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Why is There So Much Interest in Trade Remedy Laws?

by Colin A. Carter

As traditional forms of agricultural trade protection are reduced through the WTO, there may be a growing number of trade remedy cases filed by U.S. agriculture. This could invite retaliation from U.S. trading partners because they view U.S. trade remedy laws as hidden protection.

The World Trade Organization (WTO) recently kicked off a new round of global trade talks with a high profile ministerial conference in Doha, Qatar. At the conference, the Ministerial Declaration (Declaration) was signed, establishing the negotiating agenda on agriculture, trade remedy laws, and other trade issues. Around the world the meetings were viewed as rather successful, especially from the perspective of developing countries. One reason for the positive response by developing nations was the agreement by U.S. negotiators to include trade remedy laws on the negotiating agenda. Although U.S. trade remedy laws have been found to be in full compliance with WTO laws, many U.S. trading partners (especially the developing nations) view U.S. trade remedy laws as hidden protection because they are regarded as being biased towards findings in favor of U.S. industries.

In the United States, Congress was not pleased with the Doha outcome, as many in Congress are inclined to keep U.S. trade remedy laws off the WTO negotiating table. In fact, just prior to the Doha meetings, the U.S. House of Representatives voted 410-4 on a resolution instructing the U.S. Trade Representative, Robert Zoellick, to keep U.S. trade remedy laws from being included in the Declaration. Mr. Zoellick declined to comply, placing the laws in the Doha Declaration, and the subsequent congressional reaction (i.e., the threat to deny the Administration Trade Promotion Authority, formerly known as "fast-track" authority) indicates that trade remedy laws will be a contentious issue in the new round of WTO trade negotiations.

The trade remedy laws applied by the United States which are at the center of the controversy are antidumping (AD) and countervailing duty (CVD) laws, and to some extent, import relief (safeguard) laws. The purpose of this article is to explain these trade remedy laws, particularly with respect to agriculture. In addition, their use and historical application to agriculture are briefly described with the intent to clarify why these laws are so controversial.

U.S. trade remedy laws and their principal features are outlined in Table 1. The stated purpose of trade remedy laws is to offset "unfair" trade that injures domestic producers as a result of either foreign sales that are "dumped" into the U.S. at less than fair value (LTFV) or influenced by foreign government subsidies.

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Import relief laws, commonly known as "safeguards" are intended to provide a period of relief and adjustment for an industry that is being seriously injured by increased competition from imports.

For example, in October 2001 the U.S. government made a preliminary ruling that Canadian growers were dumping greenhouse tomatoes into the U.S. at prices below the Canadian cost of production. As a result of this finding, Canadian sales into the U.S. were assessed an average tariff of 32%. A few weeks later, the legal tables were turned as the Canadian government initiated an anti-dumping investigation against the U.S. fresh tomato industry. The Canadian counter-claim may not have been a coincidence. Rather, it could be a tit-for-tat reaction to the steep U.S. duties that were imposed upon Canadian greenhouse tomato sales to the United States. The Canadian investigation will no doubt impact the California tomato industry, because Canada is an important market for California tomatoes. Economists have found that the initial filing of a case often disrupts imports, irrespective of the final legal determination.

The AD statute comes under Section 731 of the U.S. Tariff Act of 1930 (Tariff Act), as amended. A related statute is Section 701, which applies to subsidized exports from foreign suppliers. Under Section 701, if a foreign subsidy is found to injure U.S. producers, then a CVD import tariff is applied. In addition, there is Section 201 of the Tariff Act, which provides for temporary restrictions on imports—such as high tariffs or import quotas—which are deemed to be causing injury to a domestic industry (Table 1).

The trade remedy laws are collectively known as "administered" protection. The U.S. Department of Commerce (DOC) and the U.S. International

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Table 1. Selected U.S. Trade Remedy Laws

Law	Statute	DOC Determination	USITC Determination	Purpose	Remedy
Countervailing duty (CVD)	Title VII of the Tariff Act of 1930, as amended (Section 701).	Countervailable subsidy, direct or indirect, is being provided.	Material injury; threat of material injury; *or* the establishment of an industry is materially retarded by reason of imports or by reason of sales (or likelihood of sales) of that merchandise.	To offset any unfair competitive advantage that foreign products or exporters might have over U.S. production as a result of subsidization.	Countervailing duties equal to the net amount of the countervailable subsidies are imposed upon importation of the subsidized goods into the United States.
Antidumping (AD)	Title VII of the Tariff Act of 1930, as amended (Section 731).	Foreign product is being sold (or is likely to be sold) at less than fair value (LTFV).	Material injury; threat of material injury; *or* the establishment of an industry is materially retarded by reason of imports of that merchandise.	To offset any unfair competitive advantage that foreign products or exporters might have over U.S. production as a result of sales or LTFV.	Antidumping duty equal to the amount by which the price in the foreign market exceeds the U.S. price (i.e., dumping margin) is imposed in addition to any other duty.
Import Relief (Safeguard)	Chapter 1 of Title II of the Trade Act of 1974, as amended (Sections 201-204).	Not applicable	Serious injury or threat of serious injury substantially caused by reason of imports.	To provide a period of relief and adjustment for an industry that is being seriously injured by increased competition from imports (not necessarily unfairly traded imports).	President has the authority to take action, including the administration of import relief (e.g., imposed tariffs or tariff-rate quotas), to assist a domestic industry that has been seriously injured by imports.

