



The Challenge of Increasing Trade: How to Address Linkages and Barriers

**Drawing lessons from two specific examples
—Avocados and Apples**

David Orden and Everett Peterson

Presented at the USDA 2008 Agricultural Outlook Forum

February 21-22, 2008

Systems Approach to Risk Management

A set of compliance measures are specified that reduce the pest risk associated with trade of a commodity

Rests on a firm foundation in the World Trade Organization (WTO)

The SPS Agreement states that Members shall ensure that their measures “are not more trade-restrictive than required to achieve their appropriate level of sanitary or phytosanitary protection.”

When are regulations changed this line?

Five determining factors often are necessary to achieve new SPS regulations that increase trade:

- 1. Economic opportunity (clear incentives for trade arising from price differentials that would lead to exports)**
- 2. Scientific assessment (evidence of ability to limit risk)**
- 3. Traceability (to ensure pest infestations can be traced back to their origin)**
- 4. Persistence (on the part of potential exporters)**
- 5. Joint political will (to reach an accord by the negotiating governments)**

The Avocado Case

- 1914 until 1993: Phytosanitary restrictions precluded entry of Mexican avocados into the United States**
- 1993: Hass avocados from Mexico were permitted entry only into Alaska**
- 1997: Hass avocados from Mexico were allowed entry into 19 northeastern states and the District of Columbia during November through February**
- 2001: The area approved for imports was expanded by an additional 12 states and the period of importation was extended to six months**
- 2004: The remaining geographic and seasonal restrictions were eliminated initially into 47 states and to all states starting in February 2007**

Progressive easing of the avocado import ban demonstrates successful application of a systems approach which has opened the U.S. market to approved Mexican producers and created more than a \$100 million annual export industry

When are regulations changed: Avocados

Opportunity: Prior to opening of the U.S. market wholesale prices of export-quality Mexican avocados in Canadian and European cities were substantially lower than prices in U.S. cities. Mexico is a large, geographically-proximate avocado producer with substantial capacity to increase its exports.

Partial opening of the U.S. market was assessed to bring prices down slightly in economic models. In the two years October 2001-October 2003 when some Mexican avocados were entering the U.S. they sold at average wholesale prices below California avocados during the months and states where both were available.

Economic models also suggested that full opening of the market in 2004 would cause U.S. prices to fall about 10-15 percent. Earning of U.S. producers would decline but consumers would gain from lower prices and increased availability of domestic and imported fruit.

When are regulations changed: Avocados

Science: Avocado-specific pests generally not found in the United States are prevalent within Mexico's production areas, particularly within non-commercial orchards. Additional attention has focused on Mexican fruit flies.

Mexican growers and sanitary authorities have always acknowledged the presence of the avocado pests but have argued that they can be effectively controlled in approved commercial orchards with relatively minimal measures.

Bilateral technical discussions were initiated in the early 1990s. It took four years of procedural negotiations, data collection and analysis before USDA agreed to consider a Mexican plan for easing the avocado quarantine.

The proposed systems approach required annual surveys to determine pest incidence and pre-harvest, harvest, transport, packing, and shipping measures designed to reduce pest risks. Peterson and Orden (2008) estimate that the various compliance measures added about \$0.11 per pound to the cost of Mexican exporters (about 11 percent of wholesale U.S. prices) during 2003-05.

For the 2004 rule additional pest risk assessment was also carried out.

When are regulations changed: Avocados

Traceability: Traceability is required, with identification so that any infested fruit detected through inspections can be tracked back to the packing house and orchard from which it originated.

When are regulations changed: Avocados

Persistence: Development of modern pesticides and cultural practices has allowed Michoacán to establish an industry of approved export-oriented avocado orchards. These orchards first successfully met the pest control standards of countries such as Canada and Japan, where avocados are not grown.

