Understanding Technical Barriers to Agricultural Trade

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Determinants of Technical Barriers to Trade: The Case of US Phytosanitary Restrictions on Mexican Avocados, 1972-1995*

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Production, processing and transportation of agricultural products involve numerous issues of food safety and animal and plant health. These issues arise within countries and, particularly, when raw and processed agricultural products cross international borders. There are public good dimensions to provision of a safe food supply and to protection of domestic animal herds and plant stocks from pests and diseases. But regulations that help nations to provide these public goods can also be used to shield domestic producers from international competition.

Despite widespread field-based evidence of misuse of technical barriers to agricultural trade, only a few empirical studies (e.g., Hillman 1978, 1991; Kramer 1989) have attempted to evaluate regulatory decision making about such barriers in depth. This lack of analysis is surprising given the rich literature that has evolved on the economic theory of regulation and the numerous empirical studies the theoretical literature has spawned addressing a wide range of regulatory agencies and decisions.

This paper presents a case study of the regulatory process in the longstanding dispute between Mexico and the United States [US] over a US quarantine, originally established in 1914, which has prohibited importation of Mexican avocados. Since 1972, there have been three extensive reevaluations of pest risks and risk-mitigation procedures to determine whether the quarantine could be amended without risk of pest infestations to domestic groves. Two set of survey results during the 1970s seemed to convince technical analysts in the Animal and Plant Health Inspection Service [APHIS] of the US Department of Agriculture [USDA] that protocols could be developed for importation of avocados into the northeastern section of the US with negligible risk of pest infestation. The domestic US industry, which has high sunk costs in existing groves and benefits under the quarantine from a favorable price differential for domestically-grown avocados, opposed any changes in the US phytosanitary import regulations. It disagreed with the conclusions drawn from pest survey results by USDA scientists about the risk posed by avocados exported from two Mexican states, Michoacan and Sinaloa. The domestic industry’s views, which were actively registered throughout the investigations, prevailed on the final decisions and no import permits were issued in either case.

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The initiation of negotiations for the North American Free Trade Agreement [NAFTA] provided the impetus for the third reevaluation of the avocado quarantine starting in 1990. A long investigation has followed during the past five years. During this period, Mexico has drafted a number of proposals for a protocol under which it asserts that imports would not pose a pest risk to US producers. After substantial review and modification of these proposals, the USDA held hearings in November 1994 to solicit public comment on Mexico's request to export avocados to the northeastern US, before proceeding with official rulemaking procedures to modify the longstanding quarantine.

At the public hearings, the domestic industry continued to raise strong objections to the protocol under which Mexico had proposed allowing avocado imports. In particular, it argued that the Mexican growing areas had not been proven to be free of pests that could be transmitted to the US and that the set of procedures under which pest-risk was to be mitigated did not provide adequate protection from possible pest infestation to domestic avocado groves.

Despite the industry objections, in July 1995 a proposed rule was published by APHIS. The proposed rule recommended amending the existing quarantine on Mexican avocados to allow permits for imports into the northeastern part of the country from the Mexican state of Michoacan during the months of November to February when weather conditions in Mexico and the US minimize the risk of pest infestations. The proposed rule also established stringent criteria to be met for monitoring insect populations, harvesting, packing and shipping practices, and inspections to eliminate any pest risks.

The proposed rule published by APHIS marks an important step in the longstanding dispute between Mexico and the US over the pest risks associated with importation of Mexican avocados. For the first time, USDA is on the public record in support of a protocol under which imports can be allowed without creating a phytosanitary risk for domestic producers. The proposed rule will be reviewed in five public hearings and subject to public comment through October 16, 1995. If the proposed rule stands up to the extensive scrutiny it will receive at these public hearings, and if a subsequent final rule is published that amends the existing quarantine, then the avocado dispute will provide an important example of a case in which international negotiations to liberalize trade prompted changes that eased trade restrictions in the arcane area of technical barriers to agricultural products.

**Political Economy Theory of Regulation**

A large part of the literature on the political economy of regulation focuses on the concept of regulatory processes being captured by concentrated interest groups, with the result that their purposes are served by the regulatory decisions. Modern origins of this line of reasoning are found in Stigler, Peltzman, and Becker. Central to the notion of “capture” in this context is a failure of the political process in that special interests with high stakes in a particular decision overcome organizational and free-rider difficulties more successfully than others—as per Olsen—thus achieve benefits from regulations (often income transfers) at a net cost to society more generally.
It is useful to conceptualize the regulatory process as a multiple principle-agent problem, as shown in Figure 1. The executive, congressional and judicial branches of government hold broad authority, which is delegated to agency administrative hierarchies subject to imperfect influence through appointments, budgets, oversight hearings, judicial rulings, and the like. Preparing the cases for any specific regulatory decision then rests further in the agencies in the hands of scientific and technical staff. Again, only imperfect control of the staff is achieved by the agency hierarchy through a range of directives and incentives.

![Figure 1. Schematic representation of the regulatory process.](image)

Objective technical and economic conditions bear on the regulatory decision structure through the filter of various interest groups. These interest groups may capture the regulatory process at different levels: through their broadest influence on the executive, congress or judiciary, through close relationships with the agency administrative hierarchies in areas of specific concerns, or through their direct (and often frequent and intense) participation in the process at the technical level. The tools by which the interest groups may influence or capture the regulatory process (political contributions, the “revolving door” of agency-industry employment, confirmation of professional stature, and others) vary with the level at which they seek opportunity.

An important conceptual issue addresses the existence of “slack” between principals (the executive/congress/judiciary and the agency hierarchies in Figure 1) and their agents (the agency hierarchies and their staff, respectively). The slack arises because the mechanisms of
control are imperfect and the agents have more or less freedom depending on the degree to which control is exerted.

Some authors (e.g., Levine and Forrence 1990) argue that capture can only occur when there is slack and agents are subject to interest group pressure. Such an argument precludes capture of the higher-level principals—an assumption that is suspect in light of much of the rest of the literature (e.g., McCubbins, Noll, and Weingast 1989). Others analysts argue for a positive correlation between slack and capture (the greater the slack, the more likely is capture), citing, for example, differences in behavior between regulatory agencies subject to executive branch authority and the independent regulatory bodies. Again, this presumes that higher-level principals are less subject to capture by specific interests, in part because of the more diverse competing interests they seek to build into supportive coalitions.

More broadly, the dominance of capture theory in the literature on regulatory decision making has other critics. Specifically, the critics point to recent deregulation of powerful oligopolistic industries in telecommunications and transportation, and to the widespread emergence of environmental regulations opposed by powerful industries (e.g., Farber 1992; McNollgast 1990). These cases are cited as suggestive of the inadequacy of the capture-theory construct.¹

A second line of criticism of capture theory rests with what is often termed the “new institutionalism.” In a recent paper, Kalt asserts that the new institutional view does not deny the primacy of the capture-theory determinants of political-economy outcomes. But the new institutionalists allow some meaningful role for contextual variables that reach beyond interest group stakes and power. These include ideology (Kalt and Zupan 1984), the separation of powers and conflicting jurisdictions of multiple principals (Moe 1985), and numerous aspects of procedures, precedent, legal context and so on (e.g., Kalt 1994; Mashaw 1990).

Acknowledging these challenges to strong capture theory, it is useful to explore the conditions under which capture would be likely to be observed in regulatory decisions, and when it would be less likely. Such a list begins with the fundamentals of capture theory itself: all else equal, capture would be more likely when there are substantial economic stakes, large differentials in the per-constituent stakes among interests, and differences in the determinants (like group size and uniformity) of costs and ability to organize to assert political pressure.²

¹Wilson presents a broad typology of regulatory cases based on the politics of the distribution of costs and benefits. Wilson’s four categories of politics are 1] majoritarian (broadly dispersed costs and benefits), 2] interest group (narrow costs and benefits), 3] client (narrow benefits, dispersed costs), and 4] entrepreneurial (broad benefits, narrow costs). Critics argue that the interest group and client cases are best explained by capture theory.

²Kalt provides an interesting case study. Among various decisions by the International Trade Commission during the course of the recent US-Canada lumber trade dispute, a number of contextual factors mattered to the administrative outcomes when the stakes were low, but decisions always favored the domestic US interests when the stakes were high.
Beyond these fundamentals from capture theory, various institutional or procedural factors that influence the probability of capture determining regulatory outcomes can be identified from the existing literature. Environmental regulations suggest that one such factor is broad public interest in a specific issue that can be brought to the forefront of public debate. Levine and Forrence note that in this setting there are incentives for politicians to ferret out regulatory decisions that run counter to public opinion and reduce agency slack to induce regulations more consistent with public views. Competition among politicians enhances this incentive.

Critics of capture theory also note that interest groups can arise that purport to represent the general interest. Their organizational costs may be higher than those of more narrowly-focused interests but they are not infinite. In the marginal calculus of optimal political response to interest group pressure, outcomes of regulatory processes should not shut out all but a single group from the regulatory outcome. In this context, Levine and Forrence argue that attention from the media or academics (both of which have incentives to focus on special-interest policy of which the public would disapprove) are factors that may shift the balance of an outcome away from strong capture theory.

Some additional factors that would favor capture of regulatory decisions can also be identified. Highly technical questions on issues with little direct public impact are likely to favor narrow interests. Agencies focused on single industries may be more susceptible to capture (Reagan 1987). Discrete (all or nothing) choices also favor capture by narrow interests with high stakes. Such discrete choices preclude the continuum of outcomes that might emerge from optimizing marginal calculus.

Criteria and Procedures for Establishing Phytosanitary Regulations

The USDA has the responsibility and the authority to protect domestic agriculture from the introduction and establishment of foreign plant pests under the terms of the Plant Quarantine Act of 1912 (7 USC 151 et seq.) and related acts. The enforcement of these acts has been delegated to APHIS, and is carried out by the Plant Protection and Quarantine Program [PPQ]. Plant quarantines are administered by PPQ to prohibit or restrict the entry of foreign plants and plant products that are known to be hosts to pests of quarantine significance.

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3Veterinary Services is the other principal program in APHIS. There are eight other programs in APHIS, including the International Services [IS] Program, which is responsible for international animal and plant health matters, including the facilitation of safe global trade (APHIS 1992).

4A “quarantine pest” or “pest of quarantine significance” is defined by the North American Plant Protection Organization as “a pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled” (p. 22). An area is “an officially defined country, part of a country, or all or parts of several countries.”
PPQ administers the Fruit and Vegetables Quarantine, 7 CFR 319.56 [Q56], which establishes the terms under which fruits and vegetables can gain entry into the US. “Q56 is a restrictive quarantine, which means that rules are made for the entry of specific products on a region-by-region basis. When APHIS receives a request from a foreign government or domestic importer to allow entry of a product, PPQ first assesses the pest risk, then recommends rules to permit entry of the product with minimal risk to US agriculture. In principle, the recommendations are guided by a commitment to quarantine rules that utilize the “least drastic action.” The goal is to afford maximum protection against plant pests while imposing the fewest possible barriers to normal commerce and trade.