Source: 107th Congress, Committee on Ways and Means, U.S. House of Representatives, "Overview and Compilation of U.S. Trade Statutes, 2001 Edition," June 2001.

Emerging Hothouse Industry Poses Challenges for California's Fresh Tomato Industry

by Roberta Cook

Hothouse tomato production has grown in all three NAFTA countries. Hothouse tomatoes represent about 12% of U.S. fresh tomato consumption but a higher share of retail purchases. The competitive impact is being felt by the traditional mature green industry, leading to new market dynamics.

Two related trends are affecting the fresh tomato industry: a reduction in the market share of mature green tomatoes in retail markets, and increased competition from domestic and imported hothouse (HH) tomatoes, with imports led by Canada. While the mature green tomato (grown primarily in Florida and California) completely dominates foodservice channels in the U.S. and Canada and is still the leading tomato type sold in U.S. retail channels, product differentiation within the tomato category has been cannibalizing its retail sales. The share of vine-ripe, HH, roma, grape and other specialty tomatoes sold at retail has grown substantially in recent years. (See box on page 6 for definitions and statistics.) This article highlights some of the recent changes in tomato markets, emphasizing the impact of the HH tomato industry on field-grown tomatoes.

Trends in Tomato Consumption, Production and Trade

While mature green tomatoes have experienced a sharp rise in competition in retail channels, they have benefited from strong foodservice demand. Tomato consumption as a whole has fared well, with per capita fresh tomato consumption trending upward from 16.75 lbs. in 1994-95 to 17.8 lbs. in 2000. However, consumption may reach 19.1 lbs. when domestically grown HH tomatoes and unreported Mexican HH imports (not captured in USDA statistics) are included. Increased competition within the tomato category has not led to a decline in U.S. production of field-grown tomatoes when vine-ripes and romas are included. Production was 3.7 billion lbs. in 2000 compared to an average 3.6 billion lbs. in 1994-95. Production in California was 1.1 billion lbs. in 2000 compared to an average of just over 1 billion lbs. in 1994-95. Production in Florida was 1.5 billion lbs. in 2000, only slightly below the 1994-95 average of 1.6 billion lbs., despite the fact that mature green tomatoes remain the predominant variety grown there.

While production has been relatively stable, U.S. fresh tomato exports grew to 410 million lbs. compared to a 315 million lb. average in 1994/95, with Canada and Mexico representing the leading export markets. Although the U.S. and Canada are overwhelmingly net importers of fresh tomatoes (the U.S. from Mexico and Canada from the U.S.), both countries have benefited from higher exports, primarily to each other. The Canada–U.S. tomato trade exists despite extensive seasonal overlap, as shown in Figure 1 on page 4. However, U.S.–Mexico trade is somewhat contra-seasonal; much of the volume enters in January and February when U.S./Florida production is low, and most U.S. fresh tomato exports to Mexico occur during the summer/fall. Both Canada and Mexico receive primarily mature green tomatoes from the U.S. but roughly half of U.S. exports to Canada go to foodservice markets while Mexico imports primarily for retail markets.

U.S. fresh tomato imports peaked at 1.9 billion lbs. in 1998, since declining to the level prevailing in 1996 (1.6 billion lbs.). This decline results from lower import volumes of mainly vine-ripe tomatoes from Mexico. U.S. imports from Mexico, including HH tomatoes, were 1.3 billion lbs. in 2000, 20% below the 1998 peak. While imports from Canada have grown, they have not offset the decline from Mexico.

