the Clinton Administration actions within the State apparatus exists. As indicated in the text, a number of members of Congress oppose the end of the bad on purse-seine. However, it is also important to note that fragmentation within the State apparatus is far from being as pronounced as it was during the early phase of the tuna-dolphin controversy (Bonanno and Constance 1996). In that instance both the legislative and judiciary branch of the State stood in sharp contrast with its executive branch.

² To be sure, proponents of the *Panama Declaration* argue that the reintroduction of the purse-seine technology is environmentally sound. The core of their thesis rests, however, only on scientific evidence that shows that dolphin populations have been stable and therefore it is possible to tolerate a certain degree of mortality. Additionally claims that alternative forms of fishing hamper tuna reproductive capacities by killing young fish are only anecdotally supported.

³ It could be argued at this point that the *Panama Declaration* is simply an international agreement among independent nations. Therefore, it is not the indication of the emergence of transnational forms of the State. This objection, however, runs counter to the fact that the *Panama Declaration* is an overall effort to place the regulation of domestic affairs in a transnational context. More specifically,

the *Panama Declaration* realigns domestic legislation with the frameworks of transnational bodies such as WTO and NAFTA. This is a situation which cannot be ignored.

⁴ Here the concept of hegemony is employed in its classical meaning. As illustrated by Antonio Gramsci (1971), hegemony refers to the ability of social groups to develop political strategies which are supported by other segments of the social sphere. The latter identify and share the project of the hegemonic group and on these bases together they constitute a movement which is able to conquer or control power in society.

Explaining the Uneven Penetration of Industrialization in the U.S. Dairy Sector¹

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and

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Introduction

One of the most dramatic trends in American farm-structural change over the past several decades has been the industrialization of livestock production. The rise of huge cattle feedlots in the Southern Great Plains, the establishment of contract broiler production, and the recent explosion of hog factories in the Middle Atlantic and Corn Belt states have been cited as paradigmatic examples for the process of transformation from a family farm-based system of agriculture to a more capitalist-industrial model. Now with the rapid rise of large-scale dairying in the Southern Plains, Mountain, and Pacific states, and the erosion of family-scale dairying in the Upper Midwest and Northeast, it has

seemed apparent that dairying will be the next major livestock sector to succumb to the industrialization trend.

In this paper, we begin with a brief discussion of some of the shortcomings of prevailing usages of the concept of "industrialization." Then, using a multidimensional conceptualization of industrialization, we assess recent changes and likely trends in the U.S. dairy commodity sector. We argue that the apparent industrialization of the dairy sector is not an inexorable trend. In addition to industrialization of dairy production being far less advanced with respect to farm units of production, there is only modest farm-related industrialization at the commodity sector level. Dairy industrialization, to the extent it has occurred, has moved forward more unevenly and tentatively than has been the case in other livestock sectors. We conclude by noting how distinctive characteristics of the U.S. dairy agri-food system may help explain the relatively slow and inconsistent dynamics of change in the production sector. Moreover, changing institutional arrangements appear

to offer comparative advantages to traditional forms of dairying that may alter the path of structural change in the coming decades. In general, we argue that as useful as theories of industrialization and globalization can be, they tend to oversimplify processes of change at the farm level.

Livestock Industrialization: Theoretical Background

While very few thoughtful observers would dispute the fact that there is an ongoing tendency for livestock agriculture to exhibit "industrialization," it is useful to recall how this presumption departs so radically from the types of analyses that were dominant in the sociology and political economy of agriculture a decade or so ago. Ten years ago most observers of U.S. agriculture would have been obliged to see the dairy sector, and probably hogs as well, as prototypical outposts of (capitalized) family labor farming. Chayanovian Marxism — David Lehman's (1986) term for the types of neo-Marxist perspectives advanced by scholars such as Kautsky, Mann and Dickinson (1978; Mann,

1990), and Friedmann (1978) and by kindred scholars such as Salamon (1985) to explain the social bases of household forms of agricultural production — was dominant. Indeed, we can now see in retrospect that the priority given to Chayanovian-Marxist interpretations of the persistence of family labor farming was quite appropriate given the conditions of the mid-twentieth century. Midcentury was a period in which there was a very strong tendency toward convergence of national farming structures across the world toward the capitalized family-farm model (of relatively large, highly-commercialized, capital-intensive, family-proprietor, family-labor farms). Depeasantization (and consolidation of peasant plots into larger family-proprietor enterprises) occurred in some regions and countries, while devolution of estates and capitalist farms into family-proprietor farming operations occurred in others. It is significant that the prototypical capitalized family-labor farms that resulted from the twin processes of depeasantization/consolidation and devolution of estates tended to achieve intensification and diversifi-

cation through combining crop and livestock production. But in the U.S., beginning in the 1960s but intensifying during the 1990s, there has been an extraordinary decline (typically five percent per year or more) in the numbers of farms producing livestock on a commercial basis — particularly the medium-scale, diversified crop-livestock farms run by family labor that were the focus of neo-Chayanovianism research. At the same time, there has been a break-neck pace of the formation of very large, industrial-type livestock production operations — a process which is largely complete in poultry meat, substantially complete in fed cattle, well underway in hogs, and apparently just underway but proceeding rapidly in dairy.

The nascent "industrialization" of dairy farming in the U.S., to the degree that it has occurred, is an interesting case with regard to how sociologists should conceptualize the political economy of agriculture in the late twentieth century. Historically, dairy farming has been at the heart of twentieth-century family farming (Pfeffer, 1983). Accordingly, dairying

farming was given considerable attention during the 1980s and early 1990s heyday of the new rural sociology. On one hand, many analysts from the Chayanovian-Marxist school have often stressed how the distinctive characteristics of dairy farming — the seasonality of forage crop production, its labor intensity, its suitability for lower-quality land resources and the difficulties this presents to mechanization, its tendency to overproduction and cost-price squeeze — have reinforced dairying as a province of capitalized, but moderate-scale family-labor farmers. And while some analysts have recognized the long history of large-scale, industrial-type capitalist dairy farming in the American Southwest and elsewhere, the tendency among analysts such as Gilbert and Akor (1988) was, at least implicitly, to see that the conditions that led to large-scale drylot dairying in California during the 1940s and after were fairly exceptional ones (e.g., the extremely high degree of land concentration, highly subsidized irrigation water for growing alfalfa, state-level milk marketing orders favorable to large farms). Analysts such as

Gilbert and Akor have thus suggested that California and Wisconsin dairying are characterized by "divergence." In their view, the persistence of family dairy farming in the Upper Great Lakes states is very likely, and there is little reason to believe that there will be significant forces for structural convergence of California and Wisconsin dairy.

As suggested earlier, however, there have been some significant changes in rural-sociological and political-economic scholarship in the sociology of agriculture, as well as some critical changes in the organization of dairying farming, that have cast doubt on the validity of the kinds of analyses that Pfeffer (1983), Mooney (1988), and Gilbert and Akor (1988) have developed with respect to the U.S. dairy farming sector. First, for understandable and essentially sound reasons, there has been a decisive change in the emphases of political-economic analyses of the farm production sector. The shortcomings of neo-Chayanovianism have been recognized. Most importantly, there has been recognition of the important role played by global socioeconomic

forces. Very significant traditions of scholarship on globalization, food regimes, agro-commodity chains, and so on have emerged (McMichael, 1994, 1996; Bonanno et al., 1994), and have displaced neo-Chayanovian and family-farmer perspectives that were so important to the new rural sociology. And, quite appropriately, there has been a deemphasis on explaining the structure of the farm sector as the sole or ultimate dependent variable of the sociology of agriculture (see Buttel, 1996, for a historical overview).

Second, stimulated as much or more by agro-food social movements as by social science scholarship, there has been a flood of attention over the past decade to the "industrialization" of agriculture⁴ Thus, nearly a decade ago Marty Strange (1988), then of the Center for Rural Affairs, stressed the rapidly growing role of "industrial agribusiness" farming. Likewise, Welsh (1996) has published an influential monograph on the *Industrial Reorganization of U.S. Agriculture* for the Wallace Institute for Alternative Agriculture. Both of these analysts have recognized that the in-

dustrialization of U.S. agriculture has proceeded most thoroughly and rapidly in the livestock sectors. Proponents (e.g., Urban, 1991) — and even a good many opponents (Lyson and Geisler, 1992) — of the industrialization trend have tended to conclude that it is more or less inevitable.

Third, over the past decade there have emerged several dozen very large California-style dairies — with several thousand cows on each farm, drylot production systems (involving little or no crop production on the dairy farm premises), and several dozen hired laborers — outside of the traditional homelands of industrial dairying. A number of these farms have located in the Northern and Southern Great Plains region, which has not traditionally been a major dairy production area. New Mexico has registered the most rapid increase in dairy cows of any of the other American states for most years in the 1990s. Even in family farming heartlands such as Wisconsin and Minnesota there are reports in the state farm press virtually every week of dairy farms with a thousand or more cows that are being established through expansion or as

new start-ups. Thus, finally, it is not surprising that we see important scholarly papers, such as the recent article by Lyson and Geisler (1992), that indicate that one of the essential processes of agricultural industrialization — the disappearance of the medium-sized traditional dairy producer — is now well underway and that there is now movement toward a convergence between Sunbelt dairying on one hand, and Upper Great Lakes and Northeast dairying on the other.

In many ways the tendency in recent years in domestic agrarian political economy, in which analyses of globalization are now predominant, has been to de-emphasize farm-level analyses and to see that the most crucial aspect of farm-level processes of change is "industrialization." Though recognizing that there will be some variation in the rate and scope of the industrialization of on-farm production — and that some sectors will be insufficiently attractive to large-scale investments so that they will remain relegated to household forms of production — industrialization has now emerged as the most

crucial concept for analyzing contemporary changes in on-farm production systems.

Conceptual Issues

The term industrialization has been widely used to refer to a range of structural changes taking place in a number of commodities. Even in Welsh's (1996) useful conceptual and empirical analysis of industrialization, the notion is portrayed as an overall structural tendency. We would argue, however, that not only does the concept of industrialization need to be disaggregated and unpacked, one cannot understand recent processes of change in the dairy production sector without doing so.

A useful point of departure for understanding the complexity of the industrialization process is to note that the notion of the industrialization of agriculture is based on three related, but distinct images of non-farm industry. The three analogies, one might note, are chosen as much for their ability to conceptualize agricultural changes in a pejorative light as for their analytical precision.

One such image, drawn from classical industrial sociology and from more informal notions about the nature of manufacturing facilities, is that of the farm-as-factory. The second image, drawn from the classical industrial organization literature or from related informal understandings of industrial concentration, is that of agricultural production sectors becoming concentrated economic sectors. The third image, drawn from the literatures on flexible specialization, globalization, and informal representations of these literatures, is that of the contemporary global, "flexibly specialized," "just-in-time" industrial sector or commodity chain. Each of the three analogies is useful, but somewhat limited. It is, for example, conceivable that some farms, much like other capitalist enterprises in the global agrofood system, can be organized much like the stereotypical factory. But to the degree that agrofood systems ultimately remain based on land and on natural production processes, there will be components of the agrofood system that are not organized along the lines of a classic factory system. Likewise, conceiving

of farm production enterprises being restructured and linked in a manner comparable to Honda and Toyota greatly exaggerates the ability of the farming entrepreneur to control the (natural) conditions of production. Also, there are, quite simply, no agricultural production enterprises, or even commodity chains, whose structure and functioning mirror that of the paradigmatic globally-flexible firms like Honda and Toyota (Buttel, 1996). Even so, the analogies to factories, concentrated industrial sectors, and flexibly-specialized commodity systems can be useful points of departure, if used cautiously, since they highlight the fact that industrialization logically can be understood in terms of (1) characteristics of units of farm production, and (2) characteristics of agricultural commodity sectors and systems. Unfortunately, while industrialization logically pertains to both the characteristics of units of farm production and to characteristics of commodity sectors, these two meanings have tended to be employed more or less interchangeably, and thus imprecisely and inconsistently.

Characteristics of Units of Production

There are four dimensions of industrialization of farm production from the vantage point of characteristics of farm production. First and foremost, industrialization is a concept utilized to depict scale, i.e., very large farm production units. Table 1 reports the proportion of U.S. farms within various livestock production sectors that had more than 1,000 "animal units" in 1992. Animal units are commonly used to compare operations producing different types of livestock and can be understood to represent the rough equivalent (in terms of manure production) of a mature beef cow. Table 1 also reports the proportion of total output generated by those very large operations. It is evident that a very small proportion of farms in all of these sectors has more than 1,000 animal units, yet these very large operations produce a significant share of total output (indeed, the majority of eggs and fed cattle come from these industrial-scale firms). In much of the popularized literature on industrial agriculture, the sheer size of farm units is

considered to be adequate evidence of a structural transformation. Within dairying, the most common unit used to indicate scale is the size of the milking herd (usually including dry cows that have calved). For most observers, "industrial" scale dairies in the United States are those with over 500 (and commonly over 1000) cows in the herd. By contrast, most traditional family-scale dairy farms in the 1990s milk between 30 and 120 cows (a scale that can be managed adequately using primarily family labor).

