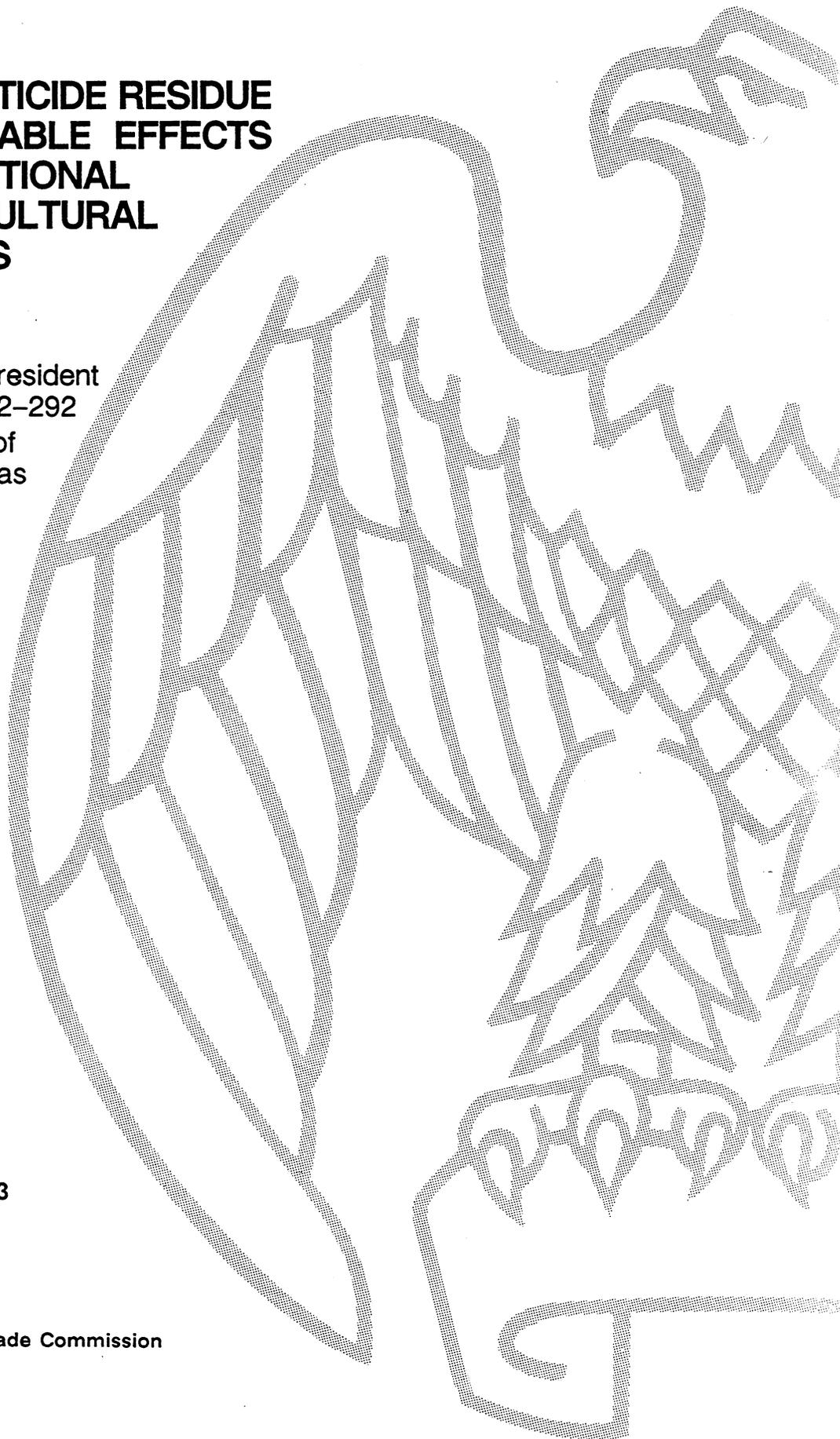


**CALIFORNIA PESTICIDE RESIDUE
INITIATIVE: PROBABLE EFFECTS
ON U.S. INTERNATIONAL
TRADE IN AGRICULTURAL
FOOD PRODUCTS**

Interim Report to the President
on Investigation No. 332-292
Under Section 332(g) of
the Tariff Act of 1930, as
amended



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United States International Trade Commission
Washington, DC 20436

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PREFACE

On May 29, 1990, at the request of the United States Trade Representative (USTR), at the direction of the President, and in accordance with section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)), the U.S. International Trade Commission (Commission) instituted investigation No. 332-292, California Pesticide Residue Initiative: Probable Economic Effects on U.S. International Trade in Agricultural Food Products, for purposes of providing information with regard to these areas:

1. The extent to which enactment of the "California Environmental Protection Act of 1990" could create major differences between California and Federal standards for chemical residues in food;
2. The volume and value, by country of origin, of agricultural fresh and processed food products imported through the ports of California, and the volume and value, by country of origin, of the imported agricultural fresh and processed food products marketed in California;
3. The volume and value, by country of destination, of agricultural fresh and processed food products exported through the ports of California, and the volume and value, by country of destination, of California agricultural fresh and processed food products which are exported; and
4. The potential international trade effects which would flow from enactment of the Initiative.

The USTR request, reproduced in appendix A, asked that the Commission provide an interim report not later than September 30, 1990, and a final report of the results of its investigation not later than December 31, 1990.

Notice of the investigation was posted at the Office of the Secretary, U.S. International Trade Commission, Washington, DC, and published in the *Federal Register* (55 FR 23307) of June 7, 1990. A copy of the Commission's notice of investigation is reproduced in appendix B.

A public hearing on the investigation was held on July 10, 1990, at the U.S. International Trade Commission building, 500 E Street SW., Washington, DC, and all persons who requested the opportunity were permitted to appear. A list of witnesses appearing at the hearing appears in appendix C. The Commission also invited interested persons to submit written statements concerning the investigation. See appendix D for summaries of testimony and written submissions by interested parties.

GLOSSARY

Active ingredient

An ingredient in a pesticide product that destroys or controls a pest.

Carcinogen

A substance or a mixture of substances that produces or incites cancer in a living tissue.

Fungicide

A class of pesticide that prevents, destroys, or mitigates fungi (mushrooms, molds, mildews, rusts, etc.).

Herbicide

A class of pesticide that prevents, destroys, or mitigates unwanted plants or weeds.

Inert ingredient

An ingredient in a pesticide product not intended to destroy or control a pest but rather used to dissolve, dilute, propel, or stabilize the active ingredient in the pesticide product.