A Snapshot of the Size of the U.S. Hothouse Tomato Market

U.S. imports of HH tomatoes have grown rapidly, from 43.9 million lbs. in 1994 to an estimated 395.5 million lbs. in 2000, including 224 million from Canada, 76.5 million from the EU, around 96 million from Mexico, and the remainder contributed by countries such as Israel and Morocco. HH tomato imports from the EU peaked in 1998 at 102.7 million lbs. and were more than displaced by imports from Canada, which grew from only 16.9 million lbs. in 1994. Despite the rapid growth in HH imports, total fresh tomato imports in 2000 were similar to the 1996 level, as noted earlier. Hence, the growth in HH imports in the latter half of the 1990s has cannibalized field-grown tomato imports at the expense

of producers in Mexico, as well as competing with domestic producers by offering a consumer-ready retail pack, different from field-grown imports.

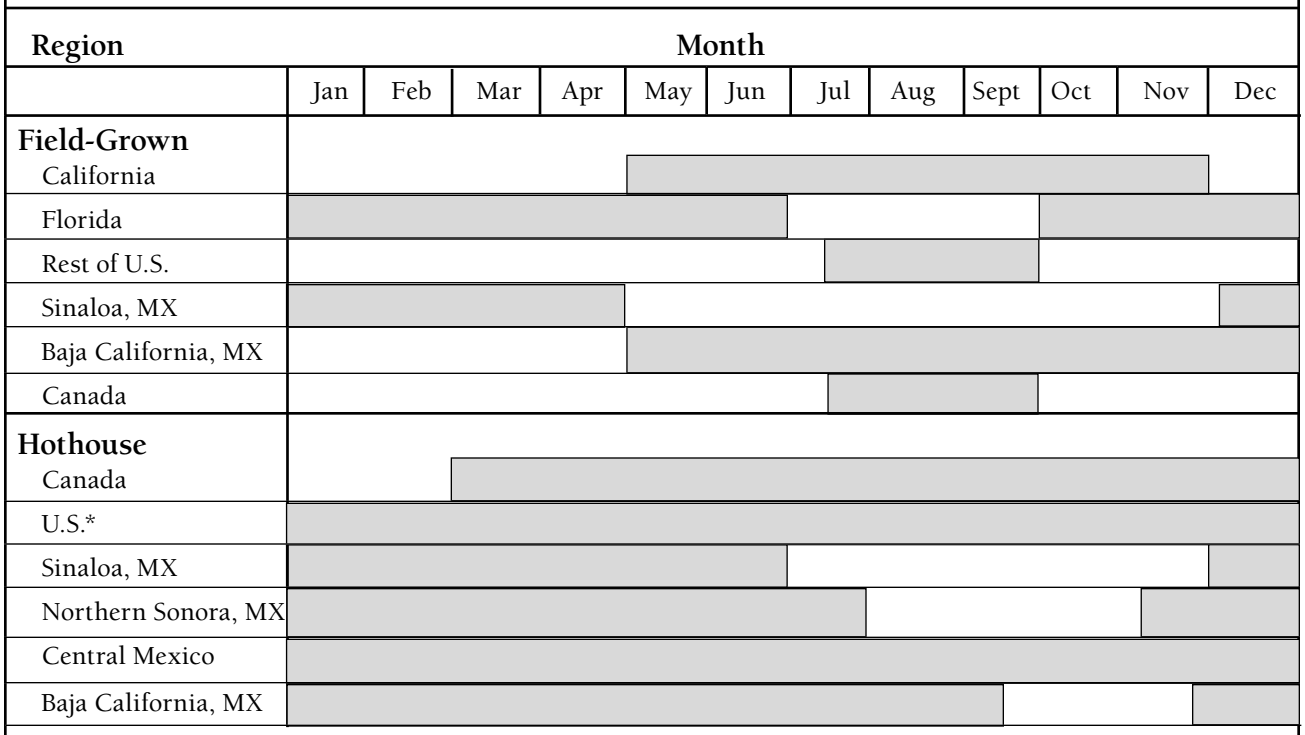
Total imported HH tomato volumes surpass domestic HH production, which reached 273 million lbs. in 2000. Total HH volume (domestic and imported) consumed in the U.S. market in 2000 is estimated to be equivalent to 17% of the U.S. field-grown volume and 12% of U.S. fresh tomato consumption (2.3 lbs. per capita). However, HH tomatoes go almost entirely to retail markets and since total tomato consumption is split roughly equally between retail and foodservice channels, the national average market share of HH tomatoes at retail is likely approaching one-quarter of the total retail volume.

Further, the concentration of HH tomatoes in certain markets, such as in the West during the California production season, means that the competitive effect on field-grown tomato producers may be above that reflected by the national average market share. Retail scanner data shows that for most chains in the Los Angeles market, the share of volume accounted for by HH tomatoes in 1999 ranged from 18-39%. Canadian HH export statistics show that California and Washington have become increasingly important destinations, in 2000 receiving one-quarter of total Canadian HH tomato exports and a disproportionately higher share of exports from British Colombia.