The regulations in Q56 state that APHIS may grant an import permit if the fruit or vegetable:

1) is not attacked in the country of origin by injurious insects;
2) has been treated or is to be treated for all injurious insects that attack it in the country of origin;
3) is imported from a definite area or district in the country of origin that is free from all injurious insects; or
4) is imported from a definite area or district that is free from certain injurious insects and that all other injurious insects have been eliminated by treatment or any other approved procedures.5

The “approved procedures” noted in (4) provide APHIS with the authority to allow entry of some products into the US using a “systems approach” to mitigate the assessed risks. A systems approach utilizes a combination of risk mitigation measures to reduce the likelihood of introducing injurious pests in the importing country. Systems approaches are considered when it is not possible to establish a definite pest-free area in a foreign country and post-harvest treatments to eradicate the pests cause irreparable damage to the commodity or leave unacceptable chemical residues. The US is not the only country willing to rely on a systems approach to minimize plant pest risk. The US exports citrus to Japan, plums to Mexico and apples and pears to Taiwan under protocols that specify different systems approaches to mitigate plant pest risk. APHIS also uses systems approaches to facilitate interstate commerce. For example, citrus fruit grown in areas of Texas that are seasonally infested with the Mexican fruit fly can be shipped to markets throughout most of the continental US under the terms of a systems approach protocol that mitigates pest risk.6

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6 Statement by Chuck Havens, Trade Support Unit, APHIS. Transcript of the Meeting in San Diego, CA, 11/29/94 to discuss the Advance Notice of Proposed Rulemaking, pp. 15 -16.
Amending Q56 to allow entry of products from a specified region or country begins with a request to allow imports from a domestic firm or a foreign government. Requests can be in the form of a simple letter, but experienced petitioners usually expedite their request by submitting a work plan to APHIS describing the terms under which imports would occur. A proposed work plan details risk mitigation procedures and assigns responsibility for carrying out the procedures to institutions in each country. A thorough work plan is accompanied by a formal pest risk assessment and additional research to substantiate the foundations for the proposed pest mitigation procedures.

PPQ's technical staff bases its recommendation for changes in Q56 on its review of the work plan, if provided, and on its own independent pest risk assessment. If insufficient information is available to answer important questions about the potential risks, APHIS will reject the request until either the foreign government or USDA's Agricultural Research Service [ARS] can complete additional research which provides the required information. If PPQ largely concurs with the risk assessment and risk mitigation procedures in a proposed work plan, USDA scientists resolve minor differences in technical meetings with their counterparts in the foreign government.

Once the technical issues are resolved, a proposed regulation (or rule) is drafted for review by senior policymakers in APHIS and USDA. If it is approved, APHIS publishes the proposed rule in the Federal Register, along with an announcement of when and where public hearings will be held on the matter. The public is also invited to submit written comments on the proposed rule to APHIS during a specified period, usually one month.

When the “comment period” is over, APHIS' technical staff reviews and responds to the written and oral comments. On rare occasions, the staff will decide to withdraw the initial rule based on the information provided by interested parties during the comment period. More typically the proposed rule is published as a final rule, either as originally proposed or with revisions.

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7 The phrase “senior policymaker” or “senior official” signifies individuals who hold the title of Deputy Administrator, Administrator, Assistant Secretary, or Secretary or persons acting in their capacity during absences or vacancies.
8 If the proposed change in the regulation is expected to have more than a $100 million impact on the US economy, the proposed rule must also be reviewed by the Office of Management and Budget.
9 Prior to 1987, APHIS usually issued or denied import permits upon completion of an internal review (under the authority granted the agency by Title 7, 319.56-2(e) of the Code of Federal Regulations), without notification, public comment, or publication in the Federal Register. Since 1987, APHIS has followed the Administrative Procedures Act guidelines for rulemaking (as described herein) when considering changes to sanitary and phytosanitary import regulations.
The US-Mexico Avocado Dispute

A change in the phytosanitary rules to permit importation of avocados from Mexico into the United States would require amendment of Quarantine 56. Typically, the rulemaking process takes two to three years for products covered by this regulation. In the case of Mexican avocados, changes in the rule have been intermittently studied, reviewed, and debated by USDA scientists and policymakers since 1972, making this case a very longstanding dispute.

Industry and Market Characteristics

The avocado industry is a small component of the $8.3 billion fresh fruit industry in the US, with typical annual cash receipts of $200-$250 million. There are approximately 7,000 domestic avocado producers. About 6,000, accounting for 95 percent of the US crop, are concentrated near the southern coast of California. Another 500 are located in southern Florida. About 80 percent of avocado growers have annual sales of less than $25,000 year, but there are also a number of large avocado producers. Two percent of the producers in California had sales in excess of $500,000 in 1987 and harvested 38 percent of the 70,000 acres planted in avocados in California in 1990 (USDA/ERS 1995). Large firms dominate the marketing of avocados. Calavo, an agricultural cooperative with more than 2,000 members, markets about half of the California crop (American Farm Bureau 1991).

Establishing an avocado orchard requires a substantial investment in land clearing, grading of access roads, installation of drip irrigation systems, and propagation of young trees. Once the orchard is established, trees can start bearing in as few as two to three years. The trees reach full bearing potential after about seven years and can remain productive for as long as 40 years. The California Cooperative Extension Service estimated that in 1992, the total accumulated cost of establishing an orchard in the Southern Coast region of California was $15,372 per acre over the initial six years (USDA/ERS 1995). Such calculations support the assertion by the chairman of the California Avocado Commission [CAC] that California growers have over $1 billion invested in the avocado industry.

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10 The 1932 revocation of the original avocado fruit order of February 27, 1914 allowed the avocado fruit to be covered by Quarantine 56. Avocado growing stock (including the seed) is now covered by Quarantine 37, which covers nursery stock, plants, roots, bulbs, seeds, and other plant products.

11 Antecedents of the avocado case may have prior origins but our review of the available historical documentation indicates that Mexico first requested an import permit for avocados from USDA/APHIS in 1972. Tracing the history of the avocado quarantine dispute back 23 years seems sufficient to assess the determinants of the regulatory decisions.

12 Transcript of the Meeting in San Diego, CA, 11/29/94 to discuss the Advance Notice of Proposed Rulemaking, p. 36.
Over the past ten years, avocado-bearing acreage has declined slightly in California (10 percent) and substantially in Florida (50 percent). Growers in California and Florida face similar economic challenges, and a secular decline in acreage in both states began in the late 1980s. Increasing urbanization in southern California and Florida has caused land prices to be prohibitive even for profitable growers who want to expand their operations. Producing avocados is also a water-intensive activity, so rising costs of irrigation water have substantially lowered profits for some growers, especially in San Diego County.

Despite the declining acreage, total domestic US production of avocados has been around 170,000 metric tons per year during 1990-1994, up slightly from the 1985-1989 average. The US industry exports a small amount of avocados each year, but foreign countries, principally Chile and The Dominican Republic, typically supply about ten percent of the avocados marketed in the US. Other foreign countries occasionally export small shipments to the US. Hawaii produces a small amount of avocados, but phytosanitary restrictions prohibit distribution of Hawaiian avocados on the mainland because of presence there of the Medfly, melon fly and Oriental fruit fly.

Chile, like California, produces the small, black-skinned Hass variety of avocado and ships its produce to the US during the California off-season. The Dominican Republic and Florida supply consumers on the east coast with the larger green-skinned avocado varieties that are preferred by immigrants from the Caribbean and Central America. Consumers pay a substantial price premium for Hass avocados, but Hass production is prevented in Florida and elsewhere by high humidity levels (American Farm Bureau 1991).

13The sharp decline in Florida resulted from the decisions of many farmers not to replant avocado trees after Hurricane Andrew destroyed their groves in 1992.
14High land prices imply high rental costs for those who don’t own land and high opportunity costs for those who do. As one observer noted, “... San Diego growers are in two businesses and the first is real estate” (Evangelou et al. 1993).
15Chile has no host-specific avocado pests, but the Mediterranean fruit fly (Ceratitis capitata) is an indigenous pest. However, APHIS has acknowledged the Medfly-free status of a defined district in Chile and issued an import permit that allowed Chile to export avocados for the first time in 1985. The Dominican Republic has no pests of quarantine significance that infest avocados.
16APHIS has recently approved imports of avocados from New Zealand (1991) and Bermuda (1992). In these latter cases, the countries were determined to be free of pests of quarantine significance.
17In 1989, the regulations were changed to allow shipments from Hawaii to every state after ARS scientists concluded that Hawaii’s Sharwil avocado were not hosts to these three flies if growers and packers followed specified harvesting and handling procedures. Shipments were suspended in early 1992 when an APHIS inspector found fruit fly larvae on unharvested, unblemished avocados. Subsequent research by ARS confirmed that avocados that met all the regulatory requirements for interstate movement could be infested by these three fruit flies, so the 1989 decision was reversed in July, 1992. In 1994, APHIS approved shipments of Hawaiian avocados to Alaska only.
Although it has been prohibited from exporting to the US, Mexico is the world’s largest producer of avocados. Its annual production is 500,000 to 700,000 metric tons (American Farm Bureau 1991). Most of Mexico's avocados are produced for its domestic market. The size, appearance, and provenance (from areas known to contain pests of quarantine significance) makes most of the Mexican avocados unsuitable for the international market. However, there are a number of growers and packers in Michoacan, the state in southwestern Mexico that produces more than two-thirds of the country’s avocados, who have chosen to incur the additional costs of sophisticated grove management, packing, and shipping practices in order to gain access to markets in Europe, Canada, and Japan.

The growers and packers who produce for foreign markets participate in an export registration program administered by the Dirección General de Sanidad Vegetal [SV], the plant protection division of the Ministry of Agriculture, Livestock, and Rural Development [SAGDR]. The SV export program requires the participants to comply with stringent inspection, packing, and shipping practices to ensure that pests are not present in the fresh avocados shipped abroad. Some distributors that operate primarily in the United States, such as Calavo, also supply foreign markets with Mexican avocados through the SV program in order to extend the season during which they are able to supply their customers.

Export-producers in Mexico expanded their groves throughout the 1980s, principally with the Hass variety of avocado (American Farm Bureau 1991). These trees have reached or are approaching their full bearing potential, heightening interest of the industry in finding additional export markets (Paz-Vega 1987). Mexico is now the third largest avocado exporter, behind Spain and Israel (FAO).

The US Quarantine

The US banned imports of Mexican avocados in 1914. At that time, plant health officials identified avocado seed weevils in Mexican orchards as pests of quarantine significance. Although these pests cause little or no damage to trees or foliage, they oviposit (lay eggs) on the fruit. The larvae subsequently tunnel into the fruit, scarring the peel, contaminating the flesh, and destroying the seed.

When the quarantine was enacted, there were no known controls (chemical or natural predator) for the seed weevils. The natural migration of these insects to the US was prevented by the inhospitable terrain of northern Mexico.

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18Formerly the Ministry of Agriculture and Water Resources [SARH].
19SV regulations stipulate, for example, that detection of any pests in a shipment of fruit during inspection at a packing house requires rejection of the entire shipment for export. Discovery of pests in an orchard requires that the grower’s permit to export avocados be withdrawn (Federal Register 12/19/92, p. 47573).
Scientists and policymakers in SV maintain that modern pesticides and cultural practices have eliminated the rationale for the US prohibition on the entry of Mexican avocados.\textsuperscript{20} Mexican producers view the current quarantine as simply a non-tariff barrier that prevents them from competing with domestic producers for the lucrative US market.\textsuperscript{21}

Whatever the merits of the quarantine on phytosanitary terms, there are strong economic incentives for domestic producers to oppose imports of avocados from Mexico. One study concluded, for example, that Mexico is competitive in international avocado markets principally because of its low land costs. The authors pointed out that orchard development costs in Michoacan are estimated to be only 25 percent of the costs in California (American Farm Bureau 1991). Moreover, according to a spokesman for the Union of Avocado Growers of Michoacan, production costs for bearing trees were $600 - $900 per acre in Mexico in 1990, compared to the per acre cost of $5,200 to $5,700 in California.\textsuperscript{22}

To further evaluate the relative competitiveness of California avocado producers, we compared the wholesale prices of California Hass avocados on the east and west coasts of the US to the wholesale prices of export-quality Michoacan Hass avocados in Montreal. Prices were collected at four different points throughout the marketing year to capture seasonal variations in prices for the California and Michoacan crops. The peak marketing season for California growers is between March and July, while Michoacan’s peak export season occurs from October through February. However, mature avocados can remain on the tree for up to eight months, so growers in both regions market them year-round.

The wholesale prices of export-quality Mexican avocados are substantially lower than those for Californian avocados throughout the marketing year, as shown in Table 1.\textsuperscript{23} These market-price differentials provide a strong economic incentive for domestic producers to protect the return on their investments in existing groves by opposing modification of the import quarantine.