Insecticide

A class of pesticide that prevents, destroys, repels, or mitigates insects.

Nontarget organisms

Those plants and animals (including humans) that are not intended to be controlled, injured, killed, or detrimentally affected in any way by a pesticide.

Oncogen

A substance or a mixture of substances that produces or incites tumor formations in living tissue.

Pesticide

A general term for chemical or biological products used to destroy or control unwanted insects, weeds, fungi, mites, rodents, bacteria, or other organisms.

Registration

Licenses for specified uses of pesticide products. A pesticide product registration sets the terms and conditions of the use of that product, including the directions and precautions for use outlined on the product label. All pesticides must be registered by EPA before they can be sold to the public.

Rodenticide

A class of pesticide that prevents, destroys, repels, or mitigates rodents and closely related species.

Teratogen

A substance or mixture of substances that produces or induces birth defects.

Tolerance

A scientifically and legally established limit for the amount of pesticide chemical residue permitted to remain in or on raw agricultural products or processed foods as a result of the application of a pesticide.

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EXECUTIVE SUMMARY

This report is in response to a request the Commission received on May 10, 1990, from the United States Trade Representative (USTR) concerning the probable international trade effects of a proposed California State law, "Environmental Protection Act of 1990" (the Initiative). California voters are scheduled to vote on the proposed Initiative in November. Specifically, the USTR is interested in receiving as much information as the Commission can provide on:

1. The extent to which enactment of the Initiative could create major differences between California and Federal standards for chemical residues in food;
2. The volume and value, by country of origin, of agricultural fresh and processed food products imported through the ports of California, and the volume and value, by country of origin, of the imported agricultural fresh and processed food products marketed in California;
3. The volume and value, by country of destination, of agricultural fresh and processed food products exported through the ports of California, and the volume and value, by country of destination, of California agricultural fresh and processed food products which are exported, and;
4. The potential international trade effects which would flow from enactment of the Initiative.

This interim report addresses the first three items in the USTR request. The report contains preliminary information, and a review of relevant studies, on the potential economic trade effects of enactment of the Initiative. The Commission will more fully address the fourth item in its final report, scheduled to be issued by December 31, 1990.

1. *The extent to which enactment of the Initiative could create major differences between California and Federal standards for chemical residues in food.*

In the United States, Federal standards for chemical residues in food are governed by the Federal Insecticide, Fungicide, and Rodenticide Act, which assigns responsibility for Federal registration of pesticides and their use to the Environmental Protection Agency (EPA). Therefore, the EPA is responsible for determining the amount and type of pesticide residues that are allowable in or on specific foods without the foods being considered legally adulterated in the United States. Under the provisions of the Federal Food, Drug, and Cosmetic Act (FFDCA), the U.S. Food and Drug Administration (FDA) enforces the pesticide residue tolerances established by the EPA for all foods shipped in U.S. interstate commerce, except for meat, poultry, and eggs; tolerances for these latter three products are monitored and enforced by the U.S. Department of Agriculture.

The tolerance represents the maximum level of a residue that may be present on or in a food at the time it enters commerce. Most tolerances are set at a level that will impose no health risk within a practical certainty. In addition, the Delaney amendment to the FFDCA prohibits the use in processed foods of additives found to cause cancer in humans or animals no matter how small the risk.

The Initiative, on the other hand, among other things, would deny pesticide registration in California (as well as eliminate all tolerances) by January 1, 1996, of pesticides currently registered for use in food by the EPA and classified as group A or B carcinogens (i.e., known human carcinogen or probable human carcinogen, respectively), or those pesticides that are on California's Proposition 65 list of chemicals (i.e., those known to the State to cause cancer or reproductive toxicity). Further, the Initiative would require registrants of any active or inert ingredients currently classified by EPA as group C (possible human carcinogens, or equivalent) to have a determination by the California Department of Health Services that the ingredients do not cause cancer or reproductive toxicity. Without such determination, the pesticide could not be registered in California, nor could tolerances be established for its use in or on foods marketed in California after enactment of the Initiative.

Federal standards allow an EPA-registered pesticide to be used in or on specific foods if the residue will impose no health hazard within a practical certainty. Most tolerances are set at a level that is 100 times lower than the level that caused "no effect" in animal tests.

A major premise of the Initiative is that California consumers should only be exposed to a pesticide residue if the residue presents no significant risk to human health.¹ The Initiative defines the standard of "no significant risk" for a pesticide residue to be at a level which will not cause or contribute to a risk of cancer greater than the rate of "one in one million" in a lifetime. The Initiative requires that food produced outside the State of California, whether from foreign or domestic sources, which does not conform with the residue criteria set forth in the Initiative be deemed adulterated and declared unsafe in the State.

The ultimate comparison of Federal and California residue standards depends on the implementation of the Initiative, which will determine which pesticides will be banned in California and which will have residue tolerances the same or stricter than those currently established by the EPA. Thus, the precise extent to which enactment of the Initiative could create major differences between California and Federal standards for chemical residues in food will be determined by regulations to be written if the Initiative is passed. (See ch. 2.)

2. *The volume and value, by country of origin, of agricultural fresh and processed food products imported through the ports of California, and the volume and value, by country of origin, of the imported agricultural fresh and processed food products marketed in California.*

Value is the only common denominator for readily measuring imports of agricultural fresh and processed food products. Imports of such products through California customs districts (California ports for all practical purposes) totaled \$3.8 billion in 1989. Thailand and Mexico each supplied about 10 percent of the imports. China supplied 8 percent, Australia 7 percent, the EC and the Philippines 6 percent each, New Zealand and Ecuador 5 percent each, Taiwan and Japan 4 percent each, and Colombia and Chile 2 percent each. None of the large number of countries supplying the remaining 30 percent of the imports particularly predominated in the value of trade.

About one-half of the imports of the fresh and processed agricultural food products in 1989 were in the animal protein complex (which amounted to \$1.8 billion). Crustaceans, primarily shrimp, were the principal item in value of imports, accounting for \$720 million, over 40 percent of the total through California customs districts of products in the animal protein complex. Frozen beef was the second most important item in terms of value in this sector, accounting for 17 percent of the imports. Frozen beef was the principal item in the sector in terms of weight.

Imports of raw agricultural crops in 1989 through California customs districts were valued at \$911 million and accounted for nearly one-quarter of the total imports. Coffee was the principal item, accounting for \$333 million, or over one-third of the import value. Bananas had the second-highest value of raw agricultural crops, accounting for \$167 million of imports.