The Canadian Hothouse Industry

Dutch growers led the development of the HH industry in glass houses due to the short growing season permitted by their climatic conditions. Dutch emigrants to Canada helped establish the industry there, where their technology packages and varieties adapted readily to Canadian growing conditions. However, double poly plastic structures are more common than glass houses today, especially in Eastern Canada. Most Canadian HH production uses various forms of hydroponics and involves computerized production facilities. Production totaled around 402 million lbs. in 2000 from 1054 acres, up from 72.5 million lbs. in 1994. Production is dominated by Ontario with a 72% share, followed by British Colombia (BC) with 21%, with Quebec accounting for most of the remainder. BC producers have been required to sell jointly through a single desk marketer, although this may be changing.

Figure 1. North American Shipping Seasons by Tomato Region, Field-Grown vs. Hothouse



*Dark areas indicate shipping seasons. *Most of the U.S. hothouse industry is not producing year-round, but there is year-round production in the aggregate (including locations in Arizona and California).*

Canada exports 56% of its volume to the U.S., producing mainly from March through December, overlapping first with Florida, then with California field-grown production and with the U.S. HH industry throughout its entire season. To extend volumes on a year-round basis in response to market demand, HH shippers in Ontario are developing alliances with producers in the evolving Mexican HH industry, to serve both Canadian and U.S. customers, particularly in the Midwest and Northeast.

The U.S. Hothouse Industry

The U.S. HH tomato industry is estimated at 273 million lbs., produced on about 740 acres, with mainly glass houses. The industry is relatively concentrated with the three largest producers comprising about 54 percent of the total area. Production is centered in Colorado, the Southwest, Texas and the Northeast, with some production in California and Nevada. The development of the industry was originally linked to co-generation facilities, influencing the location of production. More recently, the importance of this linkage has declined and location decisions are now made more on the basis of optimal climatic conditions. While the shipping seasons for the Northeast and Colorado are similar to Canada's, production in Arizona and California is essentially year-round.

The emergence of year-round HH production means new competition for field tomato producers throughout North America, affecting California, Midwestern, Southern and Eastern producers in the summer. Field-grown tomato producers in Florida and Mexico who, in the past, competed only with each other from November through April, are affected as well. However, just as in Canada, U.S. HH production volumes are lowest in January and February. Hence, some U.S. HH producers have also been seeking Mexican partners to help assure higher and more stable year-round volumes. This will continue the competitive pressure on both the winter and summer field-grown tomato industries since year-round supply is a highly sought-after attribute by commercial buyers.

Still, some U.S. HH tomato producers have had difficulty earning profits despite growing consumer demand, given the capital-intensive nature of HH production and the rapidly expanding competition from Canadian HH imports. The recent imposition of temporary dumping margins against some Canadian HH exporters may give the U.S. industry a reprieve, especially if significant final margins are issued.

The Mexican Hothouse Industry

In contrast to Canada, the Mexican tomato export industry is predominantly field-grown. It is concentrated in Sinaloa (in northwest Mexico) from December through April and Baja California from May through December, with Sinaloa typically responsible for around two-thirds of total tomato exports. Much of the emerging Mexican HH exports originate in Sinaloa, are produced by field-grown tomato growers and merely displace field-grown production. Mainstream field tomato exporters have expressed an interest in the HH sector as a strategy for responding to buyer demands for greater consistency of both volumes and quality and to recapture market share lost to HH production north of the border.

HH shipments in Sinaloa tend to run from late November through June with volume peaking in January and February. However, HH production is now also exported from other regions of Mexico, such as northern Sonora, Baja California and Central Mexico. During the winter this adds a new competitive factor for Sinaloa, Florida (and California and Arizona HH production) but during the remainder of the year it represents new competition for the entire North American tomato industry, HH and field-grown. Beginning in March, HH volume becomes available from Northern producers and prices for Mexican HH tomatoes fall dramatically. Hence, in the end Mexican HH tomatoes retain the same January-February contra-seasonal window targeted by field-grown producers, with competition much more intense the rest of the year.

Compared to the U.S. and Canadian HH industries, the Mexican industry has more variation in technology, given much greater heterogeneity in climatic conditions and the need for growers to adapt technology to local conditions via their own on-site research. While Dutch, Canadian and U.S. HH technologies are all used in Mexico, HH approaches are more closely linked to Spain and Israel, since the problem is often not heating, as in Northern climates, but, rather, cooling. Except for colder areas, such as Northern Sonora and some areas of Central Mexico, most Mexican HHs are plastic rather than glass. Plastic HH's can be very high tech, especially if they utilize hydroponic growing techniques. However, many HH producers are growing in soil rather than hydroponically, achieving lower yields and generally less consistent quality in exchange for reduced capital outlays.