A second dimension of industrialization at the farm-level involves the increasing separation of ownership, management, and labor functions on farms (Mooney, 1988). Family farms (the antithesis of industrial farms in most accounts) are defined by the strong integration of all three dimensions in a single person or family unit. By contrast, industrial farms (partly due their sheer size) are characterized by absentee ownership and investment, managers who have no ownership stake in the business, and a reliance on large and transient hired non-family labor force (often an ethnic minority). Third, farm-level in-

dustrialization is often conceptualized in terms of the use of particular technologies — especially sophisticated, factory-like, capital-intensive, and mechanized, labor-displacing production processes. Finally, industrialization is often defined in terms of highly specialized production in which not only is a single commodity produced, but typically that single commodity is confined to one particular stage of the production process (e.g., the huge specialized farming operations of Murphy Family Farms,⁵ or the specialized hog finishing operations of Iowa Select).

Characteristics of the Commodity Sector

While the farm-level referents for industrialization are clearly important ones, it should be stressed that conceiving of industrialization as a process of change in the broader agrofood commodity sectors may be more useful in understanding how, why, and to what extent industrialization of farming is occurring. One commodity-sector-related aspect of industrialization — the concentration of

Table 1. Indicators of Concentration and Vertical Integration Across Livestock Production Sectors in the United States.

	Type of Commodity Produced					
	Fluid Milk	Hogs	Broilers	Eggs	Turkeys	Fed Cattle
Number of farms in the United States in 1992 ¹	155,339	206,450	35,759	88,235	10,566	147,201
Percent of farming operations with more than 1000 animal units (A.U.s) in 1992 ²	0.6	1.2	3.9	0.7	1.0	0.6
Percent of livestock on operations with more than 1000 animal units (A.U.s) in 1992 ²	13.2	26.6	26.4	59.8	25.1	70.7
Percent of total output under marketing contracts ³						
1960	95.0	0.0	1.0	13.5	16.0	10.0
1980	95.0	2.0	0.1	5.0	10.0	10.0
1993/94	95.0	2.0	0.0	2.0	5.0	11.4
Percent of total output under production contract or integrated ownership (combined) ³						
1960	0.1	1.4	95.4	12.5	34.0	<i>n.a.</i>
1980	0.3	3.0	99.0	88.0	80.0	<i>n.a.</i>
1993/94	0.1	21.8	99.0	95.0	88.0	<i>n.a.</i>

Notes: ¹ = Based on 1992 Census of Agriculture.

² = Adapted from GAO, 1995:60; 1 A.U. is equivalent to 1.4 dairy cows, 1.0 beef cattle, 0.4 hogs, 0.02 turkeys, .01 chickens.

³ = Adapted from Welsh, 1998:22-24.

production — is an obvious one. Family-farming systems are dominated by large numbers of relatively independent property-owning producers, none of which control a meaningful amount of market share.

Industrial sectors are those which have a relatively small number of key actors who can exert significant influence over the supply, quality, and price of the commodity. As illustrated in Table 1 above, there is evidence of

significant concentration in many U.S. livestock production sectors.

A second commodity-sector-level characteristic of industrialization is integration across segments of the commodity system. Integration can occur through *marketing contracts*, where producers agree to sell their output to a processor or handler in advance, yet where the farmer retains managerial independence over how the animals are produced. Integration also occurs when producers sign *production contracts*, in which buyers exert some control over the inputs and production methods used to raise the livestock, and buyers often retain ownership of the animals throughout the production process. A more intensive form of integration that is particularly relevant to agricultural industrialization is that of *vertical integration* (e.g., processors integrating backwards into production directly or through franchising, producers integrating forwards into processing and marketing, or feed suppliers taking ownership of livestock and contracting with growers to raise them according to particular specifications). In hogs, where *horizontal integration* is

more common, contracting has tended to consist of some very large "producers" contracting with other farmers to have their animals fed out under closely scrutinized conditions (Rhodes, 1995). Among the typical concomitants of contractual, vertical and horizontal integration is the loss of "open markets" for independent producers. Table 1 also illustrates the percent of total output that is produced under various contracting or integrated arrangements in the major livestock sectors.

The final commodity sector dimension of the industrialization of agricultural production is that of globalization of markets and of "regulation" (Bonanno and Constance, 1996). Increasing linkages to global trade in food products are a central characteristic of (and often an explanation for) an industrialized commodity sector. For example, increasing dependence on global trade can influence the evolution of U.S. domestic farm production sectors by forcing farmers to compete with low-cost countries, exposing farmers to new cycles of global price volatility, and — in some cases — constraining

U.S. government efforts to regulate domestic production conditions (on environmental, economic, or social grounds) when they conflict with emerging codes of standards for international trade.

As we will stress below, analysis of the major patterns of change in the dairy commodity sector show that there has been modest levels of industrialization along some of the dimensions just discussed. For example, about 95 percent of fluid milk is produced under "marketing contracts" (Welsh, 1996:4). But it should be stressed that these marketing contracts consist almost entirely of agreements between farmers and their farmer-owned cooperatives that predated the livestock industrialization trend of the past few decades. It is also essential to recognize that the dairy production sector exhibits very low levels with respect to most other aspects of industrialization. This suggests that in the case of dairy production it is particularly critical to maintain a multidimensional conceptualization of industrialization, Industrialization should be treated in ways that transcend the indicators —

particularly increased scale and growth in "corporate" dairy farming — that are typically stressed in arguments about how and why it is that dairying will become industrialized in a manner similar to the other major sectors of animal agriculture. This multidimensional conceptualization of industrialization will allow us to see that the changes that are occurring in the dairy production sector are neither monolithic, consistent, nor temporally or spatially even.

Evidence for Industrialization of U.S. Dairy Sector

As noted earlier, it has become increasingly common knowledge that the U.S. dairy sector is becoming industrialized and is following a path roughly comparable to that taken by the other major livestock sectors. In particular, there has been a great deal of fascination with growth in the numbers of very large dairy operations. For example, in the July 1995 issue of *Successful Farming* there was a lengthy feature article on the 20 largest American dairy farms (Looker, 1995). The article reported that Jo-

seph Gallo Farms (Atwater, CA), owned by a relative of the famous winemaking family, is the nation's largest dairy operation, with about 14,500 cows and \$50 million in gross sales. The nation's single largest milking facility is on Braum's Dairy Farm in Oklahoma, with 12,800 cows and a 200-cow milking parlor. The essential thrust of this article is that these mega-dairy farms are becoming much more common and are the wave of the future.

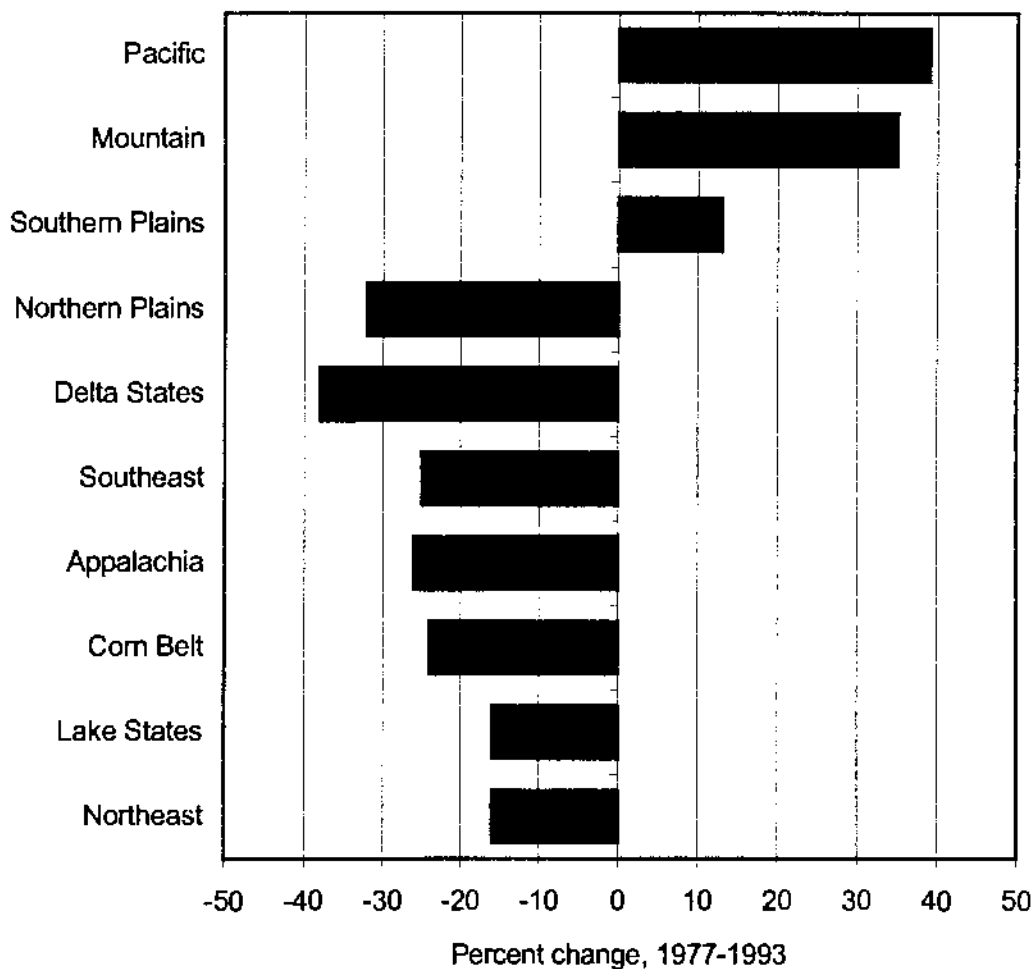
But beyond these anecdotal indicators of large-scale change in the dairy sector, there are a number of more systematic national-level data that seemingly buttress the notion of an ongoing industrialization trend in dairying. Many of the overall indicators of farm numbers, cow numbers, and milk production suggest that large dairy operations are becoming increasingly important to the U.S. dairy industry. Perez's (1994) ERS-USDA report, which itself leans toward an industrialization interpretation of dairy sector changes (though not in perjorative terms), provides one of the most comprehensive recent analyses of structural trends in

dairying. She reports that there have been dramatic declines in the overall number of dairy farms in the United States (from about 402,000 in 1977 to 162,000 in the early 1990s). Despite the loss of farms and the fact that the number of milk cows declined significantly (from 10.9 million in 1977 to 9.7 million in 1993), aggregate U.S. production of milk actually increased by 23 percent because of technological change leading to increased milk yields. Importantly, milk cows and milk production have become rapidly concentrated among the largest herds. By 1993, nearly half of the U.S. dairy herd was concentrated on farms with 100 or more cows, compared to only about 30 percent of the U.S. dairy herd in 1978-80. Perez (1994) notes that while the traditional dairy states of the Northeast and Lake States are still significant milk production regions, there has been a dramatic regional shift in milk production from the traditional dairy belt to the old industrial dairy state (i.e., California), and especially to the emerging "industrial dairy states" of the West and Southwest (Washington, Idaho, Texas, and New Mexico). This

regional restructuring of the dairy sector is portrayed in Figure 1 (Perez, 1994:9) and Table 2 (Perez, 1994:10-11).

Perez notes that there are several very strong rationales for a continued shift of milk production to the (old and new) industrial dairy states.