Imports of processed agricultural crops through California customs districts in 1989 were valued at \$1.1 billion and accounted for the remainder, over one-fourth, of the imports of the agricultural fresh and processed food products. Imports of wine were the largest single item within the processed agricultural crops, amounting to \$156 million. The value of imports of beer was \$147 million and that for certain processed fruit and nuts was \$105 million.

Four-digit Harmonized Tariff Schedule (HTS) heading groups of agricultural fresh and processed food product imports that had import or export values of \$35 million or more each in 1989 accounted for 87 percent of the fresh and processed agricultural food products imported through California ports in that year. In 1989, an estimated 84 percent of this group of imports was marketed in California; the data suggest that this share may apply to total imports. Data are not available to make estimates by country of origin for imported products that were marketed in California. (See ch. 3.)

3. *The volume and value, by country of destination, of agricultural fresh and processed food products exported through the ports of California, and the volume and value, by country of destination, of California agricultural fresh and processed food products which are exported.*

¹ State of California, Environmental Protection Act of 1990, sec. 26906, p. 6.

Exports of agricultural fresh and processed food products through California ports in 1989 amounted to \$4.6 billion. Japan was the country of destination for about 52 percent of the exports. Six percent of the exports were destined to Hong Kong; 4 percent each to Taiwan, South Korea, and West Germany; and 3 percent each to Mexico and the United Kingdom. The remaining one-fourth of the exports were divided among at least 15 other countries.

Exports of products in the animal protein complex of \$1.82 billion accounted for nearly 40 percent of the exports through California customs districts of fresh and processed agricultural food products in 1989. Frozen beef was the principal item in value, accounting for \$688 million, or 38 percent, of trade. Fresh beef was a distant second, with \$202 million in exports.

Raw agricultural crop exports through California customs districts totaled \$1.77 billion in 1989, also nearly 40 percent of the total. Edible nuts were the principal items exported, accounting for \$482 million. Citrus fruit had the second-highest value, with \$305 million.

Over 20 percent of the exports of fresh and processed agricultural food crops was accounted for by processed agricultural crops, which were valued at \$1.0 billion in 1989. Miscellaneous edible food preparations, including such items as protein concentrates, preparations used in making beverages, and dairy substitutes, were the principal items in value, accounting for \$164 million. Exports of prepared and preserved fruits and nuts through California customs districts, the second-largest item in value, totaled \$132 million.

Four-digit HTS heading groups of agricultural fresh and processed food-product exports that had import or export values of \$35 million or more each in 1989 accounted for 88 percent of the fresh and processed food products exported through the customs districts of California in that year. An estimated 60 percent of the exports consisted of products produced in California; the data suggest that this percentage may apply to total exports of agricultural fresh and processed food crops that are produced in California and exported through California customs districts. Data are not available to make estimates by country of destination for exported products that were produced in California. (See ch. 3.)

4. *The potential international trade effects which could flow from enactment of the Initiative.*

Changes in national and international trade patterns for raw and processed agricultural food products resulting from changes in pesticide usage mandated by the Initiative depend largely on the magnitude of any changes in the cost of production, the extent of California excess supply or excess demand, and the availability of alternative low-cost and/or residue-free domestic or foreign supplies. These factors are likely to differ for different products. Estimates of cost changes by product are incomplete for the agricultural fresh and processed food products covered by the Initiative. (See ch. 4.)

Chapter 1 Introduction

The Scope of This Report

In this study, the U.S. International Trade Commission (Commission) was requested to provide information with respect to the probable international trade effects of a proposed California State law known as the Environmental Protection Act of 1990 (the Initiative). Specifically, the Commission was requested to look at the potential agricultural trade implications of title 3 of the Initiative. See appendix E for a copy of title 3 of the Environmental Protection Act of 1990. The Commission was requested to provide as much information as it can regarding the following:

1. The extent to which enactment of the "Environmental Protection Act of 1990" could create major differences between California and Federal standards for chemical residues in food;
2. The volume and value, by country of origin, of agricultural fresh and processed food products imported through the ports of California, and the volume and value, by country of origin, of the imported agricultural fresh and processed food products marketed in California;
3. The volume and value, by country of destination, of agricultural fresh and processed food products exported through the ports of California, and the volume and value, by country of destination, of California agricultural fresh and processed food products which are exported; and
4. The potential international trade effects which would flow from enactment of the Initiative.

In this interim report,¹ the Commission has focused on the first three questions in the request. Chapter 2 looks at pesticide usage in California and the types of pesticides used on agricultural crops in that State. Chapter 2 also presents information on how national standards for pesticide residues on food are established and compares this with how California presently registers and monitors pesticides. This chapter also reviews title 3 of the Initiative, with regard to pesticide standards that it would impose. A direct comparison between individual Federal pesticide regulations and those of the California Initiative has not been made because the Initiative provides only guidelines for regulations yet to be determined.

In Chapter 3, the report provides detailed information on the volume and value, by country of origin, of agricultural fresh and processed food products imported through the ports of Califor-

nia; the volume and value of imported agricultural fresh and processed food products marketed in California; the volume and value, by country of destination, of agricultural fresh and processed food products exported through the ports of California; and the volume and value of California-produced agricultural fresh and processed food products that are exported. Trade analysis of agricultural fresh and processed food products² covered by this investigation has been divided into three groups as follows: the animal protein complex (i.e., meat, poultry, fish, dairy, and eggs); raw agricultural crops (i.e., grains, oilseeds, fruits, vegetables, and nuts); and processed agricultural crops including items such as sugar, processed fruits and vegetables, miscellaneous food preparations, and bread and pastry products.

These three major commodity groups were selected in order to help isolate potential trade effects that might result from enactment of the Initiative because of the diversity of import sources and export markets covered by the agricultural fresh and processed food products included in this investigation. In 1989, over 100 countries were sources for the imports or markets for the exports covered by this investigation.

The potential international trade effects that would flow from enactment of the Initiative are the subjects of chapter 4 and will be covered more fully in the final report that is due to the United States Trade Representative not later than December 31, 1990. In this interim report, chapter 4 discusses works of other authors, the principles of possible trade effects, and the legal concerns of U.S. trading partners. This chapter sets the groundwork for the analysis that will follow in the final report.