Mexican HH tomato area was estimated at around 1,200 acres in 2000, but part of this area is intermediate technology HHs with average yields substantially lower than common HH yields in Canada and the U.S. of 175-200 MT/acre. Less than half of Mexican HH area is high tech with automated hydroponic systems achieving yields similar to their northern neighbors.

An intermediate technology is also evolving, involving "shade houses," which are designed mainly to provide some protection from the sun and pests with ceiling and side shades. Shade houses represent a higher cost, higher technology approach than normal field tomato production, and offer the potential for improved quality and yields, although the yields are inferior to HH, and quality differences between HH and shade-house production are noticeable particularly for early- and late-season production.

The extent to which the Mexican HH industry expands in areas with dual field and HH production, and the level of technology selected within the protected production sector, will depend on relative net returns.

The Development of the HH Industry Influences Trade Disputes

Seasonality of production has always meant the existence of geographically distinct tomato industries with different market structures and competitive conditions. As traditional market relationships change tensions are reflected in formal trade actions, which are nothing new to the tomato industry.

Three tomato dumping suits are underway involving all three NAFTA partners. The U.S. HH tomato industry recently won a preliminary judgement against the Canadian HH tomato industry, and the Canadian government is currently considering a dumping suit filed by Canadian HH tomato growers against fresh tomatoes from the U.S. (and Mexico if exported via the U.S.). Meanwhile the U.S. Department of Commerce (DOC) is involved in a sunset review of the 1996 Suspension Agreement between Mexico and the U.S. that suspended an earlier dumping suit filed by the Florida tomato industry against the Mexican tomato industry. This Agreement established a floor price for the importation of Mexican tomatoes, an innovation at the time. Disputes are likely to continue, as the stakes are high in the tomato industry, with a farmgate value of $1.5 billion in the U.S. and Canada alone.

Tomato Definitions and Industry Characteristics

Mature green tomatoes (about 57% of California's production and over 85% of Florida's) are round tomatoes picked at stage 1 of a 5-stage maturity scale, when the fruit is fully developed but still completely green. They are then ripened with ethylene, the plant's natural ripening hormone. Vine-ripe tomatoes (about 25% of California's volume and the majority of midwestern and eastern production) are picked at the first blush of color, usually stage 2. Mature green tomatoes are preferred in foodservice markets due to their firmness and slicing characteristics, hence, the vast majority of tomatoes served in foodservice establishments are mature green, while the retail markets in the U.S. and Canada are shared by many tomato types, including mature green, vine-ripe, roma (17% of California's volume) hothouse, grape, cherry, colored, and other specialty tomatoes (about 1-2% of California's volume). HH tomatoes are dominated by round (beefsteak) and cluster tomatoes, although cherry tomatoes, including cherry tomatoes-on-the-vine and other specialty tomatoes are also grown in HHs.

Conclusions

Tomato trade in North America is dominated by trade among NAFTA partners. The U.S. predominantly exports mature green tomatoes to Canada and Mexico, while simultaneously importing vine-ripe and HH tomatoes from them. HH volumes from Canada and more recently Mexico are increasingly displacing vine-ripe field-grown volumes from Mexico and HH imports from Europe. Rapid growth in HH tomato imports from Canada has negatively impacted the U.S. HH and field-grown industries in some markets. With the profit picture in the U.S. HH industry less than sanguine, field-grown tomato producers have been reluctant to enter this new industry. Furthermore, the potential for expanded production of vine-ripe tomatoes in California is limited. Hence, mature green tomato shippers retain their dominant position, albeit becoming more dependent on foodservice markets as product differentiation increases competition within the retail tomato category. California shippers are tapping the foodservice market more directly than in the past by expanding sales directly to foodservice buyers, especially on a contract basis.

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The Impact of Global Warming on U.S. Agriculture

by Anthony Fisher

Contrary to previous estimates, new statistical results suggest that the impact of global warming on U.S. agriculture may be negative and substantial.

In industrialized countries such as the United States, much of the economy may be fairly well sheltered from the effects of changes in climate that researchers now believe likely to arise later in this century due to increased atmospheric concentrations of greenhouse gases. Aside from disruptions caused by extreme climatic events such as storms or floods, most sectors of the economy no longer depend directly on climate for their functioning. A major exception is agriculture, where climatic variables such as temperature and precipitation are direct inputs to production.