Figure 1: Percent Change in Milk Cow Inventory 1977-1993, By Census Region



Source: Adapted from Perez (1994:9)

Table 2: Regional Milk Production and Share of Total U.S. Production

	1980	1985	1990	1993
Production (mil. lbs.)				
Lake States	36,885	41,103	39,663	38,154
Pacific	17,853	22,114	27,118	29,747
Northeast	26,139	28,681	27,142	28,028
Com Belt	15,880	16,877	17,037	16,389
Mountain	6,131	7,812	9,486	11,271
Appalachia	8,415	8,689	8,248	8,003
Southern Plains	4,735	5,151	6,784	7,167
Southeast	4,546	4,461	4,926	4,984
Northern Plains	5,253	5,489	5,404	4,762
Delta States	2,569	2,635	2,506	2,449
TOTAL	128,406	143,012	148,313	150,954
Share (percent)				
Lake States	28.7	28.7	26.7	25.3
Pacific	13.9	15.5	18.3	19.7
Northeast	20.4	20.1	18.3	18.6
Com Belt	12.4	11.8	11.5	10.9
Mountain	4.8	5.5	6.4	7.5
Appalachia	8.6	6.1	5.6	5.3
Southern Plains	3.7	3.6	4.6	4.7
Southeast	3.5	3.1	3.3	3.3
Northern Plains	4.1	3.8	3.6	3.2
Delta States	2.0	1.8	1.7	1.6
TOTAL	100.0	100.0	100.0	100.0

Source: Adapted from Perez (1994:10-11)

There is an ongoing movement of the nation's population, and hence of demand for milk and dairy products, to these regions. Industrial dairy states have some cost of production advantages over traditional dairy state producers. For example, industrial dairy producers achieve some efficiencies in housing and facilities because they do not need to house cows during harsh winters, and because drier climates involve fewer mud and waste-hauling problems than is the case in the traditional dairy belt. Some of the cost advantages are the direct result of federal or state policies, including federal milk marketing orders (which artificially inflate farmgate prices in many of the industrial dairy states) and irrigation subsidies (which allow for cheap alfalfa production in the arid west). Finally, as Perez (1994) and many other analysts suggest, there may be technical economies of scale that provide competitive advantages to states that have larger proportions of very large operations. The implication is that if the states in the traditional dairy belt are to retain their share of production, their scales of production and

technologies — or, in other words, their degree of industrialization — must be greatly advanced so that they can compete with the industrial dairy states.

Evidence of Countertendencies, Resistance, and "Friction"

While each of these claims about the regional restructuring of dairy production contains an element of truth, we would argue that there are sound empirical and theoretical reasons to believe that the dairy production sector is not undergoing a pronounced "industrialization" trend. First, and of critical importance, is the fact that very few dairy production units assume a comprehensive industrial character. Dairy farms of the sort operated by Gallo, Hettinga, Aurora, and Braum are extremely rare. They are so rare, in fact, that data on their incidence cannot be reported because of census disclosure problems. Further, even the very largest of dairy farms are fairly small operations compared to, for example, Murphy Family Farms in the hog sector. Gross annual sales of the Jo-

seph Gallo Farms is probably less than five percent that of Murphy Family Farms in hogs, and Decoster Farms in poultry and hogs.

Census of Agriculture data show that U.S. commercial dairy production is still dominated by relatively small units of production, most of whom receive the majority of their farm income from the sale of dairy products (See Table 3). During the 1980s, most of the dairy farms leaving the industry were smaller herds with significant non-dairy enterprises. Herd size has increased steadily, but generally not to the scale associated with industrial production. Importantly, the social relations of U.S. dairying remain distinctively non-industrial. While most dairy farms utilize modest amounts of hired labor — which has always been the case because of the seasonality and labor intensity of dairying — only a minority have any full-time hired help, and a significant portion of the hired labor working in the dairy sector is comprised of members of the operator's family. There is relatively little absentee ownership of dairy assets; most operators of dairy farms are full-

or part-owners, and a majority of the land in dairy operations is owned by the person operating the farm. Sole-proprietor operations continue to predominate in the U.S. dairy sector, and there are very few nonfamily corporations (indeed their proportions *declined* during the 1980s). Farms that are owner-operated by a resident farm operator who does not work at an off-farm job remain the norm, though there is evidence that an increased proportion of dairy farm spouses have taken off-farm employment in recent years (Jackson-Smith, 1995).

Second, it is critical to keep the regional character of U.S. milk production in proper perspective. Perez's (1994) own data show that only 36.8 percent of milk production in the most recent year for which data were available (1993) was accounted for by the Southeast, Delta, Southern Plains, Mountain and Pacific states (where most industrial dairy production is located). The share of production in the family-farm regions — the Northeast, Lakes States, Corn Belt, and Northern Plains states — was 57.9 percent. Moreover, it is worth

Table 3. Structural Characteristics of U.S. Dairy Farms, U.S. Census of Agriculture, 1982 and 1992.

	1982	1992
Number of Farms Selling Any Dairy Products	277,482	132,092
Number of SIC Code Dairy Operations ¹	164,472	113,412
Percent of Dairy Farms in SIC category	59,3	85,9
Farms by Milkcow Inventory (percent)		
Under 50	58.6	48.5
50 to 99	30.0	34.3
100 to 199	8.4	11.7
200 to 499	2.3	4.0
500 or more	0.6	1.5
Farms by Hired Labor Use (percent)		
Reported any hired labor expense	62.9	60.2
Reported full-time hired labor expense ²	41.0	40.0
Farms by Tenure Status (percent)		
Full Owners	43.6	37.5
Full Tenants	10.2	11.3
Aggregate Proportion of land owned	69.6	65.5
Farms by Organizational Type (percent)		
Sole Proprietorship	81.9	80.7
Partnership	15.5	15.6
Family Corporation	2.5	3.5
Nonfamily Corporation	0.2	0.1
Principal Operator Characteristics		
Average Age (years)	47.4	49.0
Lives on Farm (percent)	94.7	93.1
Principal Occupation is Farming (percent)	92.7	92.4
Works at Off-Farm Job (percent)	23.0	20.3
Works more than 200 days off-farm (percent)	8.2	8.4

Notes: ¹ Farms whose main source of income is the sale of dairy products only (SIC code 024). All of the data in the remainder of the table refers only to SIC-code dairy farms.

² Includes workers who worked more than 150 days a year.

noting that expansion of production in the western and southwestern dairy areas did not come at the expense of the Northeast and Lakes States, but rather was compensated by sharper declines in cow numbers in the Corn Belt, Appalachia, the Northern Plains, and in the two southern regions (Southeast and Delta). Thus, the traditional dairy belt remains as a very significant dairy producing zone in the U.S.

Third, many common portrayals of structural change in the traditional dairy belt also exaggerate the pace, extent, and impacts of dairy industrialization there. The experience of structural change in Wisconsin typifies the sort of modest, non-industrial change that is occurring in dairying throughout this region. Average herd size in Wisconsin increased from about 40 cows in 1980 to just over 54 cows in 1995. Time-series observations indicate that most herd expansions that have occurred have been incremental growth on a moderate scale (say from 50 to 70 cows), and have as much to do with natural growth and contraction cycles of a family business lifecycle as with ef-

forts to increase scale to respond to declining profit margins (Jackson-Smith and Barham, 1996). While herds as large as 1000 cows can be found, they represent the exception rather than the rule. Herds of 100 or more represented only 10 percent of farms, and had roughly a quarter of milk cows in 1995 (Wisconsin Agricultural Statistics Service, 1996), and changes in herd size distribution in recent years have been predominantly incremental and moderate (in fact, growth in average herd size in Wisconsin was much lower on an annual basis in the last 5 year period, compared to similar periods between 1950 and 1990). The most dynamic aspect of restructuring in Wisconsin is the net loss of dairy farms, which has averaged between 4 to 5 percent a year for well over a decade. While entry into dairying has slowed relative to its rate in the 1970s, it is striking that almost all of the young people who enter dairying in Wisconsin do so at modest scales of production (Barham et al., 1997), almost always involving herds of fewer than 100 cows using conventional stanchion barn housing, and are diversified

crop-livestock enterprises producing most of their own feed with primarily family labor.

Fourth, it is becoming increasingly apparent in the traditional dairy belt that most state-of-the-art, capital-intensive dairy production technologies — total mixed ration (TMR) equipment, automated or computerized feeding systems, recombinant bovine somatotropin (rBST), full-confinement housing, contract heifer raising, and so on — are not only adopted on a limited basis (PATS, 1996; USDA-APHIS, 1997), but also appear to be viable for use on modest-scale farms that rely primarily on family labor. In addition, these “industrial-type” production technologies are not necessarily superior to alternative, low-capital technologies available to moderate-scale producers. In Wisconsin, for example, management intensive rotational grazing (MIRG) has been widely adopted by producers, and is now utilized by a larger percentage of Wisconsin dairy operators than is rBST (roughly 15 and 12 percent, respectively, in the spring of 1997). A range of studies have shown that MIRG farms can be

economically competitive with larger confinement enterprises (Jackson-Smith et al., 1996). Most importantly, the competitiveness of MIRG as a production system increases the options for young people to enter dairying at a moderate scale with a modest level of capital investment; almost a third of new dairy entrants identified in the spring of 1996 reported the use of MIRG in Wisconsin (Barham et al., 1997).

Finally, it is worth noting that there is no small amount of social resistance to industrialization of dairying in much of the traditional dairy belt. Our own survey data from Wisconsin (Buttel and Jackson-Smith, 1997) show that dairy farm operators are highly opposed to public encouragement of industrial-type dairy operations and of large-scale expansion of livestock enterprises in general. There are a number of activist groups (National Raw Milk Pricing Association, MIRG networks, and rural public interest groups such as Wisconsin Rural Development Center, Minnesota Farmers Alliance, and Land Stewardship Project) that actively encourage family-scale dairying, and re-

sist public policies and agricultural research and development programs that are perceived as subsidizing large dairy operations.

Explaining the Uneven Character and Pace of Industrialization

In order to make sense of the uneven process of industrialization across livestock sectors (and within the dairy sector itself), it is helpful to review the factors that have been linked to the industrialization process for other commodities. While the dairy sector is by no means insulated from the forces propelling the industrialization of livestock (and other agricultural commodities), we will demonstrate that a number of conditions within the dairy commodity chain appear to be distinctly unfavorable to thoroughgoing industrialization of dairy production, at least any time in the foreseeable future.

Technological Change and Economies of Scale

The most commonly held view of the industrialization process is that it

occurs as part of a natural set of adjustments to a changing economic environment. The impetus for change is typically a technological advance. Technological changes or breakthroughs are seen as leading to increased labor or capital efficiencies that can both decrease commodity product prices and generate pressures to increase the scale of operation in order to capture optimal economic returns. This so-called technological treadmill (Cochrane, 1993) is thought to force producers to choose between "getting big" or "getting out" as each successive innovation works its way through the sector.

Industrial-type agricultural production is also facilitated by technical or institutional innovations that minimize the inherent risks associated with biological systems and market volatility. To the degree that the farm production process can be routinized, systemized, and supply spread out evenly throughout the year, investment of nonfarm capital in agriculture is assumed to become more attractive (Mann and Dickenson, 1978). Increased understanding of biological processes within agri-

culture, particularly, have led to opportunities for industrial- or factory-like production processes within some agricultural subsectors (Boehlje, 1997).

While intuitively attractive as a tool for explaining the dynamics of change in the farm sector, the technological model of industrialization has serious shortcomings. Certainly, it is not clear that removing technical barriers to large-scale or routinized production is a sufficient precondition for the industrialization of a commodity sector. Friedland et al. (1981), for example, have shown how the timing of adoption of mechanized harvesting equipment in California was conditioned by the relative cost and availability of cheap hired labor, on the level and stability of market prices, and on technological and institutional developments in the downstream commodity wholesaling and retailing sectors.

Within the dairy sector, the technologies that make large-scale dairying possible have been available to producers for decades. Using a number of innovations — automated milking equipment, labor-efficient

parlor facilities, freestall housing, and total mixed ration feeding systems — dairy producers in the United States and elsewhere have built operations capable of milking well over 1,000 dairy cattle since the 1970s (Matulich, 1978). In recent years, herds as large as 10,000 to 12,000 cows at a single site are not unheard of. Parallel improvements in genetics, disease control, and so on have also been readily available for 20 or more years.

But despite the fact that essentially the entire technological package required for industrial-scale dairy farming has been in existence for two decades, relatively few extremely large units of production — with annual gross sales of \$10 million annually — exist in the late 1990s. A key reason for this is the fact that all of the technologies mentioned above appear to be economically viable on relatively modest-scale operations (i.e., on farms with 250 to 500 milking cows, or even on farms with as few as 100 to 150 cows). For most producers, changes in technology have facilitated incremental growth in herds (a single family with part-time hired help can

now easily milk 70 to 100 cows using modern techniques).

Indeed, the economic research literature provides conflicting evidence for real economies of scale in dairying, and it is unclear just how much of an imperative there is in the sector to grow to an industrial-type scale. Moschini (1988; 1990) used multiproduct cost-function models and found positive returns to scale for most Ontario dairy farms. Kumbacher et al. (1989) found that all Utah dairy herds appeared to be economically inefficient, but that larger firms were less inefficient than smaller ones. Meanwhile, Hoch (1976) used a production function approach but found little convincing evidence of long-run returns to scale among California dairies. In Wisconsin, farm financial records from over 900 dairy farms revealed that basic costs per hundred-weight were only slightly lower for the largest firms in the sample, and that there was tremendous variation at all levels of scale, suggesting that it was possible to be economically efficient (or inefficient) at both 50- or 500-cow operations (Frank and Vanderlin, 1995; Frank, 1997). Within dairying,

there is also evidence of significant diseconomies of scale that are associated with labor incentive and monitoring problems typical of very large operations (Reinhardt and Bartlett, 1989; Kramer, 1977).