Description of the Initiative

The Initiative provides for various programs to protect the environment including the atmosphere, forests and marine resources, the food supply, and the workplace. This study is concerned only with that portion of the Initiative that proposes new standards for pesticide regulation. The Initiative provides that "a pesticide residue may be permitted in food only if it is demonstrated that the pesticide residue presents no significant risk to human health, including the health of identifiable population groups (particularly infants and children) with special food consumption patterns."³

The Initiative would deny registration of selected pesticides in California, stating that "the registration of any pesticide containing an active

² The Health and Safety Code of the State of California defines in 26012(a) "food" as "any article used or intended for use for food, drink, confection, condiment, or chewing gum by man or other animal" or in sec. 26012(b) "any article which is used or intended for use as a component of any article designated in 26012(a)."

³ State of California, Environmental Protection Act of 1990, sec. 26905, p. 6.

¹ Due to the United States Trade Representative on Sept. 30, 1990.

ingredient, registered for use on food, or for which a tolerance exists, which is determined after the effective date of this Chapter to cause cancer or reproductive harm, shall be canceled and applicable tolerances revoked on or before five years from the date of the determination."⁴ In addition, if the Initiative passes, registrations shall be cancelled and applicable tolerances revoked by January 1, 1996, for those pesticides that are "known to cause cancer", that is, those classified by the EPA as group A or B (known or probable) carcinogens, or pesticides that are on California's Proposition 65 list of chemicals "known to cause reproductive harm." These pesticides can not be registered for any new use on food after enactment of the Initiative.⁵

Section 26904 of the Initiative would require registrants of "high hazard" pesticides to request a determination, to be based on complete and adequate data, that the pesticide does not cause cancer. High hazard pesticides are defined in section 26914(J) as any active or inert ingredients classified by EPA as a group C (possible) carcinogen or the equivalent.

Section 26904 of the Initiative also would regulate inert ingredients found in a pesticide formulation that are shown to cause cancer or reproductive toxicity (according to EPA classification, Proposition 65 list, or other mechanisms). The registration for use in California of such inert ingredients would be canceled and residue tolerances revoked. "No pesticide containing an inert ingredient known to cause cancer or reproductive harm could be registered, nor a tolerance established, for a new use on food" after enactment of the Initiative.⁶

The Initiative also defines the standard of "no significant risk" for a carcinogen to be "a level at which a pesticide residue will not cause or contribute to a risk of cancer in the exposed population which exceeds the rate of one in one million."⁷ The Initiative would require that tolerances be established for all pesticides used on food including active ingredients, metabolites, contaminants, degradation products, and inert ingredients. The Initiative also would require that food produced outside the State of California, whether domestic or imported, which contains a residue of a pesticide canceled in California, be deemed adulterated and unsafe (in California).

Relationship of the Initiative To International Trade

Pesticides are used intensively throughout the world in the production of agricultural fresh and processed food products. Pesticides are used to control insects, weeds, fungi, rodents, bacteria, and other harmful organisms. Agricultural pesticide use in the United States has grown rapidly

since the end of World War II, contributing to increased agricultural production. Human exposure to certain pesticides has been shown to have adverse health consequences; some pesticides have been shown to cause cancer or birth defects. Other pesticides persist in the environment for long periods of time. Pesticides that are used on raw and processed agricultural products can remain on or in the food and potentially can be ingested along with the food. Most pesticides are considered to be safe when used as directed.

Because of the potential adverse health effects for humans and adverse effects on the environment resulting from some pesticides, the United States and many other countries have enacted laws to regulate the production, use, and residual quantities of a pesticide that may be present in or on a food. Pesticide use in the United States is governed by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) (7 U.S.C. 136), which assigns responsibility for Federal registration of pesticides and use to the EPA. The Federal Food, Drug, and Cosmetic Act (FFDCA) (21 U.S.C. 301) regulates the amount of each pesticide that is allowed to remain as a residue on food grown or sold in the United States. The Delaney amendment to the FFDCA prohibits the use in processed food of additives that cause cancer in humans or animals, no matter how small the risk.

The FFDCA assigns the EPA the responsibility of determining pesticide residue tolerances for food commodities. An established tolerance represents the maximum permissible residual level for a pesticide in or on a raw agricultural product or processed food. While a tolerance or exemption from tolerance is in effect for a pesticide chemical with respect to any raw agricultural commodity, such raw agricultural commodity shall not, by reason of bearing or containing any added amount of such pesticide chemical, be considered to be adulterated within the meaning of adulterated food under the FFDCA.⁸ Using a process of "no observed effect level" and established pesticide residue tolerances, the EPA also determines an estimate of the daily exposure, or acceptable daily intake level, to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of adverse effect.⁹

The Food and Drug Administration (FDA) is assigned the responsibility to enforce the pesticide residue tolerances that are established by the EPA for all food shipped in interstate commerce, except for meat, poultry, and eggs.¹⁰ Pesticide

⁴ 21 U.S.C.A., 346a.

⁵ EPA, Office of Pesticides and Toxic Substances, Environmental Fact Sheet on *Pesticide Tolerances*, January 1990, p. 5.

⁶ The U.S. Department of Agriculture (USDA) monitors meat, poultry, and eggs for illegal pesticide residues under the Federal Meat Inspection Act (21 U.S.C. 601), the Poultry Products Inspection Act (21 U.S.C. 451), and the Egg Products Inspection Act (21 U.S.C. 103).

⁴ Ibid., p. 4.

⁵ Ibid., p. 6.

⁶ Ibid., p. 5.

⁷ Ibid., p. 6.

tolerances for food are established at a level that will impose no health hazard within a practical certainty.¹¹ Most tolerances are normally 100 times lower than the level that is projected to have "no effect" in animal tests.

The EPA uses several approaches for establishing tolerances for carcinogenic pesticide residues. For raw agricultural foods, a risk-benefit approach is used in which EPA considers whether the tolerance protects the public health and other factors such as the production of an adequate, wholesome, and economical food supply. With regard to processed foods, the Delaney Clause prohibits the establishment of tolerances for food additives found to induce cancer in humans or animals (a zero risk). However, carcinogenic residues may exist in processed foods when residues carry over from a raw agricultural food to a processed food so long as the residue level is not greater than that established for the raw agricultural food. For animal feed additives, the EPA has used a minimum-risk approach. Under a minimum-risk approach a tolerance would be allowed if "(1) the additive does not adversely affect the animals and (2) no residue can be found in foods derived from the animal. EPA and FDA have interpreted the second point to mean a residue level that would not significantly increase cancer risk. They further define a risk of 1 in 1 million over a lifetime as an acceptable level."¹²

The use of pesticides on food in other countries is not covered by U.S. regulations but rather by the laws of the country where the food is grown. Food that is imported into the United States is subject to U.S. regulations concerning what chemical residues are allowed on specific food crops and in what amounts.¹³ Imports that are found to have chemical residues in excess of the established tolerance are considered "adulterated." Adulterated food is food that either has a pesticide residue that does not have an EPA-approved tolerance, for example, a pesticide that is not registered for that crop, or that has a pesticide residue that exceeds the EPA-approved tolerance. If the food is found to be adulterated, the FDA may deny its entry into the United States and remove it from interstate trade.