\textsuperscript{20} Over the past several decades, the USDA has allowed entry of \textit{mandado} avocados, de-seeded avocados that are carried across the border by individuals. The USDA has also allowed transit of sealed containers of Mexican avocados on specified routes in the US to foreign markets (7 CFR 352.29, Administrative Instructions: Avocados from Mexico).

\textsuperscript{21}“Mexican Envoy Says Food Disputes to Be Part of Trade Talks,” \textit{Journal of Commerce}, 5/14/91, p. 10A.

\textsuperscript{22}“Mexican Avocados: Threat or Opportunity?” \textit{California Grower}, Vol. 15, No. 1, 1/90, p.13.

\textsuperscript{23}Note that Mexican avocado prices would still be lower than US prices after adding the US base tariff of 5.99 cents per pound to the price of Mexican avocados. The tariff is gradually reduced to zero over a 15-year period beginning in 1994 under the terms of the NAFTA.
Table 1. Wholesale prices of Hass avocados throughout the marketing year, US dollars per pound

<table>
<thead>
<tr>
<th>Source/Destination</th>
<th>Week of 1/5/94</th>
<th>Week of 4/22/94</th>
<th>Week of 7/15/94</th>
<th>Week of 10/21/94</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico/Montreal</td>
<td>.41</td>
<td>.53</td>
<td>.76</td>
<td>--</td>
</tr>
<tr>
<td>California/New York City</td>
<td>1.31</td>
<td>--</td>
<td>--</td>
<td>1.73</td>
</tr>
<tr>
<td>California/Los Angeles</td>
<td>--</td>
<td>1.19</td>
<td>1.44</td>
<td>1.73</td>
</tr>
</tbody>
</table>

Source: USDA/AMS

1Lowest quoted price.

The price differential between US avocados and avocados sold in Mexico’s domestic markets is even greater than the differential between wholesale prices for US and export-quality Mexican fruit. This has resulted in smuggling of commercial shipments of avocados across the US-Mexican border. Between 1985 and April 1994, APHIS’s PPQ border patrols in El Paso confiscated 165 tons of avocados. Over 300 weevils, 1 fruit fly, and more than 280 other insects were detected in the illegal shipments confiscated on the Mexican-US border between 1991 and 1993. The confiscated avocados are usually roughly packed in slatted wooden crates. This packing suggests that the confiscated shipments are diverted from the domestic Mexican market since growers and packers that supply foreign markets through the SV export program carefully pack individual avocados in labeled, sealed cartons.

The California industry also complains about illegal transshipment of Mexican avocados through Canada. The president of the California Farm Bureau Federation has pointed out that illegal transshipments through Vancouver, British Columbia have been intercepted and the president of the California Avocado Commission [CAC] has noted that USDA intensive border searches in 1993 resulted in 42 incidents involving the confiscation of Mexican avocados at the Blain, Washington border station. Industry representatives who have pointed out the problem of smuggling across the US’ northern border have not complained about insects being detected in the avocados that were intercepted—perhaps because these are the export-quality avocados that Mexico had legally shipped to Canada.

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24Memo, Ernesto L. Montoya, Public Awareness Officer, APHIS/ PPQ, El Paso, Texas, 4/12/94.
25Interview, APHIS/PPQ, Import Permit Unit, 3/2/95.
26Transcript of the Meeting in San Diego, CA, 11/29/94 to discuss the Advance Notice of Proposed Rulemaking, p. 34.
27Transcript of the Meeting in San Diego, CA, 11/29/94 to discuss the Advance Notice of Proposed Rulemaking, p. 41.
Two Reevaluations of the Quarantine, 1972-1979

Michoacan

The Mexican government requested a permit to export avocados from the state of Michoacan to the US in the early 1970s. According to the memorandum on its decision, APHIS noted that a literature review revealed that numerous pests of quarantine significance attacked avocados in Mexico, including seed weevils and seed moths. APHIS also pointed out that these pests, along with Mexican fruit flies, were frequently intercepted in contraband shipments from Mexico. Given that there were no approved treatment for these pests, APHIS’ technical staff recommended that the request be denied.28

One year later, after reviewing the results of an APHIS field survey in Michoacan’s commercial groves, the agency scientists reversed their recommendation. During its investigation, APHIS spent a total of 560 man-days looking for avocado pests in Michoacan during May, June, and September 1973. The investigators found only two fruit flies in four growing districts of Michoacan through the survey.

In November 1973, the APHIS scientific staff recommended that entry of four varieties of avocados from these districts be permitted for distribution in states north and east of Colorado, Idaho, Kansas, Kentucky, Missouri, Utah, and Virginia. Limiting imports to the northeast was presumed to provide an extra degree of risk insurance to domestic groves because of the geographic distances from domestic avocado producing areas. The recommended protocol also stipulated requirements for ports of entry, notice of arrival, inspections, and shipping requirements.29

Senior policymakers in APHIS appeared to concur with the recommendations of their scientific staff. Five months after the recommendation, in April 1974, the Office of the Administrator drafted a position paper that proposed an export protocol for Michoacan avocados.30 However, another 15 months elapsed without any action to implement such a proposal.

In July 1975, the Acting Deputy Administrator of APHIS wrote to the Director of SV that “... there was intense interest in and opposition to the importation of avocados from Michoacan.”31 He noted that APHIS had made a commitment to the domestic avocado industry that the agency would not change the entry status of Mexican avocados without publishing a “Notice of Proposed Rulemaking and Public Meetings” in the Federal Register.

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29 Decision on Entry Status of Fruits and Vegetables Under Quarantine No. 56, signature of M.J. Ramsey, APHIS/PPQ, 11/15/73.
31 Letter from T.G. Darling, Acting Deputy Administrator, APHIS to Benjamin Ortega Cantero, Director, SV, 7/7/75.
He pointed out that "This is not a normal part of the permit issuance procedure but appears to be necessary in view of . . . the feeling among US avocado producers that revocation of the quarantine and liberalization of entry requirements are planned, sequential actions.”

Over the next year, again no action was taken to change the entry status of Mexican avocados. In July 1976, the Deputy Administrator of APHIS finally notified SV that “. . . we must continue, as in the past, to rule against the issuance of permits for the importation of avocado fruit from Mexico. This reverses the recommendation of our position paper. . .”32

The Deputy Administrator noted in his letter that a “cursory survey” in February 1976 found larvae and adults of an avocado seed weevil species at a site that had also been included in the 1973 field surveys. He indicated that APHIS had concluded that “The apparent ease with which seed weevils were recovered in Michoacan (both as reported by Plant Protection and Quarantine Programs and by commercial sources) tends to negate the survey results of 1973.” Subsequent agency documents indicate that the petition to export avocados from Michoacan to the US was given no further consideration.

Sinaloa

The Mexican government was similarly frustrated in its efforts to gain entry for avocados grown in the state of Sinaloa, in northwestern Mexico. APHIS rejected the first Sinaloa petition in 1975 for two reasons. As before, the agency noted that field inspectors frequently intercepted avocado pests at the US-Mexican border. APHIS also pointed out that no field surveys had been completed in Sinaloa to demonstrate that the proposed districts were pest-free.33

Officials from APHIS and SV subsequently agreed to jointly conduct pest surveys in avocado growing areas of Sinaloa. Over the next two years, scientists from both countries completed four field surveys and found no pests of quarantine significance.34 In view of this evidence, the agency reversed its previous position and proposed an export protocol for shipment of avocados from Sinaloa. Again, the protocol mandated strict growing, handling, and shipping procedures and restricted exports to the same states that had been proposed in the Michoacan protocol. A letter from the Deputy Administrator of APHIS to SV in January 1978 indicated that “After agreement is reached with you, we will review the entry status of avocados with concerned State officials and avocado industry representatives.”35

However, newspapers in Mexico prematurely announced that Sinaloa would be allowed to export avocados to the US, and news of these stories reached the US press and the US

32Letter from James Lee, Jr., Deputy Administrator, APHIS/PPQ to Benjamin Ortega Cantero, Director, SV, 6/30/76.
31Letter from T.G. Darling, Acting Deputy Administrator, APHIS to Benjamin Ortega Cantero, Director, SV, 7/5/75.
34Briefing paper, APHIS/IS, 9/17/91.
33Letter from James O. Lee, Jr., Deputy Administrator, APHIS/PPQ to Jorge Gutierrez Samperio, Director, SV, 1/9/78.
avocado industry before APHIS had notified industry representatives about the proposed changes in the quarantine. The California Avocado Advisory Board [CAAB, subsequently renamed the California Avocado Commission] hastily sent its own investigation team to Sinaloa to search for signs of pest infestation. The team subsequently reported that they had found no live weevils, but did find other evidence of weevil infestation. They asserted that early spring was not the proper time to survey for these pests, and recommended that another investigation be made in July or August, when, in their opinion, a survey would “certainly find the pests present.” The industry argued against publication of a proposed rule in the Federal Register and requested another official survey. The USDA agreed to delay its decision until another field survey was completed.

The field survey was conducted by APHIS and SV in August and September 1978, this time with representatives of the California and Florida producers also participating. The scientific team surveyed 2,500 trees and 8,600 fruit in a 1,000 hectare area in Sinaloa, Sonora and Baja California. They found no pests of quarantine significance, but an agency memo in September 1978 noted that “Indications are that Florida and California participants ... believe more intensive surveys are indicated in Sinaloa.” An industry publication also reported that a board member of the CAAB argued that the investigation was inconclusive.

The APHIS internal review of the new survey data and the proposed export protocol for Sinaloa continued through the fall of 1978. One APHIS technician expressed concern about the lack of information about the life cycles and periods of activity of the insects. In his view, the lack of information on the biology of the pests compromised the quality of the surveys.

Nonetheless, by December 1978, the Acting Deputy Administrator of PPQ expressed the view that “a sound biological basis exists for permitting entry of avocados” from Sinaloa. In a reply on behalf of the agency to an inquiry about the avocado ruling from California’s Senator Alan Cranston, in support of this conclusion he stated that:

37Ibid., p. 28.
38Memorandum for the File, Joseph Gentry, Assistant to the Deputy Administrator, APHIS/PPQ, 9/15/78.
39According to this account, the industry representative said, “‘If we were sent down there on an incognito basis ... if we had eight to 12 weeks, we could prove the seed weevil’s existence.’” (“Task Force Seeks to Block Mexican Fruit,” *Avocado Grower*, Volume 3, Number 3, 3/79, p. 52.)
40Memo from H. Shirakawa, Chief Staff Officer, National Program Planning Staff, APHIS/PPQ to H. Autry, Chief Staff Officer, Regulatory Services Staff, 11/24/78.
41Letter from T. G. Darling, Acting Deputy Administrator, APHIS/PPQ, to Senator Alan Cranston (D.-California), 12/22/78. The Commissioner of Agriculture of Los Angeles County had asked Senator Cranston to look into the matter (Letter from Paul Engler to Senator Alan Cranston, 10/24/78).
"The normal pest risk evaluation for decision making on permit issuance relies heavily on a search of the published world literature. This is supplemented by our knowledge of pest distribution built up in part by many years' records of pest interceptions. Seldom do we have the advantage of intimate knowledge such as that gained through over 30 years of cooperative programs with Sanidad Vegetal of the Republic of Mexico, or the opportunity to conduct pest survey [sic] in the country of origin."

The letter to Senator Cranston also noted that APHIS was aware of the intense interest expressed by avocado producers in California and Florida and consequently had "become extremely conscious of economic as well as biological factors." Senator Cranston was assured that any proposed change in Q56 to allow imports of Mexican avocados would be published in the Federal Register, even though this was not a standard regulatory procedure at the time. In closing, the APHIS policymaker indicated that "We . . . will announce the Department's decision only after all positions have been fully considered and evaluated." He also reminded the senator that, for APHIS's decision, "Biological considerations must, of necessity, outweigh economic ones in the final determination."

Five days later, in late December 1978, the Acting Deputy Administrator wrote an internal memo to "ask that a 'notice of proposed change in entry status' be prepared for publication in the Federal Register." A few weeks later, in January 1979, USDA notified the industry that it intended to publish a proposed change in Q56 in the Federal Register within 60 days.