The Econometric Approach to Estimating the Impacts of Climate Change on U.S. Agriculture

There are a number of ways to estimate the impact of the projected warming and changes in precipitation. An agro-economic approach examines the effect on crop productivity of experimentally controlled changes in water, temperature and other possible influences on yield, such as soil characteristics. This approach is, however, subject to the criticism that it overlooks adaptations or adjustments that farmers might make to changes in climate variable – for example, changing the crop mix to something more suited to the new conditions. Recent work in this area has tried to allow for this sort of adjustment. It is possible to use existing variation, across regions down to the county level in the U.S., in temperature, precipitation, soil quality and so on, to estimate a relationship between agricultural land value, on the one hand, and these input variables on the other. Presumably farmers have adjusted their crop choices to reflect long run climate and other differences in different areas. The estimated relationship can then be used to predict the impact on farmland value of projected future changes in the climate variables, holding constant other influences on value such as soil quality, and even socio-economic variables such as population and income level in a county. When this is done, researchers have found that the likely impact of the temperature and precipitation changes associated with a doubling of atmospheric concentrations of greenhouse gases, principally carbon dioxide from the combustion of fossil fuels, on the value of farmland in the U.S. is quite modest, and may even be positive. One recent study summarizing and reviewing work in this area concludes that the warming associated with a doubling of atmospheric concentrations of greenhouse gases will result in a net gain of $8.4 billion annually for the U.S. economy, with the largest

Glacial melting is another expected impact of global warming.

Photo courtesy of www.webshots.com

component a benefit to agriculture of $11.3 billion (other impacts are negative).

I am currently engaged in work with my colleague, Michael Hanemann, and graduate student, Wolfram Schlenker, to adopt the econometric or statistical approach of relating farmland value to climate and other influences. We come to strikingly different conclusions. The main reason for the difference can be understood by looking at California agriculture. Precipitation during the growing season is virtually nonexistent. Yet California agriculture is (sometimes) profitable, and the value of farmland here is quite high relative to other areas. The explanation, of course, is that crop yields are not related to precipitation during the growing season. Instead, they depend on irrigation, from stored ground or surface water. For surface water especially, what matters is how much snow falls in the Sierras, and when it melts and runs off into streams that feed the large surface reservoirs that in turn supply local irrigation districts. A statistical analysis that simply relates local precipitation to local crop yields, or the value of local cropland, may – and has – come to the misleading conclusion that the relationship between precipitation and value is negative, since in California and the arid west generally some very high-valued farmland receives little or no rainfall during the growing season.

Is Irrigation The Solution?

Consider a scenario in which over the next several decades the atmospheric concentration of greenhouse gases doubles, and average temperature in the U.S. rises by about five degrees Fahrenheit (we have already, over the 20th century, seen a rise of about one degree). To compensate for the higher temperatures, farmers in areas without irrigation would invest in irrigation facilities, as was done earlier in California and elsewhere. Proponents of the econometric approach might argue – indeed, have argued – that this is taken into account in the estimated relationships. Currently irrigated farmland has a high value because the investment in irrigation was profitable, and was undertaken for that reason, as were other adjustments to climate. This is true, but is misleading as a guide to the impact of future warming. The difficulty is that existing irrigation facilities have been heavily subsidized. For example, in California it has been estimated that even after decades of operation, farmers have paid just 18% of the capital, operations and maintenance cost of the federal Central Valley Project. It is clear that, at a minimum, subsidies of this magnitude to agricultural water users – which have in the past been capitalized into the value of the land – are unlikely to be forthcoming in the future, due to changes in what we might call the fiscal climate.

Apart from the issue of subsidies, it appears that irrigation water will be more expensive in the future than it has been in the past. Again drawing on the California experience, the State Water Project delivers water from a storage and conveyance system constructed in the 1960s to irrigation districts in the Tulare Lake Basin at a wholesale cost of about $80 per acre-foot. However, the State Water Project has only about 60% of the supply capacity originally planned in 1960. If the system were now completed, current estimates are that the new water would cost on the order of $300-$450 per acre-foot. For both reasons, cost increases and reduced subsidies, the net benefit, as reflected in the value of agricultural land, from the construction of new irrigation facilities, is likely to be much less than what can be inferred from a statistical study that reflects historic costs and subsidies.

Results, Qualifications and Further Work

One way to proceed, in these circumstances, is to do the statistical analysis on just areas of rainfed, as opposed to irrigated, agriculture. For the U.S., this involves nearly 80% of the counties (2334 out of 2938), so there is no shortage of observations. When we do this, we find that the estimated relationship between precipitation during the growing season and farmland value is no longer negative. With the costless, or very low cost, option of irrigation out of the picture, the effect on farmland value is unambiguously negative. Under various different weighting schemes for the individual county observations, undertaken for technical reasons, the distribution of damages associated with a doubling of the atmospheric concentration of greenhouse gases converges around a median figure of $215 billion. This is the estimated loss in value of agricultural land. Assuming a real interest rate of

While agriculture has in the past relied upon irrigation as an adaptation in hot, dry climates, this may not be an attractive option in responding to future climate change.