In the process the industry improved its production techniques and organization. The export industry includes participants familiar with U.S. markets and institutions. It is organized through the Michoacán Avocado Packers and Growers Association (APEAM) which has played a sustained role in pressing the argument for access to the U.S. market. As the Mexican export industry grew, the association gained members and financial resource, better positioning it to continue making its case.

When are regulations changed: Avocados

Political Will: The avocado trade issue has long historical origins. Twice during the 1970s USDA took preliminary steps to ease the avocado import ban. In both cases no final decision was enacted so the ban remained in place.

The issue lay unresolved through the 1980s.

Then the NAFTA negotiations provided an opportunity for Mexico to raise this issue again. A phytosanitary rule such as this could not be addressed in the NAFTA text, but negotiation of NAFTA provided the impetus for the necessary technical evaluation process to be initiated and sustained.

Did APHIS Get it Right?

	1. Base (Limited Access)	2. Unlimited Access with Compliance Measures	3. Unlimited Access without Fruit Fly Compliance Measures	4. Unlimited Access without Compliance Measures for Fruit Flies or Avocado Pests	
				a. Average Risk	b. High Risk
Quantities	Million Pounds				
California	346.0	306.9	306.6	303.4	290.0
Chile	176.8	146.6	146.3	145.0	146.6
Mexico	58.2	206.9	209.7	221.7	226.8
Pest Related Costs	Million Dollars				
Mexican Compliance	6.3	11.6	9.4	0.0	0.0
U.S. Expected Control	0.0	0.020	0.021	3.1	25.6
Welfare Effects	Million Dollars				
Producer Surplus					
California		-107.7	-108.5	-112.8	-119.9
Chile		-25.1	-25.3	-26.3	-24.9
Mexico		3.1	3.2	3.6	3.8
U.S. EV		179.4	182.0	193.3	175.7
Net U.S. Welfare		71.8	73.5	80.4	55.6

The Apple Case

Apple production in China has increased substantially in recent years and now accounts for nearly half of the total global output. Correspondingly, China has highlighted apples (and also pears) as products for which it has sought market access in many of its negotiations with trade partners about agricultural technical barriers.

China's apple exports have skyrocketed as markets have been opened. In the 2004/05, China exported 850,000 metric tons of fresh apples, a nearly five-time increase in the export volume over five years. A large proportion of the increase in Chinese apple exports has gone to Pacific Rim markets.

In North America, the importation of Chinese fresh apples from approved orchards and packers in selected provinces has been authorized by Canada since November 2004 but importation of fresh apples remains banned by the United States.

When are regulations changed: Apples

Opportunity: It is not as obvious that there is an economic opportunity for Chinese apples in the U.S. market as in the case of Mexican avocados. Chinese apples have obtained only about a 3-percent share of Canadian fresh apple consumption. The Chinese apples imported by Canada are mainly sold in the Asian communities at relatively high prices as a somewhat specialty product.

In the European Union, Chinese fresh apples account for only about a 1-percent market share.

Imported Chinese apples would similarly be likely to enter the U.S. market as a specialty item. This limits the economic gains but also limits the pest risks which increase a larger volume of trade.

When are regulations changed: Apples

Science: Since there has not been a U.S. risk assessment, the scientific evidence is less cohesive at this point in time. One can examine the risk assessments that Canada and other countries have made and the risk-mitigation measures they have imposed. From this, one can describe a prototype or hypothetical systems approach that might be adopted by the U.S.

The decision by Canada provides some evidence that a risk assessment can support Chinese apple imports with feasible risk-mitigation requirements. Canada identifies 10 pests of concern and its risk-mitigation implementation is closely coordinated with Chinese sanitary authorities.

But a process of pest identification, data collection, risk assessment and analysis of mitigation measures has only progressed to an early stage for the U.S.

When are regulations changed: Apples

Traceability: Canada requires traceability, as could the United States.

When are regulations changed: Apples

Persistence: China has obviously developed a substantial apple export industry but its knowledge and experience with the North American market is limited. Only a few packers are approved to export to Canada and the initial exporting firm had previous business ties there.