The Initiative requires the phase out of the use of carcinogenic pesticides on raw and processed agricultural food products in California by January 1, 1996 and requires imported food products (whether from other domestic sources or from foreign sources) to meet the same standards.¹⁴

¹¹ General Accounting Office, *Pesticides: EPA's Formidable Task to Assess and Regulate Their Risk*, RCED 86 125, April 1986, p. 61.

¹² *Ibid.*, p. 75.

¹³ Environmental Protection Agency, *Pesticide Fact Book*, p. 2.

¹⁴ Environmental Protection Act of 1990, p. 7.

The effect of the Initiative on international trade of agricultural fresh and processed food products will be determined in large part by the number of pesticides that will be banned and the number that will have more stringent tolerances than those presently established by the EPA. The effect of the Initiative could be mitigated by the number of substitute pesticides that will be available for use on agricultural food products, together with alternative pest-management programs such as biological controls and crop rotations, that will allow the economical production of food products in the absence of those pesticides covered by the Initiative. Some agricultural food products are not treated with pesticides covered by the Initiative and hence will not be affected directly by the Initiative.

The U.S. competitive position for raw and processed food products that are produced with the use of pesticides banned by the Initiative could be adversely impacted if the ban reduces domestic supplies or results in higher production costs and higher prices. Production costs may increase with the use of alternative pesticides or from lower yields. Because of the relatively inelastic demand for many raw and processed food products, the likely changes in costs or supply could result in substantial price increases.

At present, various Federal and State government agencies in California routinely inspect and test food products imported into the State (from foreign sources and from other States) for compliance with pesticide residue standards. The Initiative would strengthen procedures that are already in place. According to officials of the California Department of Food and Agriculture, the State of California does not, at present, inspect or test raw or processed food products that merely pass through California and are not intended to enter into commerce within the State. However, such pass-through products may be inspected incidentally with products that are entering the commerce of California. If the product is found to be adulterated, the State of California informs officials in the State to which the product was destined that adulteration has been found.

With regard to exports of raw and processed agricultural food products, the State of California does not at present inspect food products grown or produced in the State if they are intended for export. An export product that is produced in a California plant along with a product that is to enter into commerce in the State of California would be subject to inspection and testing. However, if the Initiative bans the use of carcinogenic pesticides in the production of raw and processed agricultural food products within California, notwithstanding their final destination, the question of distinguishing food products destined for export from those destined for the California market is irrelevant.

Chapter 2 Agricultural Pesticide Usage

Pesticides are chemicals used to reduce the losses of crops and other agricultural products from insects, weeds, fungi, rodents, and the like. In addition, their proper employment is intended to improve the quality of agricultural produce.

U.S. sales of pesticides (at the manufacturer's level) were only about \$20 million in 1930 and \$150 million in 1950. By 1988, sales had increased to nearly \$5.0 billion. From the 1940s until the present time, pesticides have been predominantly synthetic organic chemicals. In 1970, herbicides exceeded insecticides in volume of usage in the United States and now are more than double the latter (in other parts of the world, insecticides predominate). In future years, it is believed that many pesticides will become biologically based, such as genetically engineered bacteria, fungi, and viruses.

Without pesticides a farmer's crop production might drop as much as 30 percent, according to some estimates.¹ Yet the cost of pesticides to the farmer is relatively low, far below such costs as seed and feed, interest, depreciation, wages, fertilizer, fuel, repairs, and other costs. In 1988, farm pesticide expenditures were an estimated 3.9 percent of all farm production expenditures.

The magnitude of the pesticides market is difficult to quantify. As new chemicals have been developed, the application of a pesticide to a farmer's field is now likely to be measured in ounces per acre, where as previously it was pounds or tens of pounds per acre.² In this study, the dimensions of the industry are generally expressed in pounds of active ingredient

¹ "The Future of Chemicals in the Food Industry," *Chemical Purchasing*, March 1983, p. 58.

² For example, one pound of a synthetic pyrethroid, Cypermethrin, was claimed to be as effective as 130 pounds of parathion, which it displaced, or 3,200 pounds of DDT, which the parathion had displaced, in controlling the larvae of the cotton leafworm.

and value in dollars at the manufacturer's level, split mainly among herbicides, insecticides, and fungicides, and an "all other" group that includes repellants, miticides, defoliants/desiccants, fumigants, nematocides, molluscicides, and rodenticides. (Some compilations include borderline products such as wood preservatives, plant-growth regulators, disinfectants, and sulfur.) It is possible that the California Initiative will directly prohibit the use in California of a significant number of pesticides. Similarly, the Initiative could indirectly prohibit these pesticides on agricultural products imported into California. (See "Pesticides Subject to Potential Prohibition," near the end of this chapter.) At this time, it is not certain what the effect of the Initiative will be on the U.S. pesticide industry. For some products, California agriculture is a major market and prohibition in California could severely curtail sales. However, to the extent that agriculture moves out of California under the Initiative, the pesticide industry could follow the market and thereby replace lost California sales. Alternatively, to the extent that residues on agricultural products could be eliminated, food products grown with pesticides could be imported into California, thereby allowing the continued use of certain pesticides outside of California on food destined for the California market.

Pesticide Production and Usage

United States

Table 2-1 indicates EPA estimates of U.S. sales of active-ingredient pesticides and formulations in 1988 for domestic use, net of imports and exports.

At the user level, U.S. expenditures for pesticides in 1988, excluding exports but including (much smaller) imports, were \$7.38 billion. Table 2-2 shows U.S. production of pesticides in terms of millions of pounds of active ingredient during 1984-88.

Table 2-1
U.S. conventional pesticide sales at basic producer level, 1988

Type	U.S. sales Million dollars	Share of U.S. sales		U.S. share of world market Percent
Herbicides	2,770	56	36	
Insecticides	1,200	24	20	
Fungicides	580	12	17	
Other	420	8	35	
Total	4,970	100	27	

Note.—Herbicides include plant-growth regulators. Insecticides include miticides and contact nematocides. Fungicides do not include wood preservatives. "Other" includes rodenticides, fumigants, and molluscicides, but excludes wood preservatives, disinfectants, and sulfur.

Source: U.S. Environmental Protection Agency.