While there is little doubt that there has been a significant technological dimension to structural change in dairying and that industrialization at the level of the individual farm tends to require use of a cluster of "modern" technologies, there is ample evidence that structural change in dairying is not merely a technologically-driven process. New technologies have clearly facilitated much of the growth in scale and herd size, but have done so within bounds that can be accommodated on a family-labor and family-proprietorship basis.⁶ Dairy animals are particularly sensitive to skilled management, and the difficulties of care and monitoring of dairy animals on large operations by hired workers place major limits on how far and how fast dairy industrialization at the level of the individual farm can proceed. Further, it is characteristic of dairy agriculture that production technologies tend to in-

volve large sunk costs that both discourage investments in new technologies and discourage abandonment of older technological systems. As an example, a modern 12-cow milking parlor might involve an investment of \$50,000 or more, but because it cannot be moved or sold apart from the rest of the farming operation it would depreciate by half or more the day after it is installed. There is also emerging evidence that one of the advantages of MIRG technology relative to the capital-intensive confinement package is that intensive grazing systems tend to minimize very significantly the high-sunk-cost, low-salvage-value investments that discourage technological change in conventional dairying in the traditional dairy belt. The important point about structural change in the dairy production sector is thus that it may be facilitated by technological change but is much more fundamentally a product of social relations.

Consumer Demands

As noted by Welsh (1996) in his review of the literature on industrial-

ization of agriculture, there have been a variety of claims by proponents of agricultural industrialization that consumer demands have been a driving force behind the push for industrial-style production in the poultry and pork sectors. Specifically, many have argued that livestock commodity chains have begun to undergo restructuring in response to a consumer-driven imperative to shift from production of mass commodities to a system geared to be responsive to retail consumer preferences (e.g., for lean, cheap, consistent product). Most small- or mid-sized livestock producers are argued to be unable to provide a steady supply of their products throughout the year. An open-market system combined with a farm sector dominated by decentralized family producers using technologies that are accommodated to weather and natural biological rhythms is thought to contribute to the traditionally strong seasonal fluctuations in the supply and quality of livestock products.

Many observers have therefore argued that integration between producers and the processors/ wholesal-

ers/retailers is necessary to ensure market signals are transmitted from the consumer of livestock products back to the original producers (Drabenstott, 1994). Larger, highly automated production systems with centralized managerial control are seen as more capable of providing the quality control, routinization, and systemization required to produce more consistent products. Thus, contractual integration combined with technologies and management systems that insulate the production process from natural vagaries and seasonal rhythms are seen to be necessary to meet consumer demands for consistency and quality (Boehlje, 1997).

This is not to argue that the downstream consumption segments of agricultural commodity chains are unimportant in shaping structural change in livestock production systems. It is essential, however, to distinguish between household and institutional consumers. As Welsh (1996) has demonstrated, there is precious little evidence that individual consumer preferences have significant effects on the tendency to-

ward industrialization. The real engines behind the perceived consumer preferences for consistency are the demands of packers, processors, and retailers — that is, "institutional consumers." Further, packers and processors can affect the structure of livestock enterprises in ways that transcend quality and consistency considerations. In the case of the pork sector, for example, the new geography of industrial pork production has been shaped by the preoccupation of packers and processors to locate in "right-to-work" states (e.g., North Carolina, Iowa) and to disinvest or abandon production in closed-shop union states such as Illinois and Wisconsin.

In dairy, individual or institutional consumer preferences and consistent year-round supply do not appear to be important factors that would drive a process of industrialization. For one thing, fluid milk remains the prototypical undifferentiated commodity, and even multiple component pricing (MCP) appears to have played an insignificant role in influencing the structure of dairy operations. Most other major dairy

products (butter, cheese, and ice cream) are also relatively undifferentiated commodities, and most discernable product differences among them have little to do with the characteristics of the raw milk they originated from.⁷ While milk production can fluctuate somewhat with seasonal conditions, most dairy farms — in contrast to other small- and medium-scale livestock enterprises — sell their products daily throughout the year. As a result, there is little advantage (in terms of consistent and reliable supply) to procuring raw milk from industrial-scale operations.

Finally, value-added opportunities in the U.S. dairy sector have been quite limited, and imported specialty products have tended to dominate this market. To the degree that specialty cheeses are becoming a growing segment of the U.S. dairy products industry, cooperatives catering to family-scale producers are more likely to be involved than the mega-dairy operations of the new industrial dairy states. One might argue, in fact, that reorienting the sector from a commodity-based to a marketing-based industry may lead in directions that

could provide opportunities for non-industrial dairy production.

Institutional and Policy Environment

It is well appreciated that market outcomes, farm structural trends, and dynamics of technological change in livestock production are often shaped by policies and other institutions (Cochrane, 1993). Tax policies, for example, may either encourage or discourage capital investment. Federal commodity programs have also influenced the prices farmers receive for their products and pay for their (feed) inputs. Environmental programs and policies set the standards (or lack of them) for farmer environmental behaviors, and labor and immigration policies can seriously affect supply of low-cost farm labor. In many cases, local labor market conditions can be critical to regional patterns of investment in large-scale, industrial-type livestock production.

A number of analysts have documented how growth in industrial dairy states has been driven, in part, by the public policy environment (Gilbert and Akor, 1988; Jesse, 1995).

In a typical dairy operation about one-third or more of the cost of production is feed. The availability of inexpensive grain and forage have been critical to the establishment of "dry-lot" dairy operations of the sort that have led the dairy boom in the new industrial dairy states. Federal commodity programs have led to relatively stable and declining real feed grain prices, while heavily subsidized irrigation water has made it possible to produce inexpensive and high quality alfalfa hay in the semi-arid areas of the West and Southwest. The availability of relatively cheap labor in the Sunbelt dairy states has also played a major role.

Unlike other livestock sectors, the dynamics of investment and structural change in dairying are critically affected by federal dairy price policies. Since the 1930s, dairy policy has tended to discriminate against the traditional dairy states because the federal milk marketing order system guarantees higher fluid milk prices in states located farthest from the price "basing point" in Eau Claire, Wisconsin. State pricing systems in California, in particular, have

allowed producers to benefit from higher milk marketing order prices only available in their state, while also maintaining the ability to dump surplus milk through government purchase programs designed to protect the federal milk price floor. While higher fluid prices lead to higher "blend" prices actually received by farmers in many cases, they also allow manufacturing plants to pay artificially low prices for manufacturing grade milk (about two-thirds of the milk sold in the U.S. goes into the non-fluid milk chain). The result has been a gradual shift in manufacturing capacity to the South and Southwest over the last decade.

As limited as farm-level industrialization of dairy production has been, much of the industrialization that has occurred can be attributed to this combination of public policies. A cursory look at contemporary political trends, however, also suggests that several key components of this institutional environment could well be decisively reversed in the near future. For example, publicly-subsidized irrigated alfalfa production is a sufficiently outrageous example of "corpo-

rate welfare" so that several projects devoted primarily to irrigated alfalfa production in the Western states were placed on a bipartisan Congressional "corporate welfare hit list" in the spring of 1997. There is also a tremendous amount of regionally-based grassroots activism lobbying against the inequities of the federal dairy program (especially the milk marketing order system). If the institutional structure that has supported industrial dairies in the West begins to crumble, the traditional dairy belt, particularly the Upper Midwest, may be better positioned to exploit a number of the comparative advantages they have — rainfed feed production, relatively inexpensive land, a substantial infrastructure of dairy manufacturing plants.

Perhaps the biggest threat to industrial dairying looming on the horizon is the possibility of stringent environmental regulation of livestock manure. In dairy, as in livestock production in general, manure disposal can potentially be a very significant constraint on scale. The biological character of dairying under intensive confinement practices is that while a

great deal of phosphorus is brought on to the farm in the form of grains and forage — and often even fertilizers — virtually no phosphorus leaves the farm in milk and cattle. Phosphorus will therefore tend to build up over time, creating the potential for serious surface and groundwater pollution problems (Sharpley, 1996). Where environmental laws are stringent and strictly enforced, significant investments will be required to manage livestock wastes in an environmentally satisfactory manner. In some situations, these investments may not make sense, particularly on the largest enterprises which typically have an inadequate land base for effective on-site disposal (Frame, 1997). Animal manure odors and pollution also tend to generate local resistance to industrial-type livestock production facilities which can lead to ordinances or laws that restrict the siting of industrial-scale operations (Lasley, 1997; Buttel and Jackson-Smith, 1997).

In a related fashion, perhaps the most significant wild card relating to animal manure and farm-level industrialization concerns the fact that in-

dustrial livestock facilities, particularly in the states with low rainfall, are premised on volatilization of the nitrogen and organic matter components of manure. Manure, in other words, is essentially disposed of rather than utilized as a soil amendment. It is not impossible that rising fertilizer prices or environmental policy will provide a strong incentive to take into account the nutrient and soil amendment value of livestock manures. This may well lend competitive advantages to firms that are capable of utilizing their manures in their own crop rotations.

"Globalization" of Markets

The globalization imperative or juggernaut, depending upon one's point of view, is often viewed as critical determinant of why the livestock production sectors and the upstream and downstream components of their commodity systems are undergoing restructuring. The creation of global-scale markets or the development of cross-border commodity chains or complexes may contribute to farm-level industrialization processes

through the generalization of market competition or of product standards.

Table 4 reports data we have computed from USDA statistical sources on the export share of production and import share of consumption (defined as "domestic disappearance") for 1970, 1975, 1980, 1985, 1990, and 1995 (with forecast data for 1997) for four important livestock commodities: beef and veal, pork, chicken, and cheese. Data were computed on the basis of metric tons of product in order to control for changes in commodity prices and inflation over time. Cheese was chosen to represent the dairy sector in terms of production, disappearance, imports, and exports because cheese dominates world dairy trade in both volume and value, and because it is not appropriate to sum the tons of a changing mix of the total amount of exported and imported dairy commodities over time. We take the export share of domestic production and the import share of domestic consumption/"disappearance" to be indicators of the degree of globalization — or integration with world mar-

Table 4: U.S. Production and Trade in Major Livestock Commodities, 1970-1997

Year	Production	Exports	Export Share	Disappearance	Imports	Import Share
<i>(metric tons)</i>						
Beef and Veal						
1970	10,114,896	13,278	0.13%	10,675,295	612,420	5.74%
1975	11,284,741	20,693	0.18%	11,931,880	596,353	5.00%
1980	10,010,445	59,503	0.59%	10,890,100	684,997	6.29%
1985	11,009,537	109,528	0.99%	11,832,879	658,753	5.57%
1990	10,476,839	347,708	3.32%	11,060,854	762,737	6.90%
1995	11,585,322	826,000	7.13%	11,726,390	953,915	8.13%
1997*	11,486,376	869,664	7.57%	11,680,745	1,063,124	9.10%
Pork						
1970	6,675,295	26,674	0.40%	6,658,038	157,691	2.37%
1975	5,349,228	91,153	1.70%	5,349,228	148,389	2.77%
1980	7,546,322	84,218	1.12%	7,646,885	196,591	2.57%
1985	6,724,342	40,723	0.61%	7,204,814	423,844	5.88%
1990	6,972,752	82,187	1.18%	7,280,200	344,208	4.73%
1995	8,096,253	349,723	4.32%	8,066,789	301,188	3.73%
1997*	7,777,475	665,304	8.55%	7,955,041	274,750	3.45%
Chicken						
1970	3,843,778	82,652	2.15%	3,737,057	0	0.00%
1975	4,006,812	123,978	3.09%	3,910,082	0	0.00%
1980	5,499,092	354,678	6.45%	5,146,685	0	0.00%
1985	6,378,292	198,910	3.12%	6,164,850	0	0.00%
1990	8,607,175	530,427	6.16%	8,066,303	0	0.00%
1995	11,486,437	1,811,213	15.77%	9,631,679	0	0.00%
1997*	12,356,948	2,198,002	17.79%	10,133,969	1,817	0.02%
Cheese¹						
1970	999,500	3,055	0.31%	1,069,482	73,000	6.83%
1975	1,268,000	3,879	0.31%	1,414,623	81,413	5.76%
1980	1,790,000	5,715	0.32%	1,833,333	104,850	5.72%
1985	2,279,000	15,695	0.69%	2,498,183	137,216	5.49%
1990	2,739,000	11,885	0.43%	2,829,700	137,086	4.84%
1995	3,138,000	28,000	0.89%	3,274,000	153,000	4.67%
1997*	3,330,000	35,000	1.05%	3,445,000	155,000	4.50%

Source: USDA Agricultural Statistics

* Forecast

¹ = Cheese is used to ensure consistency across all years (since mix of dairy products shifts between different products each year. For comparison, FAO estimates suggest that roughly 2.5 percent of production of milk and all milk products were exported, while 5.6 percent were imported in 1995.

kets — of the U.S. livestock production and consumption sectors.