With a relatively small volume shipped, the constituency of producers and firms involved in this trade will remain small. Thus, it may take a long time for a strong Chinese industry voice to emerge to press the case for further market opening.

When are regulations changed: Apples

Political Will: The current political environment does not seem conducive for decisions that open U.S. markets further to imports from China.

At the macroeconomic level, there is a large U.S. bilateral trade deficit and arguments are made that the Chinese currency should be revalued. There is concern about industrial competition in general from this lower-wage country. And the safety of products from China, from pet food to pharmaceuticals, has made front-page international news.

In this context, it would be difficult for the two governments to agree to intense efforts to reduce phytosanitary barriers for a new product.

It can be argued that NAFTA was also controversial when negotiated. But once a high-level political decision was made to reach the NAFTA accord it provided an institutional impetus for various bilateral trade issues to be addressed. There is no similar high-level accord currently under discussion between China and the U.S.

Analysis for Apples

Without considering pest risk, it is assumed that Chinese exports to the U.S. would achieve about a 3-percent share of the total U.S. apple consumption and sell at a price above the U.S. market average, similar to the situation for Canada in 2003-2004. This results in small economic gains.

Next the outcomes are evaluated with pest risks and related control costs taken into account. The probabilities of U.S. pest outbreaks due to the importation of Chinese fresh apples are not known. Thus, the risk probability levels are estimated that cause the expected change in U.S. welfare due to granting market access to Chinese fresh apples to fall approximately to zero. Higher levels of risk from trade would result in expected welfare losses.

In the case of the assumed lowest costs from pest infestations, an expected frequency of a trade-related pest outbreak of approximately 0.2 per year, or one every five years, leaves U.S. welfare unchanged. For the cases of assumed “average cost” and “high cost,” the expected frequency of an outbreak that leaves U.S. welfare unchanged drops to once in 16.7 and 50 years, respectively.

Overall Conclusions

There are several general lessons from this case-study evaluation:

- **In some instances, calls to reduce technical trade barriers may not be matched by real economic circumstances that would result in trade.**
- **In other cases, where exporters rightly perceive a real economic opportunity, they face multiple challenges. These challenges should figure into their business calculations and industry strategy.**
- **An industry seeking market opening needs to send the “A team” into the fray and even then recognize that its fate depends in part on contextual forces beyond their control.**
- **Appreciation is gained of the complex environment in which regulators operate. This may be no surprise for those with experience, but the point needs to be widely understood. Such understanding will enhance the functioning of the regulatory process.**

The examples discussed focus on U.S. decisions, but the lessons apply elsewhere as well

References for these Complex Issues

- Orden, David. and Everett Peterson (2006). “Science, Opportunity, Traceability, Persistence and Political Will: Necessary Elements of Opening the U.S. Market to Avocados from Mexico,” in New Frontiers in Environmental and Social Labeling (Ulrike Grote, Arnab K. Basu and Nancy Chau, editors), New York: Springer, pp. 133-50.**
- Orden, David, Lili Gao, Xiang Xue, Everett Peterson and Suzanne Thornsbury (2007). “Technical Barriers Affecting Agricultural Exports from China: The Case of Fresh Apples.” Draft Report, International Food Policy Research Institute, Washington D.C.**
- Peterson, Everett B. and David Orden (2008 forthcoming). “Avocado Pests and Avocado Trade,” American Journal of Agricultural Economics.**
- Roberts, Donna and David Orden. 1997. “Determinants of Technical Barriers to Trade: The Case of US Phytosanitary Restrictions on Mexican Avocados, 1972-1995,” in Understanding Technical Barriers to Agricultural Trade (David Orden and Donna Roberts, editors), St. Paul, Minnesota: University of Minnesota, Department of Applied Economics, International Agricultural Trade Research Consortium, pp. 117-160.**