Photo from **California Agriculture, UC DANR**

5%, this translates into an annual loss of just under $11 billion, as compared to the previous estimate, noted above, of an annual net gain of just over $11 billion.

The $11 billion loss estimate needs to be qualified, or at least further interpreted. To derive an estimate for the U.S. as a whole, the impact of warming on irrigated areas, prominently including California, must be added back in. If this is positive, the loss to U.S. agriculture as a whole would be reduced, perhaps even transformed into a net benefit, as in the earlier estimate. Research we are undertaking for California suggests that this will not be the case. Warming is expected to lead to changes in the pattern of precipitation that will have a negative impact on agriculture in the state, apart from any impact due directly to temperature. The mix of rain and snow, during the winter rainy season, will shift to somewhat more rain, and less snow, than under present conditions. The snow that does fall in the Sierras will melt and run off somewhat earlier in the year. Thus less water will be flowing into the reservoirs, and available for agriculture – and other uses – when demand is highest, in the late spring and summer. On the other hand, winter rain and early spring snowpack runoff into the reservoirs can be expected to exacerbate flooding, much as in the winter of 1997 when an unusually warm storm system moving through the state dumped heavy rains, rather than snow, in the mountains and resulted in major flooding up and down the Central Valley. Adding in an estimate of the impact of warming on existing irrigated areas in the U.S. is thus unlikely to reduce the $12 billion in losses estimated for non-irrigated areas, much less to convert the losses to gains.

Another qualification to the results does however suggest that they may overstate the magnitude of potential losses from warm- ing, and also has implications for policy. By excluding irrigation as an option in areas currently without it, we do not allow for the possibility that the cost of construction and operation of new irrigation infra- structure may be less than the losses otherwise suffered. Clearly it is not appropriate to assume that new irrigation will be forthcoming at historic costs, and under historic subsidies, but it is certainly possible that in some areas at least the full cost will be less than the losses without it. This is a question to be investigated on a region-specific, indeed a project-specific, basis. What is indicated is a benefit/cost analysis of new water projects, where the benefit is the loss in value to agriculture and other sectors predicted to result without the project.

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Table 2. Outcome of Agricultural AD/CVD Cases Filed between 1980 and 2000.

	AD	CVD	Total
Affirmative	28	13	41
Negative	18	45	63
Suspended or terminated	7	5	12
Total agricultural AD/CVD cases filed	53	63	116

Source: U.S. International Trade Commission, "Case Statistics," Memorandum, Public Version, November 8, 2001.

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Trade Commission (USITC) jointly administer AD and CVD law (Sections 701 and 731). The DOC first determines whether a commodity is being dumped or subsidized and then the USITC decides whether or not the U.S. industry has been injured as a result. The DOC procedure is much less transparent than the USITC procedure. Although it seems too amazing to be true, the DOC rules in favor of the U.S. industry in 95% of the cases. The safeguard law (Section 201) is jointly administered by the USITC and by the President in that the USITC determines whether injury has resulted to the domestic industry and then issues a recommendation to the President for no relief or for a specific method of relief. The President then decides whether or not to heed the recommendation of the USITC or to choose an alternative method or no method for relief.

Many other countries have trade remedy laws that are very similar to those in the United States. Traditionally, the United States, EU, Australia and Canada have filed the most AD and CVD cases against foreign suppliers, but more recently, developing countries (such as Mexico, Brazil, Argentina and South Africa) have filed a growing number of cases. In the past few years, developing countries have filed about 50% of the total number of AD and CVD cases worldwide. Economists generally view AD and CVD laws as nothing more than disguised protectionism that is used to protect domestic industries from foreign competition. As traditional trade barriers (such as tariffs and quotas) are lowered, the use of AD and CVD cases has risen worldwide.

The main reason that developing countries have criticized the use of AD and CVD laws in developed countries, is their growing frustration with the protectionist use of these laws. For instance, Brazil was reluctant to fully engage itself in discussions on the Free Trade Area (FTA) of the Americas because of the continued application of U.S. AD duties on products such as orange juice. This past summer, the filing of AD cases on their exports of raspberries and spring table grapes to the United States troubled Chile. It was no surprise that the U.S. grape and raspberry industries filed their cases while the negotiations for the Chile FTA were in full swing. More recently, U.S. honey producers have also received AD protection from competition from Argentina and China, as well as CVD protection from Argentina, which has certainly come at an inopportune time for Argentine producers.