In response, a "task force" from the CAC flew to Washington in the first week of February to lobby the congressional delegations from California and Florida. The task force reported that they visited 71 lawmakers and government officials. The industry's position was that Mexican avocados should be refused entry until every state in Mexico was found to be pest-free. It acknowledged that no weevils had been found in Sinaloa, but pointed out that weevils were known to infest groves in the adjoining state of Nayarit. It also urged that USDA examine the risk of infestation by Oriental and Mediterranean fruit flies.

The industry's strategic goal, according to an industry publication, was to prevent a public hearing from taking place. If that effort failed, according to the same source, the industry planned a public appeal to prevent any alteration to Q56. However, the public appeal was not necessary, as the USDA once again delayed its decision to publish a proposed change to Q56 in the Federal Register. An article entitled "Mexican Avocados Turned Back," published in

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42 Memo to G. Rohwer, Director of the National Program Planning Staff, APHIS/PPQ, from T. Darling, Acting Deputy Administrator, APHIS/PPQ, 12/27/78.
44 The Secretary of Agriculture reportedly declined to meet with this delegation.
45 Ibid., p. 27.
the industry press in April, stated that the Secretary of Agriculture had called the president of the CAC to inform him that USDA needed to restudy the survey.46

In June 1979, an APHIS technician sent a memo to the Deputy Administrator, concerning repeated inquiries he had received from individuals applying for permits to import avocados from areas in Sinaloa. The technician had been advising these individuals that the matter was under review, but sought the Deputy Administrator’s guidance on the appropriate response.47 He noted in his memo that “This office recommends that avocados from those area be allowed entry.” He went on to propose that “If it is determined that the problem is economic rather than biological, we suggest the Foreign Agricultural Service [of USDA] may be in the best position to respond.” No written response to this inquiry was found in the agency’s files.

Three months later, APHIS was still reviewing its position concerning importation of avocados from Mexico.48 Thereafter, we can find no mention of this issue in agency records. The industry achieved its goals of forestalling publication of a proposed rule in the Federal Register and preventing public hearings on the issue. The quarantine remained in place and avocados from Sinaloa were never allowed entry into the US.

A Long Lull, 1980-1990

A review of the historical record shows that APHIS made only two relatively minor decisions on the issue of Mexican avocados between 1980 and 1990, decisions that reflected the agency’s increasingly conservative position regarding the potential entry of Mexican avocados. The first decision was to reject a request from SV and APHIS field personnel in 1985 to conduct additional field surveys in Michoacan to determine which areas were pest-free.49 The second decision was to rescind three import permits that allowed transit of Mexican avocados across the southwestern US to ports in southern California for eventual export to Asia. In late 1986 and early 1987, the agency had issued three permits which allowed in-bond shipments of “hard, green fruit” in sealed containers to travel on routes specified by the California Department of Food and Agriculture [CDFA] to Long Beach and Los Angeles. When the industry learned of these permits in early 1987, it mounted a letter writing campaign to reverse the decision, while publicly considering a lawsuit against the Director of the CDFA.50 APHIS reversed its decision in July 1987, publishing an interim rule in the Federal Register which went into effect immediately without an opportunity for public
comment because "an emergency situation exists." The final rule, formally affirming the interim rule without revision, was published in the Federal Register in December 1987.

**NAFTA-Period Reevaluation of the Restrictions, 1990-1995**

In 1990, Mexico approached the US with a proposal to initiate negotiations toward a free trade area similar to the agreement reached between Canada and the US in 1988. President Bush accepted the Mexican proposal and one year later trilateral negotiations that included Canada were begun. These negotiations were concluded in August 1992, and NAFTA went into effect in January 1994.

A key issue for agriculture at the inception of the NAFTA negotiations was the extent to which farm products would be included in the negotiations for removal of trade barriers. This issue was broadly resolved in February 1992 when high-level decisions were reached to include all agricultural products in the Mexican-US agreement, while allowing adjustment periods for the domestic industries of up to 15 years.

Issues related to sanitary and phytosanitary barriers to trade were also addressed in the NAFTA negotiations. Ultimately, one section of the chapter of the agreement on agriculture addressed sanitary and phytosanitary measures. The NAFTA countries agreed to six basic principals: each country retained the right to adopt any sanitary and phytosanitary measures necessary to protect human, animal, and plant life and health; each country retained the right to establish appropriate levels of protection; the measures must be based on scientific evidence; the measures cannot discriminate between domestic and foreign goods; each measure adopted should be applied only to the extent necessary to achieve its appropriate level of protection, and; sanitary and phytosanitary measures can not create a disguised restriction on trade (NAFTA 1993). A formal dispute settlement process was also established. Under this process, if an arbitral panel issues an opinion that an import regulation violates the NAFTA provisions, the non-compliant country has the option of either changing the measure or keeping it and compensating the challenging country for the value of impaired trade.

The NAFTA negotiations created an environment in which technical barriers impeding trade between Mexico and the US were open to renewed scrutiny. The avocado dispute appeared on the agenda as early as June 1990 when the US Secretary of Agriculture met with the Mexican Minister of Agriculture to discuss issues that might be addressed in the negotiations. This step signaled the Mexican government’s willingness to once again expend

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51 Federal Register, Volume 52, No. 141, 7/23/87, pp. 27669-27672.
52 “Avocados From Mexico Transiting the US to Foreign Countries,” 7 CFR 352, Docket No. 87-132, Volume, 52, No. 239, 12/14/87, pp. 47373-47375.
53 See Orden for a comprehensive evaluation of the NAFTA provisions for agriculture. Unwillingness of Canada to accept elimination of trade barriers and tariffs on agricultural products led to separate bilateral agricultural agreements among the three countries.
54 Memo, D. Scot Campbell, Director, Operational Support, APHIS/IS, 6/6/90.
effort and resources to gain entry to the US markets for avocados. An APHIS representative
told domestic growers that although he didn’t anticipate that NAFTA would produce
“sweeping or immediate changes,” he did expect “that issues related to Mexico would be
pulled to the forefront and handled with some measure of additional urgency.”

With the benefit of hindsight, we can now observe that the interest by Mexico in renewed
efforts to amend the avocado quarantine has led to nearly five years of re-evaluation and
negotiations about avocados. Since 1990, USDA and SV scientists have sparred over data
requirements, research design, and interpretation of research results. Debate has centered on
the assessment of pest populations, the host status of Hass avocados for fruit flies, and the
adequacy of various proposed pest-risk mitigation strategies. This debate, which has
dominated the agenda of many of the technical exchanges of a joint Phytosanitary Working
Group has been closely monitored by industry representatives, trade policymakers, and
elected officials in both countries. The principal events over the past five years are
summarized in Table 2.

Development of Mexico’s Proposed Work Plan

Shortly after the Ministerial meeting, SV submitted a work plan entitled “Work Plan to
Produce Avocados of the Best Quality.” The work plan proposed that APHIS allow
avocados produced and marketed under the terms of SV’s export registration program in the
state of Michoacan to enter the US. APHIS quickly rejected the work plan. The principal
flaw cited by APHIS was that it addressed only one of the insect species that concerned the
agency. However, APHIS regarded four species of host-specific pests and four species of
fruit flies as “pests of quarantine significance.” Since there were no effective post-harvest
treatments to eradicate these pests on Hass avocados, the agency wanted SV to supply
evidence that a specified area was free of a pest, or evidence that a pest did not attack Hass
avocados before it considered a change to Q56.

When US and Mexican animal and plant health officials met in October 1990, the Mexican
delegation agreed to submit another work plan. The second work plan was to include
evidence that the proposed districts in Michoacan were free of host-specific pests, along with

55Speech by Robert L. Griffin, APHIS/PPQ to California-Mexico Agricultural Trade
Conference, San Diego, California, 6/27/91.
56The four host-specific pests were: Heilipus lauri, Conotrachelus aquacaterae, and C. persea
(seed weevils), and Stenoma catenifer (a seed moth). The four fruit fly species were
Anastrepha ludens (the Mexican fruit fly), A. fraterculus, A. serpentina, and A. striata.
57Letter from A. Thiermann, Deputy Administrator, International Services, APHIS, to J.
Gutierrez, Director General, SV, 10/1/90.
58Minutes of Meeting of US-Mexico Free Trade Initiatives, Animal and Plant Health,
10/31/90.
Table 2. A chronology of the avocado case, 1990-95

<table>
<thead>
<tr>
<th>Year</th>
<th>Month</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>June</td>
<td>The avocado issue is resurrected at the Ministerial level during meetings to discuss multilateral and bilateral trade issues.</td>
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<tr>
<td></td>
<td></td>
<td>APHIS rejects SV’s work plan because it addresses quality, not pest risk; APHIS asks for proof that the proposed districts are free of four fruit flies and four avocado pests.</td>
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<td></td>
<td>October</td>
<td>SV resubmits work plan (avocado pest survey results are submitted later when survey is complete); APHIS asks for information on a fifth avocado pest; plant health officials begin to discuss using a systems approach to mitigate pest risk.</td>
</tr>
<tr>
<td>1991</td>
<td>August/September</td>
<td>SV resubmits work plan (avocado pest survey results are submitted later when survey is complete); APHIS asks for information on a fifth avocado pest; plant health officials begin to discuss using a systems approach to mitigate pest risk.</td>
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<td>May</td>
<td>APHIS rejects work plan principally because the agency thought that the research which examined the host status of Hass avocados for fruit flies was inadequate.</td>
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<td></td>
<td>June</td>
<td>Memorandum of Understanding signed by the two governments; APHIS tentatively accepts evidence that proposed districts are free of avocado pests.</td>
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<td></td>
<td>July</td>
<td>Bi-National Technical Meeting to determine data requirements to examine host status of Hass avocados for fruit flies.</td>
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<tr>
<td></td>
<td>August</td>
<td>USDA/ARS suggests substantial modification to Mexico’s proposed research protocol to test host status of Hass avocados.</td>
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<tr>
<td></td>
<td>October</td>
<td>Proposal to allow exports of Mexican avocados to Alaska is published in the Federal Register; SV resubmits a revised work plan for export to the mainland.</td>
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<tr>
<td>1993</td>
<td>June</td>
<td>After numerous technical meetings to resolve outstanding issues, APHIS states that insufficient information on fruit flies (population levels, Hass avocado host status) precludes a decision.</td>
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<tr>
<td></td>
<td>July</td>
<td>Final rule allowing exports of Mexican avocados to Alaska is published in the Federal Register.</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>SV and APHIS jointly determine research protocol to test host status of Hass avocados for fruit flies.</td>
</tr>
<tr>
<td>1994</td>
<td>June</td>
<td>SV submits work plan with results of fruit fly host status research.</td>
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<tr>
<td></td>
<td></td>
<td>SV submits a slightly revised work plan along with pest population data.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advance Notice of Proposed Rulemaking is published in the Federal Register; hearings are held in California and Florida.</td>
</tr>
<tr>
<td>1995</td>
<td>July</td>
<td>Proposed Rule published recommending the regulations be amended to allow fresh Hass avocado fruit grown in approved orchards in approved municipalities in Michoacan, Mexico to be imported into the northeastern area of the US, subject to certain conditions.</td>
</tr>
</tbody>
</table>
research results which would demonstrate that Hass avocados were not a host for fruit flies, diminishing the importance of fruit fly population levels in the Michoacan avocado growing regions. 59

Nearly a year passed before SV submitted its second work plan. Evaluation of the work plan by APHIS was delayed further in late 1991 because the pest surveys and research had not been completed. In the meantime, plant health officials continued to discuss a number of outstanding avocado issues. 60

The most important discussions between APHIS and SV centered on consideration of a systems approach to mitigate the pest risk associated with importing avocados from Michoacan. The US delegation to the bilateral discussions outlined a seven-point export protocol that “would combine various procedures which in their totality could possibly allow Mexico to move Mexican avocados to limited areas of the United States without risk to US avocado production areas.” 61 Discussion of such a systems approach signaled official recognition that it was increasingly unlikely for the proposed districts in Michoacan to be designated as pest-free.