The results show that the cheese sector — and, by extension, U.S. dairy production as a whole — is not nearly as integrated into world markets as are the other major livestock sectors. There has been a steep increase, for example, in the export share of domestic production of beef and veal from 1970 to 1995 (0.13 percent and 7.13 percent, respectively), while the import share of disappearance of beef and veal has remained relatively stable at a relatively high level (5.74 and 8.13 percent, respectively). The data also show a tremendous surge in the export share of domestic production of chicken between 1970 and 1995 (2.15 and 15.77 percent, respectively). Imports of chicken have been so low that the government has only recently reported data. While pork is not yet as globalized as beef and veal and chicken, the data in Table 2 show rapid growth in the export share of domestic pork production since 1990. Preliminary data for all three meat commodities suggest rapid growth in both imports and exports in the last few years, presumably linked

to the liberalization of international trade.

The data concerning U.S. trade in cheese exhibit trends quite different from those of the other three commodities. The export share of domestic production of cheese has remained trivial over time, having never approached 1.0 percent of domestic production. The import share of cheese consumption is currently substantial (4.67 percent in 1995), but the data in Table 2 show that the import share of domestic consumption of cheese has decreased over every five-year interval since 1970. In addition, the most significant dairy product — fluid milk — scarcely enters long-distance trade channels. It would thus appear that if we measure globalization as we have done, there is, if anything, a trend toward decreased globalization of dairy production and consumption.

The dairy industry in the United States appears to be primarily a domestic market. Domestic dairy prices remain protected from international competition since trade liberalization agreements have thus far tended to bypass the dairy sector.

Similarly, shifting international standards for dairy products have yet to play a significant role in debates over possible regulation of dairy production practices (as they have, to a greater to degree, with U.S. beef, poultry, and pork production). It is plausible, of course, that the future might hold some significant changes in the institutional character of global trade in dairy products. For example, the expansion of the European Union might create pressure for "reforms" in Europe, which would precipitate declines in domestic protection elsewhere and possibly open new markets for U.S. dairy products (USDA, 1997). But for the foreseeable future, the dairy production sector will be far less subject to the generalization of global competition or of global product standards than are the other major livestock sectors. The globalization impetus to "industrialization" is thus likely to be less important.

Market Concentration among Buyers of Raw Commodities (and Pressures to Vertically Integrate)

Previous research on the farm-level industrialization of poultry, feedlot cattle, and pork has demonstrated that market restructuring has generally preceded and contributed to the development of industrial-type production facilities (Heffernan and Constance, 1994). Concentration among the packing and meat processing industries has been such that there have been growing pressures on the federal government to address concerns about market concentration and access (USDA, 1996).

In dairying, however, there has generally been relatively little problem with access to markets. In most of the major dairy regions there are a number of cooperatives and other milk handlers that tend to compete to some degree for members/patrons. There are, of course, some very significant marketing-related issues in dairy. The key marketing issues, however, revolve around volume premiums to and preferential treatment of large producers and around the

fairness of the federal milk marketing order system and the "Northeast Compact." There is virtually no direct investment in dairying by feed suppliers, processors, and other agribusiness firms.

Cooperatives purchase the vast bulk of fluid milk and a sizable share (25 percent) of manufacturing grade milk from dairy farmers. Dominance by milk cooperatives is, in fact, likely to be one of the major long-term forces militating against farm- and commodity-sectoral industrialization in dairy. One of the core principles of cooperative organization is the fact that there is considerable pressure on cooperative managers to keep individual producers in business. Second, the fact that cooperatives preceded the forces for livestock industrialization over the past few decades suggests that co-ops have essentially preempted the space that might otherwise have been filled through contracting or other forms of vertical integration and market coordination.

Concluding Remarks

We have aimed to present evidence that while U.S. dairying is undergoing significant restructuring, an omnibus or undifferentiated concept of industrialization is not a very useful way to depict these changes. Industrialization of dairy production has been only very partial, and very uneven. It is also by no means a sturdy or inevitable trend, since it has been based on a variety of factors — "corporate welfare" in the form of subsidized irrigation water for producing alfalfa, avoidance of the long-term potential for pollution problems, the waste of valuable animal manure, and so on — that are subject to change. Family-scales of production do not appear to suffer from significant technical economies of scale. The Great Lakes dairy heartland, in fact, would appear to have some significant advantages over the West, Southwest, and Great Plains states which counteract some of the Great Lakes states' competitive disadvantages. Management Intensive Rotational Grazing and other low-investment, low-cost production

practices represent alternative approaches that are particularly well suited to family-scale operators in the traditional dairy belt who are lacking in access to capital.

Our argument is that the U.S. dairy production sector is not yet undergoing a pronounced industrialization trend — certainly when compared to hogs, poultry, or fed cattle — and is unlikely to do so in the future. The evidence suggests that industrial-style units of production (at the farm level), and industrial relations of production (at the sectoral level), and globally-linked industrial processing and distribution food chains have yet to emerge as the dominant actors in the dairy economy. We have outlined a series of distinctive characteristics of the dairy commodity chain which help us understand why industrialization has been slow to penetrate this particular sector.

At the same time, it would be inaccurate to say that neo-Chayanovian family-scale dairy farms are thriving in the 1990s. In fact, the net exit rate (exitors - enterers/total farms) among dairy farmers is very high, much as is the case for the

other major livestock sectors. The net exit rate in Wisconsin dairying this past year, for example, is approximately 7 percent on an annualized basis. Small and mid-sized family dairy farms have been particularly likely to exit. Much of this surge in net exit rates over the last 15 years is accounted for by a substantial decrease in the rate at which young farmers have been entering dairy farming (Jackson-Smith, 1995). Dairy prices have declined by over 50 percent in real terms, and are now considerably lower in even nominal terms than they were in 1980. Dairying is now more Hobbesian than it is Chayanovian.

Even so, neo-Chayanovianism contains a certain kernel of truth that should be recognized as we move forward theoretically in the sociology and political economy of agriculture and empirically in the study of dairy commodity systems. Even the most "industrialized" commodity systems are premised on non-industrial production (or on forms of production that are accommodated to but cannot transcend natural production processes; Goodman et al., 1987). Verti-

cally coordinated broiler production, for example, is inconceivable without cheap feedgrains produced by family/household producers upstream in the commodity system. Second, and an observation particularly germane to dairying, is the fact that family systems of production may not be quite as efficient as "industrial-type" ones — but they do not need to be. Family producers can persist even if they do not receive the average rate of profit or above. Industrial producers, by contrast, are likely to behave essentially as portfolio managers, and thus be prepared to move their money capital somewhere else if it is not performing at the average rate of profit in agriculture. Family producers do have a good many of the other competitive advantages and can undertake many of the strategies — squeezing household consumption during difficult times, deploying family members in the farm labor on a flexible basis, part-time farming — described by the neo-Chayanovians (Reinhardt and Barlett, 1989). Capitalized family-scale dairy producers can also access MIRG and other low-capital technologies which can help

them survive. They may also be best able to organize themselves — or to be organized by cooperatives or other milk handlers — for production of relatively high-value specialty dairy products. Our theoretical perspectives thus need to recognize that both agrarian structure in the traditional sense — that is, farm structure — as well as in the more contemporary sense — of commodity systems /chains/regimes and globalization — are equally important.

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NOTES

¹ Revised version of a paper originally presented at the annual meetings of RC-40, Research Committee on the Sociology of Agriculture, International Sociological Association, and the Rural Sociological Society, Toronto, August 17, 1997.

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⁴ The focus on industrialization of animal agriculture, both in terms of social resistance and research, was very strongly propelled by various segments of the sustainable agriculture movement (including sustainable agriculture groups and researchers working on the umbrella of the regional SARE programs).

⁵ Murphy Family Farms is a family-owned and managed business that contracts industrial-scale hog production out on a large number of hog farms throughout North Carolina and increasingly in the midwest.

⁶ Many of the apparent economies of scale in dairying are pecuniary economies (e.g., volume premiums). It is also essential not to confuse economies of scale in dairying, which are modest, with economies of scope (increased scale and sales volume aimed at increasing the mass but not the rate of profit).

⁷ Certainly, whether milk comes from a 50-cow traditional stanchion barn or a 5,000 cow parlor facility has little bearing on the composition or quality of the raw product, as long as both enterprises meet the criteria for selling Grade A milk.

Globalization of the Washington Apple Industry: Its Evolution and Impacts¹

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Introduction

Over the past few years, "globalization" has become an immensely popular topic. Like other *au courant* terms in the social sciences that emerge from time to time to capture the spirit of ongoing social change, writings on globalization can have an apocryphal tone. Thus, some authors consider it important to identify a date, generally in the early 1970s, that marks the emergence of the "globalization era" (Amin 1994; Bonanno 1996). Yet, the integration of production and consumption systems on a global scale is an ongoing process that is as old as capitalism itself (Sweezy 1992). Perhaps, as McMichael (1996) argues,

it is not globalization that is new, but our awareness of it.

Debates over when globalization began and what it signifies can appear to be trivial. However, the concept of globalization does reflect important shifting realities. Technological and political-economic changes are promoting the further integration of human activity on a global scale centered around the construction of transnational systems of production, trade, finance and consumption. Simultaneously, governments are arguably playing a declining role in the regulation of economic activity within their legally defined territories (Cox 1994; Sassen 1996), and for larger firms at least, the accumulation of capital and the management of enterprises has become a more international activity (Fagan 1994).

While one must be careful not to ascribe undue influence to the role of globalization in promoting particular social changes, globalization can help explain how cross-national commodity systems affect social, economic and political changes at a local level. "Few Studies dealing with the

restructuring of contemporary capitalism successfully link macro-economic developments to a careful empirical analysis of the impact of these developments at the level of the job structure and the quality of work" (Leach 1995: 342). A study of globalization processes that is grounded in an understanding of how social processes evolve at the local level (Marsden 1992), can help us improve our understanding of macro-micro social linkages (Symes, 1992), as well as create a more refined conceptualization of globalization for developing policy responses that can help communities adapt to these macro social forces.

The objective of this paper is to contribute to such research by analyzing the historical roots of the globalization of the Washington apple industry and what some of the contemporary impacts of that process appear to be. In particular, we are most concerned with how the increasing global marketing of Washington apples has been associated with changes in labor relations in that industry, including the ongoing attempts by the

International Brotherhood of Teamsters ("Teamsters") and the United Farm Workers (UFW) unions to organize workers in apple orchards and packing houses. This campaign is in response to complaints from the largely Hispanic workforce that some firms have neglected those who pick, pack and ship apples.

We recognize that there can never be a "clean" description of what globalization is and what the associated impacts are because of the tremendous variability that exists in production and commodity systems (Raynolds 1994). Indeed, the case of Washington apples reveals just how "dirty" a concept globalization can be. Certainly, the labor force that works in the apple industry can be said to be globalized to the extent that it employs a large number of immigrant and migrant workers. Also, in recent years there have been cases of multinational firms, specifically Dole Fruit Co. and Dovex, and Italian based firm, purchasing apple warehouses and orchards in the state, although their influence in the state apple industry is still relatively small.

However, we note that in the case of Washington apples, globalization is characterized not by the cross-national production of the commodity, but by the internationalization of its distribution, or what we refer to as the "accessing of global markets." In addition, we also observe that Washington apples have been marketed internationally for nearly 100 years, although the industry has become far more oriented towards global markets during the past decade. Assuming that "A Global Commodity Chain consists of sets of interorganizational networks clustered around one commodity or product, linking households, enterprises, and states to one another in the world-economy" (Gereffi 1994: 2), the globalization of the Washington apple industry clearly has occurred, and as a result of a long historical process.

Our study describes this century-long globalization of Washington's apple industry, and then proceeds to discuss related changes in labor relations during the most recent period of expansion. It is based on observations of the

industry, supplemented by historical material, recent industry sources, and public statistics. Together, we describe the historical periods that can be used to outline the establishment and growth of the industry and how exports have always been an integral part of the industry. Since 1987, however, the industry has become increasingly dependent on overseas markets. This shift, in turn, is hastening structural changes in the industry, particularly in terms of ownership structure and labor issues.

The Birth of Washington's Apple Industry: 1885-1920

To comprehend fully what globalization represents in the case of Washington apples, and what the associated transformations have been within the structure of the industry and its labor relations, it is useful to analyze the historical roots of the industry. The word "industry" is most appropriate in this case because, unlike other apple growing regions in the United States, apple production in Washington was viewed primarily

as a commercial venture from its inception. The history of commercial production of Washington apples is also intriguing in that in many aspects it is a stereotypical case of the settlement and exploitation of land and water resources in the western United States.