Table 2-2
Pesticides and related products: U.S. production, 1984-88

(Millions of pounds, active ingredient)

Year	Insecticides, rodenticides, and repellants	Herbicides, plant-growth regulators, and fumigants	Fungicides	Total
1984	349.6	718.4	123.1	1,191.1
1985	370.0	755.9	109.0	1,234.9
1986	342.0	724.7	113.3	1,180.0
1987	378.9	556.0	104.6	1,039.5
1988	352.5	701.8	109.5	1,163.8

Note.—Fungicides do not include wood preservatives.

Source: Data are from the pesticides sections of the annual statistics for synthetic organic chemicals published by the U.S. International Trade Commission.

Production recorded by the U.S. International Trade Commission (USITC) excludes large-volume marginal groups of chemicals such as wood preservatives and disinfectants, as well as natural organic chemicals such as pyrethrum and rotenone (table 2-2).³ Inorganic chemicals, such as about 200 million pounds of sulfur (fungicide, miticide), copper derivatives, sodium chlorate (defoliant), and at least 30 others, are also excluded from the USITC statistics. Altogether, the inorganics may be one-quarter or one-third as large as the synthetic organics in volume, but are a much smaller portion of value of sales (e.g., the price of sulfur is about 15 cents per pound compared with the average price of organophosphorus insecticides, at \$7.69 per pound in 1988).

U.S. producers of pesticides number about 130, with the top 16 having about an 85-percent share of the U.S. market, and the top 6 producers (DuPont, Monsanto, Ciba Geigy, ICI, Mobay, American Cyanamid) having more than half of the market, measured in dollar terms. Sixty-eight U.S. producers of pesticides reported to the USITC in 1988. At the marketing level, there were 3,300 formulators and 29,000 distributors and similar establishments in 1988. At the user level, there were 40,000 commercial pest control firms among the 254,074 certified commercial (i.e., professional) applicators and 992,920 certified farmers and other private applicators in the same year.⁴

Of the 1.43 billion pounds of U.S. pesticide production in 1988, one-third was exported.⁵ With 0.15 billion pounds of imports, apparent U.S. consumption was 1.13 billion pounds (almost identical to what it was 9 years earlier in

1979). The value of domestic sales was \$4.97 billion in that same year. At the user level, sales were \$7.38 billion, 69 percent for agriculture, 15 percent for home/garden, and 16 percent for industry, commercial, and Government users.⁶

Table 2-3 lists the top 15 pesticides used in the United States in 1987, measured in pounds of active ingredients. They accounted for 50 percent of total U.S. use of pesticides. Of the 1,200 active pesticide ingredients registered by the EPA, 850 were produced in the United States in 1988.

California

Pesticide usage in California in 1988 was 106 million pounds as reported by the California Department of Food and Agriculture (CDFA). It is difficult to compare this number with national totals because prior to 1990, only restricted chemicals and pesticide applications by licensed pesticide applicators had to be reported. Private use of nonrestricted products, for example, did not have to be reported. As a consequence, some believe CDFA aggregate data are too low and have used alternative methods to estimate farm pesticide usage.⁷ Beginning in 1990, all pesticide usage must be reported to the CDFA. CDFA statistics include 27 million pounds of sulfur and 52 million pounds of other inorganic pesticides, most of which are not included in other published statistics. A list of pesticides currently restricted in California is given in appendix F.

Furthermore, the usage of pesticides is different in California because the crops are different. For the entire United States, field crops are dominant and corn and soybeans account for more than one-half of the pesticides consumed (59 percent of 1985 sales in dollars). But in California, 52 percent of the reported pesticides used in 1988, in pounds, was accounted for by sugar-

³ The USITC annually publishes a report on the domestic production of organic chemicals per a request from the House Committee on Ways and Means, Subcommittee on Trade, Apr. 27, 1988.

⁴ EPA, Office of Pesticide Programs, *Pesticide Industry Sales and Usage: 1988 Market Estimates*, December 1989, pp. 10, 16, 18; SRI International, *Chemical Economics Handbook and Directory of Chemical Producers, United States, 1989*.

⁵ Official statistics of the U.S. Department of Commerce.

⁶ EPA, *Pesticide Industry Sales and Usage*, pp. 4, 5; USITC, *Synthetic Organic Chemicals, United States Production and Sales, 1988, and 1979*.

⁷ See for example Leonard Gianessi, *Resources For The Future, Use of Selected Pesticides in Agricultural Crop Production in California*, Apr. 1990, pp. 8-12.

Table 2-3
Usage of largest volume pesticides in the United States, 1987¹

Pesticide	Type	Usage of active ingredient Million pounds	Manufacturer(s)
Million pounds			
Alachlor	Herbicide	75 - 100	Monsanto.
Atrazine	Herbicide	75 - 100	Ciba Geigy, DuPont.
2,4-D	Herbicide	52 - 67	Dow, others.
Butylate	Herbicide	44 - 58	Chevron, ICI.
Metolachlor	Herbicide	45 - 55	Ciba Geigy.
Trifluralin	Plant-growth regulator	30 - 35	Eli Lilly.
Cyanazine	Herbicide	20 - 25	DuPont.
Carbaryl	Insecticide	12 - 25	Rhone Poulenc.
Malathion	Insecticide	15 - 20	American Cyanamid.
Metribuzin	Herbicide	13 - 17	Bayer (Mobay).
Maneb/mancozeb	Fungicide	12 - 18	DuPont.
Glyphosate	Herbicide	10 - 15	Monsanto.
Captan	Fungicide	9 - 11	ICI, Sureco, R. T. Vanderbilt.
Chlorpyrifos	Insecticide	7 - 11	Dow.
Methyl parathion	Insecticide	5 - 10	Monsanto.
Total		424 - 567	

¹ The estimates represent all usage of the active ingredients including noncrop use.

Source: EPA staff estimates.

beets, cotton, grapes, strawberries, and tomatoes. Of the top 15 volume pesticides on the national list, 8 also appear on the equivalent California list (2,4-D, trifluralin, carbaryl, malathion, maneb/mancozeb, glyphosate, chlorpyrifos, and methyl parathion).