In May 1992, APHIS refused to accept the revised SV work plan. The principal shortcoming cited was that the fruit fly host status research had not been conducted with sufficient scientific rigor. 62 APHIS argued that not only would SV have to increase the number of fruit in its controlled experiments, but it would also have to sample a minimum of 100,000 fruit in the field under different environmental conditions and at different times of the year to demonstrate that Hass avocados were not a fruit fly host. APHIS also asked SV to substantiate some of its claims about eradication of host-specific pests in the Michoacan avocado groves.

The request for additional information to support the host-specific pest-free status of the proposed Michoacan districts was quickly addressed by SV. One month after the request, USDA and Mexico's Ministry of Agriculture signed a Memorandum of Understanding which stated that the US tentatively agreed that “Based on information provided by Mexico the US accepts that avocado fruit from areas in Michoacan determined through survey and fruit cutting are free of seed pests.” 63 Agreement on the risk posed by fruit flies would prove to be more elusive. A group of experts from the federal and state governments of both countries met again in July 1992 to

59 Letter from Glen Lee, Deputy Administrator, PPQ, to J. Gutierrez, Director, SV, 5/28/92.
60 For example, the US delegation asked SV for evidence that the proposed districts in Michoacan were free of a stem weevil, Copturus aguacate, another host-specific pest that had recently been intercepted by border patrols on contraband avocados.
62 Letter from Glen Lee, Deputy Administrator, PPQ, to J. Gutierrez, SV, 5/28/92.
address this issue. This would prove to be a pivotal -- and contentious -- meeting about the data required to support the claim that Hass avocados were not a host for fruit flies. An ARS participant in the meeting noted that unpublished studies showed that Hass avocados were hosts to fruit flies. Another ARS delegate pointed out that since avocados in general were “good hosts,” a research protocol to demonstrate that the Hass variety was not would have to be quite rigorous. An APHIS official concurred, pointing out that any proposed change to Q56 would be “scrutinized.”

The Mexican delegation’s position was substantially different. In SV’s view, four observations supported a research protocol that was less extensive than that proposed by the US delegates. First, *A. ludens* populations were low at the altitudes where avocados orchards were located. Second, the other two fruit fly species under discussion had never been observed in the Michoacan area. Third, although the published scientific literature had documented the susceptibility of some varieties of avocados to fruit flies, the evidence that thick-skinned Hass avocado was a host was scant, dated, and anecdotal. Fourth, evidence of fruit fly infestation had not been found in exported avocados during the past 20 to 25 years.

The Mexican delegation’s arguments did not persuade US plant health officials to change their position on the requirement for additional research. Reluctantly, SV officials agreed at the conclusion of the meeting to draw up a research protocol that would examine the susceptibility of Hass avocados to three species of fruit flies. An ARS official also recommended that SV officials begin to develop trapping data in the growing area to support their assertions about the absence or minimal presence of these fruit fly species.

In August 1992, ARS officials reviewed the research protocol submitted by SV. Again, ARS concluded that the proposed research was inadequate to prove non-host status for Hass avocados. This conclusion was based in part on recent ARS research that had shown that fruit flies would oviposit on Hass avocados under forced-infestation laboratory conditions.

SV submitted its third work plan, which explicitly featured a systems approach to mitigate risk, in October 1992. Although SV proposed extensive risk mitigation procedures in its work plan, it provided little or no information to substantiate its assertions that avocado pests had been eradicated, fruit fly populations were low, and that fruit flies would not infest unharvested Hass avocados. The emphasis on extensive risk mitigation procedures rather than on an extensive risk assessment indicated that, in SV’s view, APHIS only needed to be

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64“Mexican Bi-National Technical Meeting on Data Requirements to Support Non-Fruit Fly Status for Hass Variety Avocados,” memo from S. Sudduth, Senior Agricultural Biologist, Pest Exclusion Branch, California Department of Food and Agriculture, to Isi Siddiqui, Assistant Director, Division of Plant Industry, 7/17/92.
65The US delegation announced that further review of the literature had prompted them to drop their request for information on one fruit fly species, *Anastrepha fraterculus.*
concerned with the pest status of the commodity at the end of the risk mitigation system. Nonetheless, many of the ARS and APHIS scientists who reviewed the proposed work plan continued to criticize Mexico for its failure to provide information that would allow a rigorous pest risk assessment, noting that such an assessment would be a necessary first step in designing an effective system to mitigate risk. Although the internal USDA debate over the new work plan continued for several months, the final consensus once again was that Mexico's work plan was incomplete.

Although Mexico's efforts to develop an adequate work plan for exporting Michoacan avocados to the US mainland remained unsuccessful, in the fall of 1992 USDA published a proposed rule in the Federal Register to allow Mexico to export avocados to Alaska. APHIS received more than 300 comments opposing this rule change. Most of the criticism centered on the likelihood of illegal transshipments of avocados from Alaska to the mainland, and the subsequent potential pest-infestation risk. However, USDA concluded that none of the information in these comments overturned the adequacy of the safeguards reported in APHIS' original pest risk assessment. A final rule allowing Mexican avocado exports into Alaska was published in July 1993.

In the first few months of 1993, APHIS and SV officials continued to try to resolve the impasse on Mexico's work plan in a series of meetings of the joint Phytosanitary Working Group. At a meeting in mid-1993, the US delegation indicated that they were still unable to assess Mexico's third work plan because of insufficient information about the risk posed by fruit flies in the avocado producing districts. A sub-group of scientists within the Phytosanitary Working Group, which had been established at the suggestion of the Director of SV to lay out a framework for resolving the fruit fly issues, continued to negotiate the details of data requirements and research design for assessing fly-related risks throughout the summer and fall of 1993. In November 1993, USDA and SV signed a protocol that outlined the research that SV would undertake with oversight and review provided by US plant health officials.

By June 1994, the fruit-fly host-status research on Hass avocados was complete. SV submitted the results to the US delegation at the Phytosanitary Working Group meeting, along with a new work plan. On July 5, 1994, the Mexican government formally requested that APHIS amend its import regulations to permit entry of avocados from approved orchards in specified municipalities in Michoacan.

The main points addressed in the July 1994 work plan are summarized in Table 3. Mexico asserted that its survey results demonstrated that the host-specific avocado pests had
### Table 3. Summary of the Mexican work plan for avocados and the responses of the domestic industry

<table>
<thead>
<tr>
<th>Risk Factor/ Mitigation Procedures</th>
<th>Mexico’s Reported Research Results and Proposed “Work Plan”</th>
<th>US Industry’s Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence of pest</td>
<td>SV’s 1994 field survey established that avocado seed and stem weevils and the seed moth are not found in the districts in Michoacan which satisfy the requirements of the Ministry’s export program. SV’s 1993-94 fruit fly field surveys showed that population levels of <em>A. ludens</em> (Mexican fruit fly) are low in the avocado-producing areas of Michoacan, primarily because avocados are grown at elevations that are inhospitable for fruit flies; <em>A. ludens</em> population levels are especially low during the avocado harvest period; the other species of fruit flies were never detected in field surveys.</td>
<td>Weevils and the moth are frequently intercepted in contraband shipments of Mexican avocados; the 1994 sampling for avocado-specific pests was limited. SV’s 1994-94 fruit fly field surveys did little to establish the population or seasonal abundance of fruit flies because of small samples, brief exposure times, undocumented climatic factors, site limitations, and improperly monitored traps; despite these limitations, 53 fruit flies (<em>A. ludens</em>) were found in the sampled orchards; lower temperatures at higher altitudes retard but do not eradicate pest populations; the survey data indicated that fruit flies were present throughout the harvest season.</td>
</tr>
<tr>
<td>Pest detection</td>
<td>Foliage, branches, and soil is inspected for weevils; baited traps are set to monitor fruit fly populations. Fruit is routinely inspected for pests. In 1993-94, 405,534 avocados were sampled for evidence of fruit fly and/or fruit fly larvae, and none were infested. All inspection, sampling, and monitoring activities will be periodically inspected by USDA officials.</td>
<td>Proposed sampling procedures for host-specific pests and fruit flies in orchards and in packinghouses is insufficient to provide quarantine security for large-volume exports; the proposed fruit fly trapping protocol (1 trap for every ten hectares) is insufficient to detect low-level infestations.</td>
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<tr>
<td>Host status of Hass avocado</td>
<td>Hass avocados are a host for seed and stem weevils and seed moths. Mexico’s 1993-94 study of the fruit fly host status of Hass avocados indicated that 1) Hass avocados showed resistance to forced infestations in the field using high populations of fruit flies to apply pressure on the fruit; 2) under natural field conditions, Hass avocados are not infested with fruit flies; 3) fruit attached to the tree have a natural resistance to infestation regardless of when harvested.</td>
<td>Hass avocados are a host of the seed and stem weevils and seed moth. Mexico’s research results showed that fruit flies readily infested Hass avocados in the laboratory; the forced infestation field experiments relied on low fly densities, small sample sizes, and limited exposure times; a natural resistance to infestation while on the tree has not been systematically proven.</td>
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<tr>
<td>Pre-harvest treatment</td>
<td>Routine cultural practices and chemical controls prevent pest infestation; malathion is used to control fruit flies; malathion and methyl parathion are used to prevent seed weevil infestation; should stem weevils ever be detected, affected branches can be pruned and burned and methyl parathion can be sprayed over the entire orchard (methyl parathion is not registered for use in the US, but the US does have established import tolerances).</td>
<td>The US industry principally relies on integrated pest management to control pests and introduction of chemical controls would upset the ecological balance; should infestation occur, quarantines would disrupt domestic and export shipments and increase pest monitoring and eradication costs.</td>
</tr>
<tr>
<td><strong>Harvest practices</strong></td>
<td>Required degree of maturity minimizes the probability that the fruit will be infested; fruit infested with weevils will drop to the ground long before they are ripe enough to be harvested, so packing only fruit that has been picked directly from the tree provides another safeguard; fallen fruit must be removed and destroyed daily.</td>
<td>The research results that report correlations between infestations with stage of maturity are “incomplete, poorly organized, incorrectly analyzed and inconclusive”; there is no definitive evidence that fruit infested with seed weevils immediately falls to the ground, therefore special harvesting techniques provide no additional safeguards.</td>
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<tr>
<td><strong>Post-harvest commodity treatment to eliminate pests</strong></td>
<td>There are no USDA approved treatments to eliminate the pests without damaging the fruit or leaving unacceptable chemical residues.</td>
<td>There are no USDA approved treatments to eliminate the pests without damaging the fruit or leaving unacceptable chemical residues.</td>
</tr>
<tr>
<td><strong>Eligibility of orchards and packing houses</strong></td>
<td>Only orchards in municipalities that comply with the terms of the Ministry’s export program are permitted to export; should sampling yield evidence of pest infestation, the Ministry will suspend the authorization of the orchard or the packing house to export avocados for the rest of the season or until corrective action is taken; evidence of infestation of one fruit means that the entire lot must be rejected; a grove or packing house will not be re-authorized to export until Ministry and APHIS officials agree that the problem has been rectified; any packing house that receives avocados from unregistered orchards or otherwise fails to comply with the requirements of the export program will have its registration and export certification automatically canceled.</td>
<td>APHIS oversight of the implementation and operation of a complex work plan will absorb a lot of resources that could be better used for other purposes.</td>
</tr>
<tr>
<td><strong>Packing and shipping requirements</strong></td>
<td>Packing houses must monitor fruit fly populations on site and verify the absence of pests through random sampling. Fruit will be packed in new, boxes, and labeled with the names and registration numbers of the grower and the packer. The boxes must be sealed and stamped with Ministry seals. An International Phytosanitary Certificate is required for each shipment; fruit must be transported to the US in closed, refrigerated vehicles; fruit will be sampled at the border by US officials; APHIS will specify transportation modes and routines within the US.</td>
<td>The Mexican data from the 1993-94 research study on the host status of Hass avocados showed that the avocados were susceptible to fruit fly infestation within 3 hours of harvest, so avocados could become infested before they were packed; packing and shipping requirements constitute part of a “systems approach” which does not adequately safeguard American agriculture.</td>
</tr>
<tr>
<td><strong>Distribution restrictions</strong></td>
<td>The protocol calls for export to 19 states in the northeast US as a final safeguard for US avocado orchards; the US government would be responsible for preventing commercial transshipment of avocados in the US.</td>
<td>If the avocados exported by Mexico under the proposed systems approach reduces the risk to American agriculture to acceptable levels, Mexico should not have to propose limiting distribution to 19 northeastern states.</td>
</tr>
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Table 3 continued