The seeds of the apple industry were literally and figuratively sown throughout the state by white settlers in the late 19th Century. Many early plantings were experimental and small, and intended primarily for family and local use. However, it was soon discovered that the soils and climate of the arid eastern section of the state were ideal for producing a high quality fruit, so long as irrigation was available. Soon, settlers began establishing small orchards in the sagebrush, generally five to ten acres in size, with the clear goal of commercial sales in mind (Bright 1988). These settlers had to develop small irrigation networks on their land to access water from local rivers. They transported their produce by wagon to nearby local markets to a growing population of miners, loggers and other settlers. However, the

development of the industry was limited by the distances to major markets and the difficulties in accessing water.

Around the turn of the century, these limitations began to be overcome, as illustrated by the case of the establishment of the apple industry in North-Central Washington (including Chelan, Douglas and Okanogan counties), which became the largest producing region in the state in the pre-WWII era. The completion of a railroad link from Wenatchee to the Puget Sound region (Seattle) in 1893 by the Great Northern Railroad provided the solution to the transportation problem, while the development of increasingly large and modern irrigation systems addressed the water problem. Initially, the irrigation systems were built by farmers, with real estate developers helping organize the construction of larger systems by recruiting engineers who had experience in developing the Yakima Valley, and by accessing loans from private lenders. The critical event in the expansion of irrigation systems in the North-

Central and the South-Central (Yakima) regions, took place in 1905 when the *U.S. Department of the Interior* decided to allocate funds for further irrigation development (Mabbott 1940).

The period from 1905 to 1915 has been referred to as the "apple craze" in Eastern Washington, with prospective orchardists being encouraged, often through publicity actions on the part of the *Great Northern Railroad*, to purchase land and establish apple orchards (Luce 1972), which were touted as low maintenance, high income earners (Schwantes et al. 1988). In 1904, it was estimated that a minimum of 426,000 apple trees were planted in the Wenatchee valley (Mabbott 1940), and this continued to rise until the 1910-12 period, which is considered to have been the peak period for plantings in the valley (USDA 1940).

Clearly, the development of irrigation systems and the wooing of settlers to the region created a major push for the rapid establishment and expansion of a commercial apple industry in eastern Washington. This led to amazing profit potential for

early settlers and developers. Mabbott recounts a case of one settler who purchased land in the Wenatchee area in 1886 under the *Desert Reclamation Act* for 25¢ an acre, and who was able to sell this land twenty years later for \$1,000.00 per acre! The idea of owning a 10 acre orchard on the western frontier was undoubtedly appealing to many. This appeal, and the resulting rapid growth of the industry, is exemplified by the fact that the total number of apple bearing trees in the North-Central region grew fivefold between 1910 and 1920 (Mabbott 1920).

Equally important to the development of the industry was the laying of railway lines, which permitted the "export" of apples out of the North-Central region. Railway service to Chicago and Seattle permitted the sale of apples not only to growing American urban markets, but outside the United States as well. Particularly intriguing is the fact that global selling was practiced from the birth of Washington's apple industry. Luce (1972) reports that Yakima apples were shipped to Hong Kong and Honolulu in 1898 and to Europe

in 1899! By 1906, Washington apples were being shipped via the port of Seattle to Australia, Japan, New Zealand, the United Kingdom, South Africa, Egypt and Latin America. Given our working definition of globalization as access to global markets, we must conclude that the apple industry in Washington was "globalized" from its inception a century ago.

To summarize, the Washington apple industry clearly began as a commercial industry. Its early development was made possible by the construction of railway lines and irrigation systems, both of which were financed in part by the federal government. On the ground, as it were, orchards were planted in small plots by farm families, who were attracted to the west in hopes of making a comfortable living by being commercial orchardists.

In the 1920s, "the most common size orchards in both the Wenatchee and Yakima districts were from 10 to 15 acres ... However, there were many orchards of considerably greater size which usually were owned by some fruit company" (Mabbott 1940: 38).

The financial success of the dreams of these farm households was dependent on shipping apples out of the region to both national and international destinations. As apple production expanded, price maintenance became the major challenge facing this infant industry.

Preserving Prices - The Era of "Stable" Production: 1920-1940

The creation of the Washington apple industry was quick and extensive. As trees matured, production expanded. Although data on commercial production in Washington State at the turn of the century is sketchy, Mabbott (1940), using data supplied by the Wenatchee Valley Traffic Association, reports that the number of boxes of apples shipped from the North-Central district grew from 2.5 million in 1912 to more than 10 million by the 1920s. Consequently, the hope of easy returns on investment in apple orchards soon turned to an imperative of how to "handle the crops."

After WWI, the market situation for Northwest apples became particularly competitive. Not only was there now a huge supply of Washington apples that had to be marketed, but apple production in the Northeastern US was becoming increasingly commercialized and began to exert a strong influence on the price of northwest apples (Prugh and Gerry 1930). In addition, "Since the end of the World War, apples have experienced increasing competition from other fresh, canned, and dried fruits and from fruit and tomato juices" (USDA 1940; 5a), particularly citrus fruits.

Thus, by the 1920s, the Washington apple industry had exited its initial growth phase, and entered an era of institutional and technological development that was not geared towards increasing production levels, but towards improving quality and maintaining returns to growers. One of the crucial institutional changes was the creation of marketing cooperatives. In addition to maintaining warehouses, cooperatives "could provide greater outlets for fruit grown and reduce the costs of

transportation, distribution, production and packing" (Bright 1988: 108). In turn, these cooperatives took to organizing federations to further lower costs in packing and shipping, and to promote the marketing of apples in various locations², using brand names developed by the federations. For example, the Wenatchee-Okanogan Cooperative Federation was founded in 1922 as an association of eight producer cooperatives. By 1926, this federation had developed the "Skookum" brand of apples, and was selling branded apples to buyers in 228 cities in 37 states, as well as to 10 foreign markets (Gwin 1927). Many of the marketing functions, such as packing, were thus being transferred off the farm to cooperative and privately owned packing sheds, which enabled growers to lower their costs associated with packing, shipping and marketing and to improve access to markets.

Another important institutional change was the development of grading standards. Standards limit confusion in the market place, particularly when buyers and sellers

are not in direct physical contact with each another. Buyers need to know what they are ordering and sellers need to be assured that the product is not being dismissed out of hand when it reaches the buyer's location.

At the instigation of the apple industry, the Washington State Legislature in 1913 mandated the creation of the Horticultural Inspection Service (Luce 1972). Under this system, the State Commissioner of Agriculture holds a hearing known as the *State Grade and Pack Conference* during the annual meetings of the State Horticultural Society. Grading standards for Washington apples are debated and decided upon at these meetings (Maynard 1923). These standards, which were established nearly a decade before any relevant Federal standards (Bright 1988), continue to be more stringent than Federal standards, thus ensuring Washington's reputation for high quality apples.

Having established these quality standards, the next challenge was enforcement. In 1921, the 1913 law was amended to allow the State of Washington to enter into a coope-

orative agreement with the USDA for inspecting Washington apples (Luce 1972). Carloads of apples being unloaded in major cities thus could be checked by USDA inspectors, limiting a buyers' ability to reject product. Luce also states that this program led to a swing to predominately F.O.B. (Freight on Board) sales of Washington apples, because grades were uniform and buyers and sellers could both be confident that the apples packed on to a train met the buyers' specifications.

Numerous technological developments also took place at this time in Washington's orchards and packing houses. These included the refinement and expansion of cold storage capacity in order to maintain apple quality and extend the marketing season into the spring months (Mabbott 1940), the development of improved portable spraying technology (Luce 1972) and the washing of apples before packing. In order to maximize both quantity and quality of production, the control of insect and other pests became one of the central concerns of Washington's apple

industry. By the 1930s, "control of insect pests represents about half the total costs of growing apples to harvest time in the Wenatchee-Okanogan district" (USDA 1940: 18).

One of the biggest pest problems was codling moth, which entered the Pacific Northwest in the 1880s. An early technological response to this problem was the use of lead-arsenate sprays in the orchards, which led to a case in "the fall of 1926 when a fruit retailer in England was hailed into court and fined for selling American apples carrying an excessive amount of arsenic" (Luce *op cit*: 27). One response to this dilemma was the washing of fruit before it was packed, which, according to Bright (1988), further contributed to the decline of on-farm packing as farms could not afford to invest in packing lines that could clean fruit. Thus, we note that not only were export sales an important element of the Washington apple industry at an early part of its history, but that global food safety issues could arise and stimulate a technological and institutional response within the industry.

It was also during this period that the Delicious variety, a hardy tree that produced a sweeter fruit that was popular with consumers, stored better than other varieties, and grew well in the eastern Washington climate, came to dominate the industry. One of the first major Red Delicious strains, known as Starking, began to be planted in the State in the 1920s (Luce 1972). The popularity of Delicious varieties continued to grow, particularly during the 1930s, because Red Delicious prices were constantly higher than for virtually all other varieties. During the period from 1930-1937, net return per acre after picking and packing costs for Washington's Delicious apples was \$236.00, nearly double that of the state's next most profitable variety, the Yellow Newtown, at \$146.00 (USDA 1940: 17). Although other varieties did not disappear, Red Delicious came to dominate the industry, at the same time that midwestern agriculture was also developing a "Fordist," mass production model (Kenney et al. 1989).

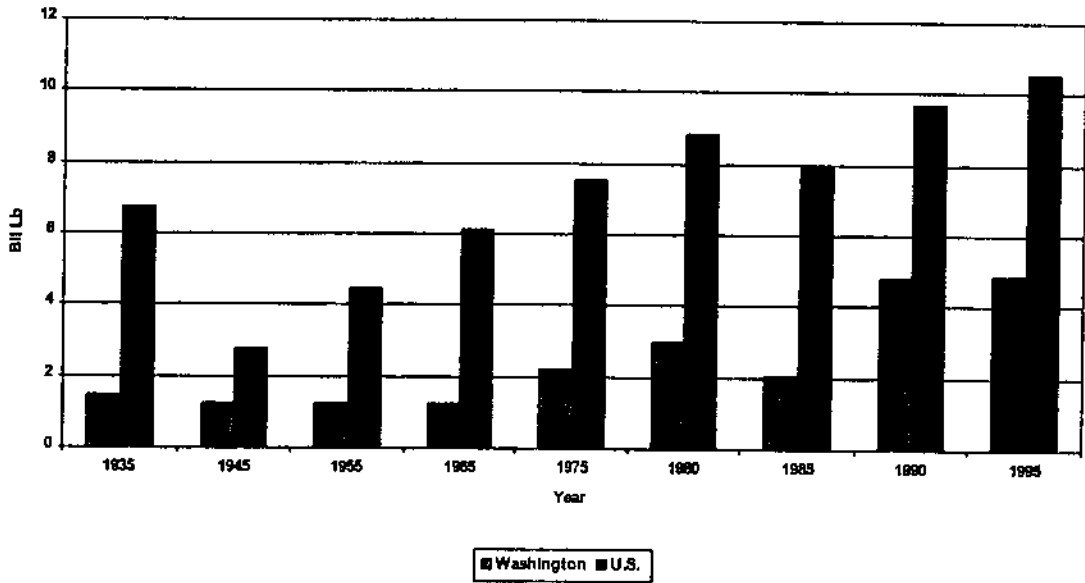
The late 1920s and 1930s were characterized by an era of "stability" in the Washington apple industry. Overall production of apples did not appreciably rise or fall. Indeed, during the depression years, apple acreages decreased, despite various federal programs to help growers cope with weakening prices. For example, Bright (1988) reports that apple acreage in the Wenatchee-Okanogan district decreased from 33,000 to 27,000 acres between 1933 and 1939. The Washington apple industry also faced increased competition from other fruits for domestic markets, and production costs for apples grew as well (USDA 1940). All of these factors contributed to a price squeeze for growers.

In spite of these difficulties, however, one quarter of the U.S. apple crop in the 1930s was being produced in Washington, with over half being sold in 66 major U.S. cities (Office of the Secretary of State 1938). The principal markets were New York, Chicago and L.A., which alone accounted for one-fifth of all Washington and Oregon shipments (Quitsland 1940). Overseas

shipments did decline somewhat as a result of the depression, but were still appreciable. These exports accounted for approximately 10 per cent of all U.S. **commercial** apple production. However, producing for specific export markets was not common. Exports were generally treated as an extension of domestic markets. With the onset of WWII, exports took an understandable dive.