Table 2-4 lists the top 35 pesticides used in California in 1988, also measured in pounds of active ingredient. This group, accounting for 89 percent of the California total, also includes six inorganic pesticides not on the U.S. list of top pesticides used (table 2-3). For the entire list of 432 pesticides used in California in 1988, the breakdown by type of application is in the following tabulation:⁸

Application	Thousand pounds	Percent
Fumigants, nematocides	40,430	38
Fungicides	33,120	31
Insecticides, miticides, repellants	15,660	15
Herbicides	9,570	9
Defoliants	5,290	5
Growth regulators	610	1
Other (molluscicides, disinfectants, wood preservatives, rotenticides antiseptics, sanitizers, and unknown)	920	1
Total	105,600	100

California's pesticide consumption is concentrated in 10 of its 58 counties—Fresno, Kern, San Joaquin, Monterey, Imperial, Tulare, Merced,

⁸ EPA, California Department of Food and Agriculture, and *Farm Chemicals Handbook*, 1988.

Kings, Madera, and Stanislaus—which, in 1988, accounted for almost two-thirds of the State's consumption.

World

Table 2-5, below, indicates EPA estimates of world pesticide sales in 1988.

Current Standards for Pesticide Residue on Foods

Federal Standards

Establishing maximum acceptable levels of pesticide residues (tolerance levels) on food commodities sold in the United States is a major component in the U.S. pesticide registration process. No pesticide can be used in the United States without a registration and no pesticide can be registered for use on food or feed crops until a tolerance level is established.⁹ The EPA has the responsibility for determining pesticide residue levels that are permitted to remain on food and animal feed. The agency's regulatory authority derives from the Federal Food, Drug, and Cosmetic Act (FFDCA) and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). Pesticide tolerance levels set by the EPA are enforced by the Food And Drug Administration (FDA), U.S. Department of Agriculture (USDA), and State enforcement agencies.

⁹ Tolerance levels are listed in 40 CFR, sec. 180, "Tolerances and Exemptions From Tolerances for Pesticide Chemicals in or on Raw Agricultural Commodities." The section is updated annually, as new tolerances are established.

Table 2-4
Usage of largest volume pesticides in California, in pounds applied, 1988

Active ingredient (brand name)	Pounds applied	Principal crops and consumers
Insecticides, miticides:		
Chlorpyrifos	1,693,000	Structural, cotton, alfalfa.
Propargite (Omite)	1,649,000	Cotton, almonds, corn.
Parathion	1,102,000	Almonds.
Methomyl	1,073,000	Lettuce, grapes.
Cryolite	887,000	Grapes.
Carbaryl	781,000	Oranges, many others.
Diazinon	751,000	Structural, maintenance.
Profenofos (Curacron)	736,000	Cotton.
Malathion	663,000	Alfalfa, structural.
Azinphos-methyl	529,000	Almonds.
Dimethoate	521,000	Oranges, grapes.
Methamidophos	437,000	Cotton.
Methidathion	335,000	Oranges.
Total	11,157,000	
Herbicides, growth regulators:		
Molinate	1,516,000	Rice.
Glyphosate, isopropylamine salt	873,000	Cotton, right of ways.
2,4-D (all forms--eighteen)	580,000	Grains.
Ethephon	579,000	Cotton.
Trifluralin	567,000	Alfalfa, cotton.
Paraquat dichloride	551,000	Cotton.
Diuron	548,000	Right of ways.
Thiobencarb	431,000	Rice.
Chlorthal-dimethyl (Dacthal)	398,000	Vegetables.
MCPA, dimethylamine salt	343,000	Rice.
Total	6,386,000	
Fungicides:		
Sulfur	27,136,000	Sugarbeet, grapes, tomatoes.
Copper sulfate pentahydrate	1,971,000	Rice.
Maneb and mancozeb	943,000	Lettuce, potatoes, tomatoes.
Copper hydroxide	923,000	Almonds.
Ziram	393,000	Almonds.
Total	31,366,000	
Fumigants/nematicides:		
Methyl bromide	18,375,000	Strawberries, structural, celery.
1,3-dichloropropene	16,519,000	Carrots, tomatoes.
Chloropicrin	3,761,000	Strawberries.
Sulfuryl fluoride (Vikane)	1,009,000	Structural.
Total	39,664,000	
Defoliants:		
Sodium chlorate	4,261,000	Cotton.
DEF (tributyl-phosphorotrithioate)	921,000	Cotton.
Merphos (Folex)	100,000	Cotton.
Total	5,282,000	
Total of 35 major use pesticides	93,855,000	
Grand total, 432 pesticides applied.	105,600,000	

Source: California Department of Food and Agriculture, 1988 report.

Table 2-5
World sales of conventional pesticides at basic producer level, 1988

Type	World sales	Share of world sales
	Billion dollars	Percent
Herbicides (& plant growth regulators)	7.7	42
Insecticides (& miticides, contact nematicides)	6.1	33
Fungicides (excluding wood preservatives)	3.5	19
Other (rodenticides, fumigants, molluscicides)	1.2	6
Total	18.5	100

Source: U.S. Environmental Protection Agency.

There are approximately 1,400 pesticide active ingredients formulated into some 45,000 products that are currently registered in the United States.¹⁰ Although about 15 new active ingredients are registered annually, the majority of registration activity is concerned with new formulations of old active ingredients, or with determining new uses for old products.

The main purpose of the registration process is to see that when used according to directions, the pesticides will not present unreasonable risk to human health or the environment.¹¹ The EPA, which is currently registering new pesticides and reviewing old registrations, is required under FIFRA to consider economic, social, and environmental costs and benefits. The agency makes its determination on the basis of information provided by the applicant.

The application requires a completed EPA application form, the identity and address of the applicant, the identity and characteristics of the chemical in question, a draft of the label, certification of child-resistant packaging, and a series of test data.¹² The tests are to determine whether a pesticide can cause harm to humans, fish, wildlife, and endangered species. Human risks include acute toxic reaction, long-term effects such as cancer, and birth defects. As part of the registration process, the applicant must also submit data on how the pesticide and its metabolites behave in the environment, and particularly how they affect ground water. Early in the registration process, the applicant applies to the EPA for an experimental use permit (EUP) to field-test the new product. The application must include the appropriate health and safety data and, if needed, the EPA can request further testing and information.¹³ It may require 2 to 3 years to complete the EPA registration process for a new active ingredient and can cost the applicant between \$2.5 million and \$4.0 million.¹⁴ Figure 2-1 shows the standard process for registering a pesticide active ingredient.

¹⁰ U.S. Environmental Protection Agency, *Pesticide Fact Book*, March 1986.

¹¹ *Ibid.*, p. 1.

¹² 40 CFR 152.50.

¹³ The complete registration procedure is printed in 40 CFR, subch. E, "Pesticide Programs."

¹⁴ EPA, *Pesticide Fact Book*, p. 1.