<table>
<thead>
<tr>
<th>Conclusion</th>
<th>Mexico’s pest risk assessment is based upon seriously deficient research and limited pest survey data; Mexico’s proposed risk management strategies developed from their risk assessment will be ineffective in meeting the necessary and appropriate level of quarantine security.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under the proposed systems approach, exports of avocados from Michoacan will not introduce harmful exotic pests into the US. Mexico has exported avocados to Canada, Europe and Japan for many years without incident.</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Work Plan (including Annexes) for the Exportation of Hass Avocados from Mexico to the USA, SARH (Ministry of Agriculture and Water Resources), September 1994; and Statement by the California Avocado Commission before the USDA/APHIS at the Advance Notice of Proposed Rulemaking [Hearing] Concerning the Importation of Fresh Hass Avocado Fruit Grown in Michoacan, Mexico, Docket No. 94-116-1, December 1994.

been eliminated from the districts participating in the avocado export program and that fruit fly populations were low in these districts. It outlined monitoring activities for future pest detection and presented evidence that fruit flies do not attack unharvested Hass avocados under actual growing conditions. It also specified pre-harvest, harvest, packing, transport, shipping, and distribution procedures that would minimize the risk of there being any pests on exported avocados. SV concluded that the low prevalence of pests and extensive risk-mitigation practices detailed in the work plan constituted a system approach that posed negligible risk for US agriculture. On this basis, Mexico requested that Q56 be modified to allow issuance of permits for imports of avocados into 19 northeastern states during the November-February period of peak harvest in Michoacan.

ARS scientists, who had consistently been critical of the Mexican research effort over the previous three years, continued to find fault with the execution of part of the research conducted under the joint protocol. Nonetheless, they concluded:

“The overall comparison of lab[oratory] and field cage Hass avocados demonstrated (in agreement with other studies of avocados) that fruit attached to the tree shows considerable resistance to fruit fly attack and this resistance coupled with other components of a systems approach has great promise as a quarantine procedure.”

The ARS review also concluded that:

“Data in this report indicate that quarantine security for export of Michoacan avocados to the US may be achieved for *Anastrepha spp.* fruit flies by developing a systems approach (including adequate trapping.)”

Over the next three months, US officials worked with their Mexican counterparts on minor revisions to the work plan. In September 1994, the proposed work plan was viewed

as complete and Mexico now requested an amendment to allow avocado imports under the conditions of the work plan throughout the year. The following month, SV submitted the required pest population survey data.

On November 15, 1994, APHIS published an “Advanced Notice of Proposed Rulemaking and Public Meetings” in the Federal Register. The notice indicated that APHIS was reviewing a request from the Government of Mexico to export Hass avocados from approved orchards in approved municipalities in Michoacan to 19 states in the northeast of the US. It also invited public comment on the work plan and announced that hearings would be held at the end of November in San Diego, California and Homestead, Florida.

Industry Opposition to Changes in the Quarantine

From the outset of the NAFTA negotiations in 1990, the domestic industry had nervously monitored the discussions for evidence that the avocado quarantine might be changed. As early as 1991, one APHIS representative reported that “nearly every inquiry, every telephone call, and almost every piece of correspondence I have recently received with regard to the US-Mexico Free Trade Initiative has included a reference to the potential for authorizing the importation of fresh avocados from Mexico.” APHIS subsequently made numerous efforts to keep the industry apprised of its discussions and correspondence with SV.

One concern frequently expressed by the industry was that the avocado quarantine would be sacrificed to the political initiative underlying the trade agreement negotiations. This claim might be termed an aggressive strategy by the industry in the sense that it reverses the conventional political economy argument of capture of regulatory processes by domestic interest groups. Numerous declarations were made by the US growers to the effect that “science might be traded off in a rush to sign a trade deal;” that despite the “yeoman service in protecting the California industry” by USDA’s field representatives, “political considerations make the science almost irrelevant;” that the Mexican government was treating the avocado pest issues as “a political problem that can be overcome by political

72Federal Register, 7 CFR Part 319, Docket 94-116-1, pp. 59070 - 71, 11/15/94. 73Under the proposal for exports only to the northeastern US, San Diego is 1,723 miles from the closest major distribution point (Chicago) and Miami is 1,020 miles from the closest major distribution point (Philadelphia). By comparison, the Mexican avocado growers have now been exporting for many years to France. Major French distribution centers in the southeast (Marseilles) and southwest (Toulouse) are approximately 640 and 510 miles from Grenada, the heart of Spain’s avocado producing region. 74Speech by Robert L. Griffin, APHIS/PPQ to California-Mexico Agricultural Trade Conference, San Diego, California, 6/27/91. 75Transcript of the Meeting in Homestead, FL, 11/28/94 to discuss the Advance Notice of Proposed Rulemaking, p. 16. 76“Free Trade with Mexico,” Betsey Blanchard Chess, California Grower, 6/91, p. 19. 77“Mexicans Play Hardball in NAFTA Negotiations,” Willard Thompson, California Grower, 7/92, p. 8.
persuasion--not an issue that will be decided by scientific evidence;”78 or that “an opportunistic US government may be susceptible to allowing goodwill politics to supersede science.”79

The publication in November 1994 of an advanced notice of proposed rulemaking was indicative of the controversial character of the avocado quarantine decision. The industry press reported that its sources “confirmed that the powerful CAC and other interests are indeed using political clout to stall the new rule. The CAC, for example, sought the publication of an advance notice of proposed rulemaking, even though this is normally only done when the agency needs more information or does not know what impact the rulemaking might have. In this case, sources said, the consequences of the rule are well understood and the publication of a proposed rule would have been the more normal move.”80 The USDA confirmed that it was not required by law to publish an advance notice but that it sometimes chose to do so when it was “deeply concerned about getting the public’s comments and the industry’s comments.”81

The opposition to Mexico’s proposed work plan was both vocal and industrious at the public hearings. In nearly nine hours of testimony at the two hearings, about sixty people—including growers, industry representatives, state and local government officials, and scientific consultants—voiced their objections. APHIS also received written comments from 291 individuals who opposed changing the terms of the quarantine. Most of the letters were from growers in California, but opposition was also registered by prominent participants in the agricultural policy community, such as the American Farm Bureau Federation, the Western Growers Association, and the Florida Fruit and Vegetable Association. Twenty-four members of the Californian delegation to Congress also signed letters that opposed changes in the quarantine.

The most well-orchestrated opposition was coordinated by the CAC. The CAC submitted a 266-page report for the record and its representatives testified at both hearings. The CAC’s written submission included commissioned reports and letters from entomologists and tropical fruit specialists, entomology journal articles, letters and comments from current and retired government scientists, and several studies on the economic impacts of pest infestation.

At the heart of the CAC argument was the claim that allowing imports of Mexican avocados under the systems approach proposed in the 1994 work plan posed an unacceptable risk of pest infestation to domestic groves. The industry’s critical views of the work plan are summarized in Table 3. The industry asserted that the surveys of pest prevalence had failed to establish low population levels in the Michoacan growing area. It also argued that the

79“Accepting avocado exports,” The Packer, 12/26/94.
80World Food Chemical News, 1/11/95, p. 4.

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proposed monitoring protocols were inadequate and that Hass avocados are a better host of fruit flies than Mexico acknowledged. It pointed out that no approved post-harvest pest treatments are available and argued that the proposed pre-harvest, harvest, packing, transport, shipping, and distribution measures did not sufficiently mitigate the pest risk. The industry also felt that APHIS oversight of the proposed system for pest-risk mitigation would divert resources from other important activities. Given these views, the industry expressed its concern that any infestations of domestic groves that resulted from importation of Mexican avocados would be costly to contain due to US pesticide regulations and the close proximity of the groves to residential neighborhoods.

To bolster its case, the domestic industry emphasized the intricate monitoring, trapping and control systems utilized by California growers. Under this system, the industry had been able to rely primarily on biological controls. The industry argued that use of a biological control system was particularly important given the close proximity of the domestic groves to urban and suburban residential neighborhoods and the consequent difficulties they encountered in the use of cost-effective aerial applications of chemical pesticides. Any relaxation of the quarantine on importation of Mexican avocados would raise pest monitoring costs for its intricate system of pest control, the industry argued. Were infestation to occur, eradication costs would rise and mandatory quarantines would disrupt markets. A state government official noted that since 1984 California had incurred expenses of over $5.5 million to eradicate incipient infestations of the Mexican fruit fly alone. Moreover, the recent appearance of the perseae mite from Mexico had resulted in an increase in pesticide use in San Diego County from less than 14 ounces of pesticides per acre in 1991 to over 2.62 pounds in 1992 and 3.75 pounds in 1993.

Representatives of the California avocado industry also expressed reservations about the ability of Mexico to guarantee that the pest risk mitigation procedures included in its proposed systems approach for avocado exports would be rigorously implemented in the field. One grower expressed this view by asserting that Mexico had neither “the financial resources, the technical expertise, and the trained manpower, nor the dedication and the determination to enforce the changes that are required to make Mexican avocados safe to bring into the US.” The president of the California Avocado Society remarked similarly that “Anyone who has traveled or done business to any extent in Mexico recognizes that at

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82 Statement by A. J. Yates, Deputy Secretary, California Department of Food and Agriculture. Transcript of the Meeting in San Diego, CA, 11/29/94 to discuss the Advance Notice of Proposed Rulemaking, p. 60.
83 Statement by K. Thuner, County Agriculture Commissioner of San Diego County. Transcript of the Meeting in San Diego, CA, 11/29/94 to discuss the Advance Notice of Proposed Rulemaking, p. 66.
84 Transcript of the Meeting in San Diego, CA, 11/29/94 to discuss the Advance Notice of Proposed Rulemaking, p. 114.
the village level through the upper echelon to the pre-government, well placed and well times gratuities facilitate business operations throughout Mexico.”

On the basis of their various objections, the California avocado growers were united in recommending that the proposed work plan for amending the avocado quarantine be rejected. On behalf of the industry, the CAC proposed that Mexico should not be allowed to export avocados unless:

1) Mexico can establish pest free zones;

2) the avocados are treated with a pesticide which assures, at a very high probability level, that exotic pests and diseases are eliminated; or

3) additional scientific research is conducted which unequivocally establishes that Hass avocados are not hosts of exotic pests which are injurious to avocados and other fruits and vegetables grown in the US.

The CAC position would effectively preclude importation of Hass avocados from Mexico for the foreseeable future. The first condition, establishing and maintaining a pest free zone, requires substantial eradication, monitoring, and domestic quarantine enforcement costs well beyond the perimeters of commercial export groves. To do so might eventually prove technically feasible, but would probably be regarded as uneconomical by Mexican officials who believe the current pest risk is already negligible. On the second condition, all parties agree that no adequate post-harvest treatment is available. The third condition, strictly interpreted, also cannot be met. The results of SV’s 1993-94 fruit fly host status research already indicate that fruit flies will attack Hass avocados shortly after they have been harvested. Additional research to rigorously establish the host status of unharvested Hass avocados may only confirm that they are non-preferred hosts, instead of the higher standard of “unequivocal non-host” that the CAC recommended.