This era of stability in production continued into the post-WWII era. As evidence by Figure 1, from 1935 to 1965 apple production in Washington hovered between 1.2 and 1.4 billion pounds. This mirrored the situation across the United States, where production averaged between 4.5 and 5.5 billion pounds. Technological developments did continue after the war, with one of the more significant being the commercial introduction of Controlled Atmosphere (CA) storage technology in 1959, which allowed for year round storage and sale of apples (O'Rourke 1994). However, these developments did not immediately stimulate production increases, although they did create the conditions for the

Figure 1
APPLE PRODUCTION
 Washington vs. U.S.



Source: WA Agricultural Statistics, various issues and U.S. Ag Statistics, various

second round of expansion in Washington's apple industry.

The Second Era of Expansion: 1970-Present

Washington's apple industry began a new phase of expansion during the late 1960s. This new growth in acreage and production levels began slowly, and was made feasible by several factors. Perhaps

the most important was the development of the Columbia Basin Irrigation Project during the 1950s by the U.S. Bureau of Reclamation. This project delivers Columbia River water from behind Grand Coulee Dam to the central part of Washington State. This particular region is very arid and water is **the** constraining factor of production. The expansion of irrigation into this region provided the possibility for the establishment and

growth in production of a variety of agricultural commodities, including apples.

An additional factor was the commercial introduction of controlled atmosphere (CA) storage. This technology enhanced the apple industry's ability to hold large volumes of fruit for sales during the summer months in the year following harvest. The first commercial CA storage was apparently built in 1959. Since that time the proportion of the crop marketed during the summer months has increased from 5 to 15 percent, a truly dramatic increase when considering the tremendous growth in production since 1959.

These conditions did not lead to an immediate increase in plantings of apple orchards. Rather, they contributed to a set of conditions that would eventually facilitate that expansion. Much of the desert lands that were opened to irrigation in the Columbia Basin originally were planted in potatoes, sugar beets and other annual crops. During the 1960s, the sugar beet industry began to go into decline due to political-economic changes in the sugar

industry. At the same time, severe winter damage to apple trees during the winter of 1968-69 that helped push up apple prices during the 1970s, along with a favorable change in income tax policy that allowed people to shift income from other sources into agriculture without paying tax on that income, created conditions favorable for increased investments in apple orchards. The loss of sugar beet processing facilities in the winter of 1978-79 added to the expansion push as beet growers looked for replacement crops.

These factors led to a surge in tree plantings in Washington beginning in the late 1970s and early 1980s. Washington increased its share of U.S. fresh apple production from 25 percent in the late 1960s to about 60 percent in the mid 1990s (See Figure 1). Overall apple production in the United States expanded from 6 million to 11 million pounds per year between 1965 and 1995, with 3.5 million pounds of that increase occurring in Washington State. The ability to harvest and pack this rapidly expanding crop in Washington was made possible in

large measure by Mexican and Mexican-American labor, whose history in the State dates back to the 1950s when immigrant labor began to be utilized to harvest vegetables such as green peas and asparagus.

In terms of the structure of ownership in the industry, this second wave of expansion has followed a very different pattern from the first. Most orchards in turn-of-the-century Washington were located in the Yakima (South-Central) and Wenatchee-Okanogan (North-Central) districts and were 10 to 15 acres in size. Although average orchard sizes did increase through the century, as late as 1978, only 3.1 per cent of orchards in the State were more than 100 acres in size (174 of 5,626 orchards), with these orchards accounting for 30.4 percent of all the orchard land in the State (see Table 1).

Just 14 years later, in 1992, orchards larger than 100 acres accounted for 7.4 per cent of all orchards and 53.1 percent of all orchard land. Much of this expansion has taken place in the Columbia Basin. It has been due in part to the

active influence of the "state," which in this case included the federal government's development of irrigation systems and agricultural support services, water and land which was made available to investors at relatively low prices, permitting the development of large orchards, although still largely under family ownership. This development of new apple orchards is also significant because yields from replanted orchards seldom match those from "virgin" soil.

This shift in the location and size of commercial apple production in Washington State is illustrated in Table 2. Data on the number of apple orchards and acres in orchards are broken down by selected Washington counties for 1982 and 1992. Grant County, which lies within the Columbia Basin, went from 12,448 acres of apples orchard in 1982, most of which was planted between 1978 and 1982, to 24,154 acres in 1992. Anecdotal evidence suggests that this growth in apple orchards in Grant county continues. In any case, nearly half (48.6 per cent) of the increase in apple acreage in the 10 counties

TABLE 1

Number of Apple Orchards and Acres of Orchard in Washington State

Acres	Orchards				Acres			
	1978	1982	1987	1992	1978	1982	1987	1992
< 5	2,229	1,786	1,527	1,380	3,627	3,212	2,971	2,501
5-25	2,079	2,150	2,037	1,698	25,828	26,704	25,278	21,163
25-50	762	790	803	729	15,616	27,357	27,716	25,216
50-100	382	418	498	449	25,096	28,117	33,126	30,382
> 100	174	262	330	340	35,077	60,340	73,519	89,846
Total	5,626	5,406	5,195	4,596	115,244	145,630	162,610	169,108

Source: U.S. Department of Commerce, Bureau of the Census, *Census of Agriculture*, Vol. 1, Part 47.

listed in Table 2 occurred in Grant country.

The increasing size of orchards underscores an important historical shift that is taking place in Washington's apple industry. Between 1982 and 1992, the average orchard size in Grant Country went from 61.9 to 99.4 acres, which is three times the average size of orchard in the Wenatchee-Okanogan district and more than twice those in the Yakima district. Where orchard expansion was once measured in tens of acres, well-financed orchard

developers, including pension funds, insurance companies and other non-local interests (Gilbert 1997), now think in terms of thousands of acres.

This expansion in acreage has had a number of effects, including a tremendous surge in production. A key turning point for the industry, in terms of how it viewed marketing, came with the 1987 growing season. The maturing of trees planted in the late 1970s and early 1980s, in conjunction with a good growing season, caused fresh apple production in Washington State to

TABLE 2

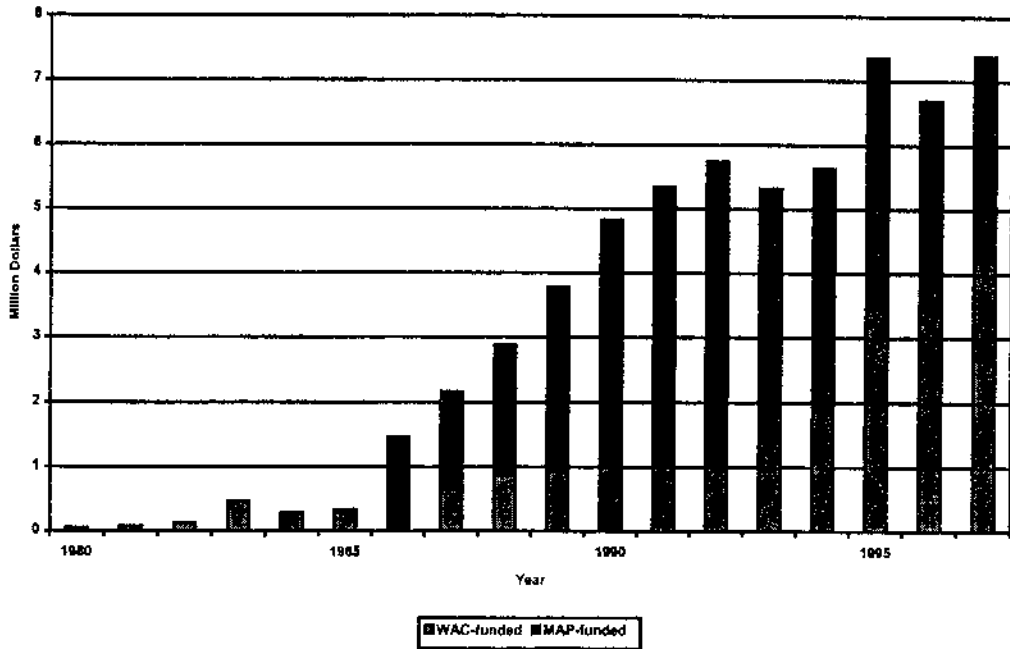
Number of Apple Orchards and Acres of Orchard in Washington State by Selected Counties

	1982			1992		
	Number	Acres	Avg.	Number	Acres	Avg.
Wenatchee-Okanogan District						
Chelan County	980	17,643	18.0	826	17,825	21.6
Douglas County	454	14,211	31.3	411	14,126	34.4
Okanogan County	819	25,011	30.5	631	25,395	40.3
(Sub-Total)	2,253	56,865	25.2	1,868	57,356	30.7
Yakima District						
Benton County	197	7,593	38.5	211	10,746	50.9
Kittitas County	22	292	13.3	42	1,095	26.1
Yakima County	1,781	58,841	33.0	1,454	61,910	42.6
(Sub-Total)	2,000	66,726	33.4	1,707	73,751	43.2
Columbia Basin						
Adams County	25	1,237	49.5	28	2,247	80.2
Franklin County	77	3,032	39.4	121	5,347	44.2
Grant County*	201	12,448	61.9	243	24,154	99.4
(Sub-Total)	303	16,717	55.2	392	31,748	81.0
Walla-Walla County	24	1,872	78.0	23	4,042	175.7

*In the 1978 census, data by county for apple orchards none is available.

Source: U.S. Department of Commerce, Bureau of the Census, *Census of Agriculture*, Vol. 1, Part 47.

Figure 2
Washington Apple Export Promotion, 1980-97



Source: William Jensen, Washington Apple Commission.

jump from 3.16 billion pounds in 1986 to 5 billion pounds in 1987! This crop was so large that some of it was lost because of a shortage of bins to handle the fruit in the orchards and insufficient warehouse space. It was also too large for the domestic

market to absorb at prices that would cover harvesting and packing costs. This crop, probably more than anything else, forced the industry to realize that it could not achieve any level of profitability without the export market.

Re-Globalization of Washington Apples

As noted earlier, exports have been part of the Washington apple industry since its inception. Exports declined during the Depression and War years, but rebounded slowly during the 1960s and 1970s. During the latter period, although some firms were active in foreign markets, exports were primarily an outlet for selling excess fruit in years of bountiful production.

Gradually, the industry began to recognize the potential of international markets. In 1980, the Washington Apple Commission funded \$45,563 of export promotion for the industry. By 1985, this figure had risen to \$333,184, funded by per-box industry surcharges. The US Department of Agriculture also began significant investments in Washington apple export promotion, starting with a \$1.4 million contribution in 1986 (See Figure 2). Recent figures indicate total estimated expenditures of \$7.4 million in 1997, including \$3.2 million from the USDA and \$4.2 million from Washington

apple growers (Jensen 1997). Initially, no particular markets were targeted. More recently, however, sophisticated, culturally-specific campaigns have been launched in countries considered to be prime growth markets for Washington apple export (ibid.).

The jump in production levels that began with the 1987 crop brought about a change in the mindset of many people in the state's apple industry. That year's production level, combined with the realization that the number of acres of apple orchards was continuing to increase, led many to realize that export markets needed to be an integral part of the marketing mix, and not just a release valve for extra production. A concerted marketing effort was put into place in various countries. Subsequently, the 1990s have witnessed a steady expansion in Washington state apple exports to historic highs, from about 10 million boxes in the early 1980s to nearly 30 million in 1994 and 1995 (See Table 3). Exports now account for nearly one-third of all fresh apples shipped from the state.

TABLE 3**Recent History of Washington Apple Production and Shipments****(Figures in 1,000s of 42 lb. boxes)**

Year	Total Wash.	Processed	Total Fresh	Exports*	Domestic Fresh	Share of U.S. Fresh Apple Prod.	Share of U.S. Apple Exports
81-82	65,714	17,146	47,871	10,635	37,236	45.1%	60.9%
82-83	62,262	15,377	46,885	10,589	36,296	43.5%	65.8%
83-84	71,429	19,397	52,032	10,020	42,012	47.4%	73.2%
84-85	68,929	18,629	50,300	9,509	40,791	49.0%	71.5%
85-86	49,025	12,313	36,712	5,370	31,342	36.4%	54.7%
86-87	71,584	16,627	54,957	7,093	47,864	50.7%	60.0%
87-88	106,974	38,910	68,064	14,448	53,576	50.6%	79.5%
88-89	84,507	20,872	63,635	8,820	55,355	50.7%	63.2%
89-90	109,502	31,056	78,446	14,428	64,018	56.0%	82.2%
90-91	105,625	32,076	73,549	14,349	59,200	55.0%	76.0%
91-92	92,930	21,729	71,201	19,457	51,744	53.0%	72.1%
92-93	102,046	27,893	74,153	17,126	57,027	53.9%	68.0%
93-94	114,041	30,953	83,088	28,398	54,690	57.0%	80.0%
94-95	131,681	40,000	91,681	30,585	61,095	60.0%	83.8%
Est. 95-96	108,056	29,000	79,056	23,035	56,021	60.0%	65.8%

*Excludes Canada

Source: *Wenatchee Valley Traffic Association
Washington Apple Commission*

As the 20th Century comes to a close, Washington producers now dominate USA fresh apple exports, which have increased four-fold during the last decade. Eighty percent of all U.S. apple exports in 1994 and 1995 were grown in Washington (See Table 3). By 1995, Washington apple exports accounted for about \$346 million in sales (Jensen 1997). In an era when access to foreign markets has become a rallying cry for U.S. agriculture, the "re-globalization" of the Washington State apple industry has become a major success story. Such heady growth, however, has not been sustained without significant impacts on the structure of Washington's apple industry, including its organization, location, and employment.