During the 1980 to 2000 time period, over 1300 AD and CVD cases were filed in the U.S., of which approximately 116 (about 9%) were agricultural cases. This means that agriculture has initiated its fair share of cases, because agriculture's share of the value of U.S. total imports is only about 4%. Import relief law was used less often, as there were only 30 such total cases filed from 1980 to 2000. However, U.S. agriculture filed 8 of these 30 cases, and thus accounted for a rather large share.

During this time period, there was no noticeable trend in either overall usage or agricultural usage of AD and CVD law. The outcome of the AD and CVD agricultural cases since 1980 is reported in Table 2, where we note that 41 of the 116 total cases resulted in an affirmative ruling in favor of the U.S. domestic industry.

During the past two decades, Canada has been the largest target of U.S. AD and CVD agricultural cases. Apart from Canada, most cases have been filed against developing countries, such as China, Colombia and Mexico. As traditional forms of agricultural trade protection are reduced through the WTO, there will most likely be a growing number of trade remedy cases filed by U.S. agriculture. This will not only obstruct U.S. imports but will also encourage retaliation and increased protectionism in other countries. This is all the more reason to keep trade remedy laws on the WTO negotiating table.

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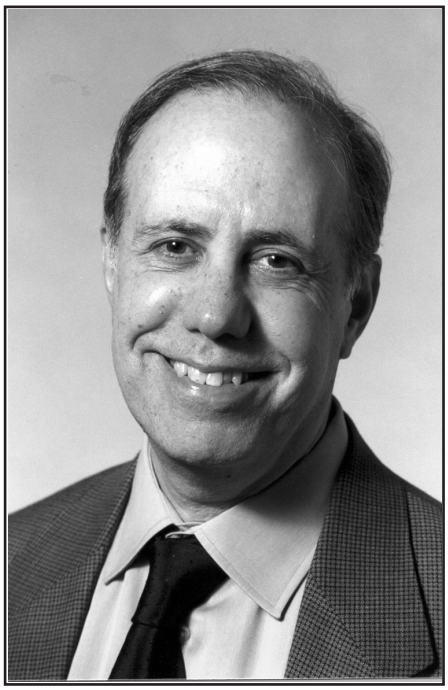
Faculty Profile

Anthony Fisher is Professor and Chair of Agricultural and Resource Economics at UC Berkeley. Tony received his Ph.D. in Economics at Columbia University, under the supervision of Nobel Laureate Gary Becker.

After graduation, he joined Resources for the Future and was part of a core group of economists who laid the foundations for broadening economic analysis of resource development projects such as large dams or oil pipelines to include the value of environmental amenities threatened by the projects. This work led to a more general consideration of project evaluation under uncertainty. Traditionally, economists recommend that a project should be carried out when its benefits outweigh the costs, but in "*Environmental Preservation, Uncertainty, and Irreversibility*", with Nobelist Kenneth Arrow, in the *Quarterly Journal of Economics*, Tony recognized that projects are subject to much uncertainty, and further that investments in resource development are sometimes irreversible. Therefore, he suggested that decision-makers should consider a third option -- to defer the decision to execute the project and, in the meantime, obtain added information to reduce uncertainty and make possible a better decision. This led to the introduction of the notion of option value. The paper received the award for Publication of Enduring Quality from the Association of Environmental and Resource Economists in 1995.

Tony arrived in Berkeley in 1977, and has since engaged in research on incorporating environmental considerations in managing California resources, including the impact of withdrawal of water from the San Francisco Bay/Delta on the California salmon fishery, and the response to drought of urban water users. The latter showed that instead of investing in extra storage, the best strategy to manage drought is to combine water marketing and conjunctive use of ground and surface water.

Tony continues to work on some of the major environmental and resource issues of our time. Much of his current research focuses on the economics of climate change. Some of this work is theoretical, extending and applying his earlier models of decisions under uncertainty to the problem of how soon, and how stringently, to control emissions of greenhouse gases. Some of the work is empirical, such as the study reported on page 7 in this issue, estimating the potential impact of climate change on U.S. agriculture.



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Tony's main professional activity has been directed toward the Association of Environmental and Resource Economists. He has served on the Board of Directors, as Vice President, and has just been elected President.

Tony and his wife, Margaret Bentson, live in Orinda and enjoy hiking, music, good food and good wine. His son, John, is an undergraduate majoring in mathematics at UC Berkeley and, also a computer whiz, he has assisted faculty in agricultural and resource economics.

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