Other Views on Amending the Regulations

In contrast to the vehement opposition to amending the avocado quarantine expressed by the CAC and other California growers, some less-vocal support for such a ruling also developed. While only a few individuals--principally importers--who favored access for Mexican avocados testified at the two hearings, APHIS received 59 comments in favor of the proposed rule change, including 45 from the Mexican avocado industry and 10 from

85This is probably a reference to the Partido Revolucionario Institucional (PRI, which is pronounced “pre” in Spanish), the political party that has dominated Mexico’s executive and legislative branches for many decades.
86Statement by Larry Rose, President, California Avocado Society. Transcript of the Meeting in San Diego, CA, 11/29/94 to discuss the Advance Notice of Proposed Rulemaking, p. 142.
87Statement by the CAC for Docket No. 94-116-1, ANPR Concerning the Importation of Fresh Hass Avocado Fruit Grown in Michoacan, Mexico, 01/02/95, p. 2.
importers. The Commissioner of Agriculture of Texas expressed support for the importation of avocados from Mexico not only into the northeast, but also into the southern and southwestern US. He wrote that “If the work the US Department of Agriculture has done in conjunction with the Mexican Department of Agriculture is sufficient for the states in the northwestern [sic] section of the US, it should also be sufficient for the rest of the country. This protocol has been delayed for almost two years now, and many residents of Texas are interested in the safe importation of the Mexican avocados.”

Compared to the strong conviction by California avocado growers that the surveys in Michoacan had failed to establish an adequate basis for determining the prevalence of pests or the pest risks from imported Hass avocados, there was also a noticeable lack of concern about pest infestations risk among some US fruit producers that might be expected to express concern. California avocado growers asserted that “the Mexican proposal places not only the California agriculture community at great risk but also endangers the livelihood of growers cultivating a wide range of fruits and vegetables in Florida, Louisiana, Arizona, Texas, and other states.” However, in contrast with the California industry, the Florida avocado industry’s criticism was muted: the Chairman of the Florida Avocado Administrative Committee simply wrote a one page letter to question Mexico’s work plan. No growers from states other than Florida or California--such as citrus producers in Arizona or stone fruit producers in Georgia who might also be affected by fruit fly infestations--registered opposition to the proposed importation of Mexican avocados.

Representatives from California’s tree fruit industry also voiced their concern that the Mexican government would continue to use unjustified technical barriers to bar imports of US stone fruits such as peaches, nectarines and plums in order to build political pressure against the US quarantine of Mexican avocados. For example, the president of the Northwest Horticultural Council urged APHIS to “work with the same expediency and scientific justification desired of its counterparts in Mexico when consideration is sought for the proposed exportation of a US commodity to their country.” His letter to APHIS stated that the success of the efforts of the Northwest Horticultural Council to gain access to the Mexican market for stone fruit “hinge on the ability of Mexico’s producers of products such as Hass avocados to secure access to the US market.”

The US growers of other fruits continued their argument by asserting that southern California avocado growers were using their own political influence to delay an inevitable market opening, with detrimental effects on US exports of the other commodities. The California avocado growers were accused of “doing business on both sides of the border

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88Letter from Commissioner of Agriculture of Texas to Chief, Regulatory Analysis and Development, APHIS, 12/13/94.
89Statement by Tom Belimar, Vice President of the CAC. Transcript of the Meeting in Homestead, FL, 11/28/94 to discuss the Advance Notice of Proposed Rulemaking, p. 97.
while hamstringing exports by others.”

An editorial in The Packer quoted a Washington State apple exporter who said, “The avocado industry seems to be saying what we heard from the Japanese for 20-some years.”

APHIS’s Proposed Rule

On July 3, 1995, APHIS published a proposed rule on the importation of avocados from Mexico in the Federal Register. The proposed rule recommended that the quarantine regulations be amended to allow “fresh Hass avocado fruit grown in approved orchards in approved municipalities in Michoacan, Mexico to be imported into certain areas of the United States, subject to certain conditions.”

The announcement gave notice of five public hearings to be held on the proposed rule during August 1995 and stated that public comments would be received through October 16, 1995.

In the proposed rule, APHIS reported the findings of its independent evaluation of the Mexican work plan and its responses to the comments received in response to its advanced notice of proposed rulemaking. The main points from the proposed rule are summarized in Table 4.

APHIS defended the use of a systems approach to mitigating pest risk in its proposed rule, citing other situations in which a systems approach was used by the United States to facilitate import and export of fruits and vegetables, and the success of the SV system approach for exporting avocados to Japan. APHIS asserted that the nine mitigation measures which are elements of their proposed systems approach went beyond the Mexican work plan of September 1994 in response to its concurrence with many of the comments that suggested “some additional safeguards would be necessary to prevent introduction of plant

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92 “He calls them like he sees them, and he calls this one foul,” The Packer, Tom Karst, 5/1/95.
94 Japan is well-known for its vigilance in enforcing exacting phytosanitary regulations. It does not need to be concerned about host-specific pests because avocados are not produced domestically. But Japanese growers produce a wide variety of fruit that are preferred hosts for the fruit flies that supposedly concern the California industry. Some in the US industry seem to be unaware that Mexico already meets the standards for exporting avocados directly to Japan. For example, one representative from an avocado cooperative said, “Scientifically, I don’t see any evidence that’s remotely close to proof from the Mexican side. It’s not the same protocol we’d have to use to prove that our fruit was okay if we shipped it somewhere like Japan.” (“Crossing the Border: Debate over Quarantine May be in Final Stage,” California Grower, March 1995, pp. 37 - 41.)
95 These mitigation measures are field surveys; trapping and field treatments; field sanitation; host resistance; post-harvest safeguards; winter shipping only; packinghouse inspection and fruit cutting; port-of arrival inspection; and limited US distribution (Miller et al. 1995).
<table>
<thead>
<tr>
<th>Risk Factor/ Mitigation Procedures</th>
<th>Proposed Conditions for Entry</th>
<th>Response to Public Comments</th>
</tr>
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<tbody>
<tr>
<td>Prevalence of pest</td>
<td>A municipality would have to be determined to be free of avocado seed weevils and seed moth during the growing season before exports would be allowed; orchards wishing to export would have to be free of stem weevil.</td>
<td>SV export program very successful in mitigating pest risk; past three years no pests of concern were detected in five million kilograms of avocados shipped to Japan; fruit fly populations would have to be monitored throughout the year; temperatures in November-February significantly lower the level of fruit fly activity.</td>
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<td>Pest detection (inspection and sampling activities)</td>
<td>Surveys that include portions of each orchard wishing to export and of areas with “backyard” or wild fruit would have to be conducted annually for seed weevils and moth before the harvest; surveys for stem weevil would have to be conducted annually on all orchards wishing to export and all contiguous orchards and properties; trapping programs would have to be maintained throughout the year to detect presence of three fruit flies; SV would be required to trap for Medfly.</td>
<td>SV surveys for seed pests was appropriate for detecting infestation; fruit fly trapping conducted by SV was flawed but export requirements would hold such trappings to a higher standard; packinghouse sampling requirements alone would yield a five percent confidence level of detecting an infestation of one percent or greater.</td>
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<tr>
<td>Host status of Hass avocado</td>
<td></td>
<td>APHIS agrees that SV surveys in 1993 and tests under laboratory controlled conditions were limited in scope and did not demonstrate that Hass avocados are non-hosts to fruit flies; however, APHIS concludes that the surveys and other studies demonstrate Hass avocados are a non-preferred fruit fly host prior to harvest; APHIS and ARS have never found Anastrepha (A. ludens) fruit flies in Hass avocados outside laboratory tests; more research is needed before any conclusion about natural resistance can be applied to the quarantine status of Hass avocados.</td>
</tr>
<tr>
<td>Pre-harvest treatment</td>
<td>Regular field sanitation measures including removal of dropped fruit and dead branches would be required.</td>
<td>Growers in Michoacan use pesticides not approved for use in the US but the Food and Drug Administration tests imported fruits and vegetables for residues and denies entry if residue of an unapproved pesticide is found.</td>
</tr>
<tr>
<td>Harvest practices</td>
<td>Only fruit picked directly from the tree could be exported.</td>
<td>Fallen avocado fruit is more likely to be infested by pests.</td>
</tr>
<tr>
<td>Post-harvest commodity treatment to eliminate pests</td>
<td>Currently, there is no effective treatment for eliminating fruit flies or any of the avocado pests of concern from Hass avocado fruit.</td>
<td>Would consider its use if a treatment were developed.</td>
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### Table 4 continued

<table>
<thead>
<tr>
<th>Eligibility of orchards and packinghouses</th>
<th>Resources to implement the proposed safeguards are already in place; import authorization would not be provided if APHIS resources decrease below the level needed to prevent the introduction of plant pests.</th>
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<tr>
<td>Only orchards participating in the SV export program would be eligible; all shipments would be labeled so that any pest infestations could be traced back to orchard of origin; upon discovery of any of the four seed pests a municipality would lose its pest-free certification and exports would be suspended until APHIS and SV agreed that effective eradication measures had been taken; upon discovery of stem weevil an orchard would lose its export certification immediately for the entire season; specific procedures would have to be followed to lower any detected fruit fly populations; APHIS monitoring costs to be reimbursed by the Mexican industry.</td>
<td>Hass avocados may be a better host to fruit flies after harvest but requirements for post-harvest treatment that are more extensive than proposed by SV would prevent infestations.</td>
</tr>
<tr>
<td>Packing and shipping requirements</td>
<td>Distribution restrictions Restricting on ports of entry and transportation routes; APHIS inspection at port of entry; restriction of final destinations to northeastern states; restriction of shipping season to November-February. ARS would notify APHIS if Mexican fruit showed up at terminals in prohibited states.</td>
</tr>
<tr>
<td>Fruit must be moved to packinghouses within three hours of harvest or protected from fruit fly infestation during transit; fruit from nonparticipating orchards can not be on packinghouse premises during processing of exports; screening and double door entry system required; sampling at rate of 250 fruits per shipment; an SV phytosanitary certificate would have to accompany each shipment.</td>
<td>Conclusion Proposed requirements go beyond those of the SV program and suggested in the Mexican work plan; safeguards make it unlikely that infested avocados would enter the US; even in such an event, restrictions on season and destination virtually eliminates risk of pests due to weather conditions and geographic distance from susceptible growing areas. APHIS believes the system approach would prevent introduction of plant pests into the US, therefore it is unnecessary to establish Michoacan as a pest-free zone prior to importing Hass avocados; multiple safeguards would mitigate pest risk at a level equivalent to that provided by a treatment yielding a profit nine mortality.</td>
</tr>
<tr>
<td>Conclusion</td>
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</table>
APHIS concluded that the agency's proposed systems approach would provide an adequate level of security to domestic growers, based on the results of its quantitative pest risk assessment which concluded that with the proposed systems approach in place, a seed pest or fruit fly outbreak might occur on average less than once every 1,000,000 years and that a stem weevil outbreak might occur on average once every 11,402 years.  

Two aspects of the dispute about whether the Mexican work plan provides adequate pest risk protection concern the value of the evidence that has been presented about the prevalence of pests in Michoacan and the host status of unharvested Hass avocados for A. ludens. The CAC's technical advisors, including scientists from the state's universities, were skeptical of the proposed work plan on this basis. In their professional opinions, the risk mitigation procedures detailed in the work plan were predicated on surveys that were limited in scope and flawed in execution. Many of the technical advisors concurred with one plant physiologist who stated, "The research conducted in 1993-1994 did not provide conclusive data to base a work plan on, rather, it only provided the preliminary framework on which to base a long term research program" which would last, at a minimum, four to five years.  

Their technical criticism of the pest surveys was detailed, including, for example, objections to incorrect trap placement, weak trapping bait, insufficient climatological records, and inadequate trapping densities. In its proposed rule, APHIS acknowledged that it shared many of the domestic industry's concerns about the SV surveys and research being limited in scope or flawed in various technical dimensions. As a consequence, APHIS proposed more comprehensive surveys for host-specific pests during each growing season than had been proposed in the work plan. In particular, APHIS proposed that these surveys would have to include areas with "backyard" or wild avocado fruit and all orchards and properties contiguous with orchards seeking approval to export. APHIS also noted that it would require a higher standard for trapping to detect fruit fly population levels than SV had carried out in its research. Trapping for Medfly would also be required as a precaution, even though Medfly had only been detected in southern Mexico.  