Impacts of the "Re-Globalization" of the Apple Industry

Not only have export sales of Washington apples grown rapidly in recent years, but access to global markets, which in this paper we are equating with "globalization," has undergone a qualitative change

during the past decade. Continued and improved access to foreign markets is now considered by industry participants and observers to be absolutely essential for the marketing of each year's crop. However, this means that the industry will have to compete against other producing regions, with the People's Republic of China looming in the not too distant future as a potential major competitor. In this context, it is important to note that between 1990 and 1994 "the average price (for apples), however, has declined from \$328 to \$270 per ton" (Wahlers 1996: 4). In other words, increased access to global markets does not automatically translate into higher prices.

To cope with these pressures, the industry has begun diversifying into alternative varieties such as Gala, Fuji, Braeburn and Jonagold. Thanks to the efforts of the New Zealand apple industry, there is consumer recognition for these varieties in some Pacific Rim markets and a willingness to pay prices substantially higher than is normally paid for Red Delicious. That price differential has induced many

growers throughout the industry to rapidly shift into the newer varieties. These plantings are in both old orchards (i.e. replanting) and new ground, primarily in the Columbia Basin (NY Times 1996). The response by growers to price signals for newer varieties has been so rapid that in less than ten years Fuji has become the number three apple variety in Washington.

To sustain large-scale production of all varieties, many new orchards are being established in non-traditional apple-growing areas of the state, such as Grant county. Some of these new orchards are being established by packer-shippers in the Wenatchee and Yakima areas, as they seek to source more and more of the apples they pack from their own orchards. There is also an example of a new, very large-scale, intensively cultivated apple orchard being developed in the Columbia Basin region in conjunction with the construction of a new packing-shipping operation. Yakima and Wenatchee, the traditional centers of Washington's apple industry, will continue to dominate, but the role of

the small, independent orchardist in the traditional producing districts will probably continue to decline (Table 1).

One impact of this growing concentration and vertical integration of Washington's apple industry is an increase in demand for paid, rather than household, labor. Traditionally, the farm household supplied much of the labor used in apple orchards. However, as orchard size increases, the proportion of household labor used in the orchard declines relative to total labor requirements. Furthermore, as the number of orchard households declines, the amount of household labor used in apple orchards in Washington State will also decline. Hence, more and more hired labor will be needed in the apple orchards.

Unfortunately, accurate historical data on hired employment in production agriculture in Washington State is difficult to obtain. However, the situation recently has begun to improve, in part as a result of changes in state law that have expanded the definition of "covered employment." Thus, we know that

between 1990 and 1994, average annual employment in agricultural crop production in Washington State increased by 2,472 from 54,263 to 56,735. Of this total, the increase in average annual employment in tree fruits was 2,927, from 30,966 to 33,893! As apples account for nearly 90 per cent of the bearing acreage in deciduous tree fruits, it is assumed that much, if not most, of the increase in agricultural employment in Washington in the early 1990s can be attributed to the expansion of the "re-globalizing" Washington apple industry (Wahlers 1996).

The actual number of people employed in Washington's apple industry is even greater than these numbers suggest, since seasonal employment is the norm in the industry. In 1996, at the peak of the harvest season in October, 46,212 workers were employed by apple growers (Wahlers 1997). Wahlers estimates the average wage of apple harvesters in Washington in 1996 at \$7.13 per hour³. Because of data problems related to the structure of the workforce and the manner in which it is employed, it is very

difficult to develop an accurate assessment of what percentage of the annual income of agricultural laborers in Washington State is derived from their work in the apple industry. Average annual income for Washington tree fruit workers (\$1,575 in 1995) includes wages obtained working on other tree fruit crops, such as cherries and pears, but would not include wages earned by the same individual in the vegetable, e.g. asparagus, or other sectors. In addition, average annual income for Washington State agricultural laborers (\$6,664 in 1996), includes wages earned in non-agricultural as well as agricultural industries, but only for hours worked within the state (Wahlers, 1997). Thus, we can not precisely estimate the amount of income workers derive from their employment in the apple sector. However, it does appear that returns to neither growers nor workers appear to have increased concomitantly with the success of the industry in accessing new markets and rapidly increasing export sales.

As the volume of fruit harvested, packed and shipped has grown,

prices for apples have stagnated or declined, perhaps allowing for shipment of apples into more price sensitive markets. Utilizing information from various Washington State University Experiment Station and Cooperative Extension bulletins, we estimate that labor costs in apple production relative to those elsewhere in agriculture have declined, but have risen relative to the Consumer Price Index and other input prices. At the same time, some jobs in the apple industry have become more year-round and less seasonal, workers have become more attached to particular employers and communities, accumulated greater industry and employer-specific experience, and more are earning sufficient income to sustain permanent residency. Thus, the above information on agricultural wages can not be used to understand the increasingly complex structure of employment in the apple industry. This includes an increasing diversity in employment scenarios for wage labor in the industry.

With a billion dollars of annual revenue⁴, and highly visible marketing campaigns, Washington's apple

industry has been targeted for a labor organizing campaign that is demanding improved wages, fringe benefits, working conditions, and housing. Orchard workers involved in the campaign have voted to affiliate with the United Farm Workers (UFW) union; while workers in Wenatchee's and Yakima's apple warehouses have associated themselves with the International Brotherhood of Teamsters (IBT) union. Together, these two AFL-CIO affiliated unions have dedicated substantial financial and human resources in support of unionization. Growers and packers with high per-unit processing costs, especially the smaller and older operations, are hard-put to meet such expectations given the stagnation of prices. Subsequently, industry employers have banded together into the Washington Growers League.

Although it is too early to predict the outcome of the union organizing, efforts thus far have achieved limited success. In June and July, 1997, orchard workers, assisted by the UFW, consecutively struck two Columbia Basin apple orchard operations, gaining wage increases of \$1.00

per hour for some workers in one orchard (TCH 1997a; 1997b). This orchard had a reputation for poor working conditions, and was located in a non-traditional apple growing area of the state. The second orchard received 400 employment applications after its wage rates were reported in the press (Goodfruit Grower 1998).

Apple warehouse workers scored a victory in April 1997 when Stemilt, Inc., one of the largest fruit packers in the state, agreed to rehire and/or give full back wages and benefits to 14 employees who had been fired, suspended, or disciplined for their union organizing efforts (Teamsters 1997). Stemilt fruit is an industry leader both in developing export markets and in integrating development of new, large-scale orchards in non-traditional apple growing areas with their packing and shipping operations. However, workers at apple warehouses operated by Stemilt, in Wenatchee, and Washington Fruit, in Yakima, rejected representation by the Inter-national Brotherhood of Teamsters by votes of 205-290 and 121-161, respectively, in highly contested National Labor Relations

Board supervised elections in January 1998. The Teamsters Union has filed unfair labor practices charges with the NLRB concerning the elections and has vowed to continue in its effort to represent the apple warehouse workers (Seattle Times 1998; Capital Press 1997; TCH 1998a, 1998b).

Depending on what happens to prices in the global apple market, the success of union activities in the industry could accelerate the shift to larger orchards and the decline in small farm production in the Washington apple industry. There are significant economies of size associated with larger, integrated apple operations. This means that the larger producers are more likely to remain profitable at lower prices and/or higher labor costs. This is doubly important if the orchard is owned or leased by a warehouse. Warehouses benefit by having direct control over large volumes of fruit. The warehouse will not lose the fruit to another warehouse. They will lose less time changing from one lot of fruit to the next, which increases productivity. Consistent fruit appea-

rance also will be easier to achieve because the warehouse is in control of growing practices. Finally, warehouses do not have to be as concerned with making profits on their orchard operations, so long as they are making profits in their warehouses. Thus, it would appear that the "re-globalization" of the Washington apple industry will be associated with a continuing reorganization of the industry around integrated, large-scale growing/packing/shipping operations.

Conclusion

Based on the case of Washington State's apple industry, what can we conclude about the nature of globalization and its local impacts? First, we would argue that globalization is not new to the latter half of the 20th Century. Evidence we presented indicates that there has been a global dimension to the Washington apple industry almost from its inception. What has changed in the last decade is the wide-spread acceptance by apple industry participants of the necessity of global

markets for marketing a rapidly expanding volume of fruit.

The evidence presented in our paper has also demonstrated that the state⁵ has played, and continues to play, a crucial role in the development and globalization of the Washington apple industry. Washington's first orchards were developed as part of a government sponsored program to settle the western frontier, and subsequent expansion of apple production in Washington was enabled in part by government-developed irrigation projects. In its most recent phase of expansion and globalization, the state plays an important role in the financing of international marketing promotion efforts, which have grown considerably over the past decade, and in negotiating less stringent trade barriers.

We would also argue that the example of the Washington apple industry demonstrates that globalization is produced, integrated and otherwise embedded in local places. The globalization of the apple industry is not something which happened by itself or in isolation from

other social processes unfolding in the industry, but was actively developed by individuals and groups inside and outside of the industry. This process continues as producers and exporters seek to learn about consumer tastes and marketing structures in various countries. Multi-lingual marketing materials are prepared, local distribution networks analyzed, and alliances forged with local partners in foreign markets. To meet different demand expectations and government regulatory requirements, Washington apple producers have had to modify operations and plant new varieties. In other words, people are actively involved in the process of globalization.

Over the years, global distribution of Washington apples has evolved from being an adjunct to domestic markets to being an integral part of annual sales. This has sustained the industry's growth, while exposing it to additional risks. Globalization has been embedded within, and perhaps hastened, the industry's consolidation and integration, while also mitigating a rapid decline in the overall number of

growers. Thus, Washington's apple industry is in a structural transition from its geographically concentrated, family-operated origins to a future as an organizationally concentrated, vertically integrated, and more geographically dispersed industry.

Finally, globalization, including international sales and product differentiation, combined with technological advances in storage and shipping, has had both positive and negative affects on the Washington apple industry's agro-industrial labor force. On the one hand, the addition of new varieties, increased volumes, improved storage technology, and year-round shipping, have led to longer periods of employment. Work in the orchards, including planting, thinning, and pruning as well as harvesting, stretches over many months of the year. Most warehouses now operate year-round. At the same time, prices are stagnant, pressuring Washington producers to minimize labor costs, including further automation of packing-shipping operations, moves to lower-cost areas, and use of less expensive labor. This labor force also has become

"globalized" in the last three decades through the shifting ethnic character of that workforce, which is now made up largely of Mexican and Mexican-American workers.

The restructuring of the geography of Washington State's apple production and its impact on the changing workforce is one area in particular where further research is needed. As Yakima and Wenatchee based warehouses develop large orchards in the Columbia Basin, problems associated with absentee ownership and management appear to be developing. Anecdotal evidence suggests that this new structure of agriculture may be leading to a problem of insufficient financial, social and political capital in small communities where agricultural laborers have come to reside.

In sum, we find that in the case of the Washington apple, globalization exists as a historical rather than a solely current phenomenon, and as an integral, rather than a discreet process that is associated with the ongoing structural evolution of the industry. What appears to stand out in the current period is the degree of

integration of international distribution in the industry's production, sales and marketing, as well the speed of industry reorganization, relocation, and restructuring, including the industrialization of labor relations. As global competition increases, the industry will have to contend with these and other pressures, which will undoubtedly lead to further adaptations.

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NOTES

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² Although we have been unable to find production costs for this particular historical period, it is interesting to note that by the 1930s, packing costs for apples were estimated at four times the

harvesting costs (USDA 1940), and are currently in the range of 6.8 to 1.

³ Most Washington apple harvesters are paid by the number of boxes picked, so Wahlers' estimates are based on a non-specified conversion from piece rates to hourly wages.

⁴ The "value of utilized production" of Washington apples broke the \$1.0 billion barrier in 1995. This amount slipped to \$0.9 billion for the 1996 and 1997 harvests (NASS 1998).

⁵ We are referring to the "state" here in a social-institutional sense. In the case of Washington apples, the "state" encompasses a variety of actors, including the U.S. federal government, as well as the Washington Apple Commission (WAC), which is chartered by the State of Washington, but receives its operating monies from a grower checkoff program.