While APHIS concluded that the various proposed requirements for shipments from Michoacan made it very unlikely that pest infestations would occur in imported fruit, in light

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96 This same report notes that if avocados were imported with no regulatory controls except for port-of-entry inspections, a seed weevil outbreak might occur every 95 years, a stem weevil outbreak might occur every 7 months, a seed moth outbreak might occur every 355 years, and a fruit fly outbreak might occur every 72 years ("Importation of Avocado Fruit (Persea americana) from Mexico: Supplement Pest Risk Assessment," USDA/APHIS, May 1995.)

97 Statement by Marylou Arpaia, Cooperative Extension Horticulturalist, University of California, Riverside, 11/30/94, Docket No. 94-116-1.

98 Statement by the California Avocado Commission before the USDA/APHIS, Advance Notice of Proposed Rulemaking Concerning the Importation of Fresh Hass Avocado Fruit Grown in Michoacan, Mexico, Docket No. 94-116-1, 1/3/95.
of its reservations about the SV survey and research results, it also proposed that permits for exports be limited to the period November-February, as had been requested in Mexico’s June 1994 work plan. APHIS noted that during this season, not only would weather conditions in Michoacan reduce pest risks, but weather conditions in the northeastern US would preclude establishment of pests in the event that any infestation were to occur. With this final provision, APHIS concluded that it was unnecessary to establish Michoacan as a pest-free zone prior to allowing Hass avocado imports. APHIS noted that the alternative to its proposed rule was to make no change in the quarantine. It rejected this alternative because “there appears to be no pest risk reason to maintain the prohibition on avocados in light of the safeguards that would be applied to their importation.”

Discussion and Conclusions

This paper has reviewed the longstanding and not yet fully resolved dispute between Mexico and the US concerning phytosanitary regulations that prohibit importation of Mexican avocados. Since 1972, there have been three protracted investigations of whether the fresh fruit can be imported into the northeastern area of the US without risk of pest infestations to groves in California and Florida. The first two reevaluations occurred during the 1970s. The third reevaluation was given impetus by the commitment of the NAFTA negotiating parties to establish scientific principles to insure adequate sanitary and phytosanitary safeguards without undue restrictions on international trade.

During the 1970s, domestic growers were successful in forestalling avocado imports from the Mexican states of Michoacan and Sinaloa despite substantial scientific evidence that this would create minimal risk. Ten years passed before the NAFTA negotiations prompted a renewed period of inquiry. Evidence has accumulated over the five years of this investigation that suggests a systems approach to pest-risk mitigation can provide protection against pests in a least-trade-distorting manner. If so, such a systems approach would be consistent with the regulations in the Fruit and Vegetables Quarantine of the US and the stated intent of phytosanitary trade principles enunciated in NAFTA.

Despite the domestic industry objections, on July 3, 1995 a proposed rule was published by APHIS. The proposed rule recommends amending the existing quarantine on Mexican avocados to allow permits for imports from the Mexican state of Michoacan during the months of November to February, when weather conditions in Mexico and the northeastern US minimize risk of pest infestations. The proposed rule also establishes stringent criteria to be met for monitoring insect populations, harvesting, packing and shipping practices, and inspections designed to eliminate any pest risks.

The proposed rule published by APHIS marks an important step in the longstanding dispute between Mexico and the US over the pest risks associated with importation of Mexican avocados. For the first time, the USDA is on the public record in support of a protocol under which imports can be allowed without creating a phytosanitary risk for domestic producers. The proposed rule will be subject to an extensive set of five public hearings and to public comment through October 16, 1995. If a subsequent final rule is
published that modifies the existing quarantine, then the avocado dispute will provide an
important example of a case in which international negotiations to liberalize trade facilitate
measures to ease trade restrictions in the arcane area of technical barriers to agricultural
products. The final rule could be subject to legal challenge, but even so it would be an
important step toward the possibility that avocados from Mexico would enter the mainland
US legally for the first time since 1914.

While there remains some uncertainty about the final outcome, a number of observations
can be made from the avocado case at this time. The economic theory of regulation, or, as
it is better known, political economy theory, provides a conceptual framework for these
observations. This theory postulates that concentrated domestic interest groups with high
stakes in a particular decision will often overcome organizational and free-rider difficulties
more successfully than others and achieve regulatory decisions to their benefit (often income
transfers) at a net cost to society. In the case of administered international trade barriers such
as sanitary and phytosanitary regulations, whether international negotiations can affect the
outcomes of the regulatory process in a constructive manner is an important institutional
consideration.

In the context of political economy theory, the characteristics of the avocado industry in
the US are consistent with the generic description of a special interest with high stakes
described in the formal literature. Large start-up costs and long periods over which these
initial sunk costs can be recovered through productivity of the established groves give the
existing industry a strong incentive to maintain any barriers that provide the domestic
producers with a favorable price differential. The industry is highly concentrated in
(primarily) one region of one state. While a modest number of small producers give the
industry a degree of public presence, there are also a number of very large producers with
concentrated stakes in the outcomes of any regulatory decisions.

Beyond the characteristics of the industry, several other circumstances related to the
avocado quarantine are also consistent with features identified in the political-economy
literature as favoring capture of a regulatory process by special interests. Unlike some trade-
related issues of public health or environmental degradation, issues related primarily to risk
of pest infestation in domestic crops are not likely to generate extensive public interest or
involvement. The highly technical character of the scientific evidence that must be evaluated
also weighs in favor of an influence on the regulatory process by domestic producers. The
technical regulatory evaluation rests within an executive branch agency and the final decision
with the administrative hierarchy of USDA. The concentration of USDA on the agricultural
sector of the economy again is a factor that generically favors the access and influence of
domestic producers.

It is also relevant that a decision to allow importation of Mexican avocados into a number
of states simultaneously is more of a discrete decision than a decision along a continuum.
While, allowing importation into Alaska may have little economic impact on the domestic
industry (as well as pose insignificant pest risk), allowing imports into any plausibly-defined
region of the mainland is quite likely to have economically meaningful impacts.
In the avocado case, there is a longstanding well-documented (indeed, beyond dispute) history of political activity by the avocado growers to protect their perceived interests. This history has involved extensive interaction with APHIS both at the technical level and through higher-level administrative and political channels. Thus, the avocado industry has pursued all three of the avenues of influence indicated in the schematic representation of the regulatory process of Figure 1. The extraordinary efforts APHIS and USDA have made to facilitate consultation with the industry and to make formal arrangements to receive its inputs attest to the effectiveness of the industry’s efforts to participate in the regulatory process.99

A comparison of market prices between domestic US markets and an equivalent urban Canadian market for export-quality Mexican avocados indicates that the quarantine on importation of avocados from Mexico into the US has provided a substantial price advantage for domestic growers. The price differential between the two markets has induced commercial smuggling of avocados into the US because of the long contiguous border between Mexico and the US. While these contraband shipments have not been of sufficient quantity to eliminate the price differential, numerous pests of quarantine significance have been detected in the confiscated shipments. Illegal shipments are not subject to any of the pest-risk mitigation practices that would be required under the proposed protocols for legal importation. Moreover, these shipments arrive in much closer proximity to the domestic groves than would be the case for legal shipments to the northeastern states. Together, these factors suggest that some reduction of actual pest-infestation risk due to lower incentives for smuggling would offset any increased risk (however inconsequential that may be judged to be) associated with amendment of the quarantine.

Taking these considerations together, it is reasonable to conclude that a presumption that the domestic industry had “captured” the import quarantine regulations on Mexican avocados, in the sense of the political economy theory, is a plausible hypothesis. Confirmation of this presumption requires evaluation of the scientific evidence. On this grounds, economists and other social scientists evaluating phytosanitary regulations are of necessity dependent on complex and often divergent arguments by entomologists and other physical scientists.100

During the 1970s, the pest survey results seemed to convince the technical analysts in APHIS that there were sufficiently low pest populations within two different avocado growing regions of Mexico that a protocol could be developed under which avocados could

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99 When it became apparent that USDA intended to publish the proposed rule, the avocado industry made an unsuccessful last-ditch effort to have language inserted into an appropriations bill for fiscal year 1996 requiring an independent peer review of APHIS’ risk assessment and proposed risk management strategies before proceeding with the rulemaking process.

100 A serious issue of research methodology arises here. If capture of the regulatory process has occurred, social scientists will not find formal agency assessments providing technical support for changes in regulations and will have to piece such a case together independently. In the avocado case, we are now fortunate to have the APHIS proposed rule, otherwise it would be much harder to make this type of evaluation.
be imported into northeastern states while providing adequate protection from pest infestation to domestic growers. In Michoacan, it was not possible to claim that the region was free of pests of quarantine significance and the request to allow imports was formally denied, partly on the basis of cursory evidence of pest populations not indicated by the survey results. In the case of Sinaloa, a senior APHIS official requested that a proposed change in entry status be prepared but the request was not acted upon and importation was never allowed. In both of these cases, conclusions drawn by the agency’s technical staff failed to be acted upon by USDA’s administrative hierarchy. Because pest-free status was not conclusively established to the satisfaction of all interested parties, there was room for a regulatory “judgement call” over whether the proposed protocols for exports to the US provided adequate protection from pest risk when all factors were considered. The domestic industry’s opposition, which was actively registered throughout the investigations, prevailed on the final decisions under these circumstances. This outcome is consistent with the capture hypothesis.

There is widespread acknowledgment that the initiation of discussions about NAFTA provided the impetus to a renewed investigation of the avocado quarantine after ten years of hiatus. The objective of the NAFTA negotiations was to minimize barriers to regional trade. This objective, which was endorsed by many segments of American agriculture and at the highest political levels, implied that longstanding disputes about technical barriers could be expected to receive reconsideration.

Mexico moved quickly to put the avocado quarantine on the agenda for trade negotiations under NAFTA. A long investigation followed, with APHIS and SV working closely through the Phytosanitary Working Group to determine whether changes in the prohibition are justified. The industry has opposed any reconsideration of the avocado import ban, but after substantial review, critique, and modification to Mexico’s proposed work plan, APHIS published its proposed rule and has scheduled public hearings on the protocol recommended for allowing imports of Mexican avocados from Michoacan into 19 northeastern states. Again, this is a landmark event because the USDA administrative hierarchy has now approved the agency going on the public record as supporting a protocol to allow imports that it asserts does not pose risk of pest infestation to domestic growers.

Given the history of the avocado case, it may provide an early example wherein negotiation of an international trade agreement contributes to rule changes that moderate longstanding technical barriers to trade that are concluded to be too stringent in their effects on international movements of agricultural products. If APHIS’s proposed rule stands up to the additional scrutiny it will receive during the extensive period of public hearings and comments, then it seems plausible to conclude that, while there once had been capture of the quarantine regulation, the enactment of NAFTA served as a countervailing factor leading to modification of an unwarranted technical trade barrier—even though the formal dispute settlement process that NAFTA established was never engaged.

If the quarantine is modified, the Mexican avocado industry will come under intense scrutiny. An amendment of the longstanding quarantine does not guarantee ongoing access regardless of the results of future pest surveillance. APHIS may repeal the access that has been granted if future inspections detect pest infestations—as the reversal of the authorization
of shipment of avocados from Hawaii to the mainland in 1992 illustrates. The domestic avocado industry will have every incentive to ensure very stringent testing if Mexican avocados are permitted into the northeastern US. The economic incentive for Mexican exporters to maintain access to the US market will also be high. Under this scenario, to be successful the Mexican exporters will have to maintain the absence of pest infestations promised by the proposed work plan for amending the avocado quarantine.
References


Food and Agriculture Organization [FAO]. *Agrostat* (electronic production and trade database), various years.