If the pesticide is to be considered for use on food or feed crops, "the applicant must also petition the EPA for a tolerance and submit the appropriate data so the Agency can define a safe and realistic tolerance level."¹⁵ The purpose of these tolerances, which are applied to domestic and imported commodities, is to ensure that U.S. consumers are not exposed to unsafe pesticide residues in food. As with registration procedures, EPA's regulatory authority over residue tolerance derives from the FFDCa and FIFRA. The authority for tolerances applied to raw commodities is established under FIFRA and section 408 of the FFDCa; the authority to set standards for processed foods is established under section 409 of the FFDCa.

Individual tolerances for existing pesticides are currently being reassessed by the EPA as part of its reregistration process, and tolerances for canceled pesticides are being revoked.

Tolerance data are designed to answer three key questions:

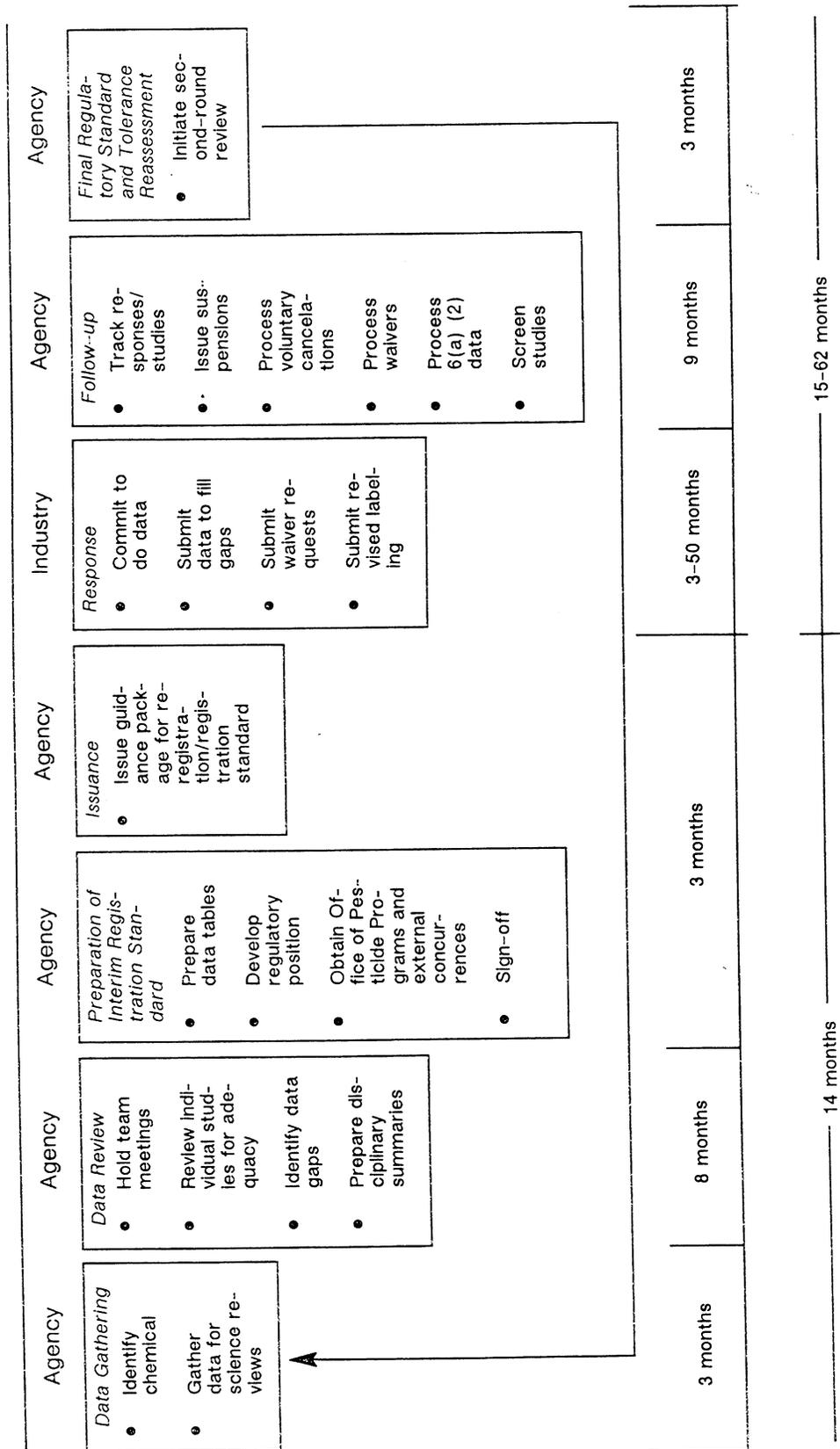
First, what is the chemical residue? Second, how much residue is there? The 'what' and 'how much' information, derived from residue chemistry data, is then matched by EPA toxicologists with toxicity data to answer the third question: does the residue represent an acceptable dietary level of exposure? In other words, is there a reasonable assurance that under the prescribed conditions of use of the pesticide, no unreasonable adverse effects will result in humans after a lifetime of exposure?¹⁶

The data needed to establish a tolerance level are, for the most part, residue-chemistry and toxicity data. The residue-chemistry data include information on the chemistry of the product; metabolism in plants and animals, from which are determined the significant metabolites and tolerance expression; residue field trial data, to determine the maximum levels that would result under actual farming conditions; and data on processing, to determine to what extent the product will degrade and concentrate during food

¹⁵ *Ibid.*, p. 1.

¹⁶ EPA, *Environmental Fact Sheet, Pesticide Tolerance*, Jan. 1990, p. 2.

Figure 2-1
Pesticide registration process under Federal standards



Source: EPA (March 1986).

preparation. If the proposed pesticide will be used on animal feed, studies on residue transfer to edible portions of the animal are also conducted.

After the residue data are collected and analyzed, the EPA analyzes toxicology data obtained from studies on test animals exposed to the pesticide. The analysis is used to determine a lifetime "no observed effect level" (NOEL) for noncarcinogenic effects and a cancer risk estimate for a pesticide with carcinogenic potential. The tests are conducted to determine long-term chronic effects resulting from continuous low-level ingestion of a pesticide, rather than immediate symptoms of accidental exposure, such as eye irritation and skin rash. Pesticides are mainly administered orally and begin with young (post-weanling) animals and continue through adulthood, thereby mimicking a lifetime of human exposure beginning in adolescence.

On the basis of the toxicology studies, an acceptable daily intake (ADI), known as the "reference dose," is proposed for humans after applying an uncertainty factor that—

...is intended to allow an extra margin of safety to compensate principally for (1) the scientific uncertainty inherent in the process of extrapolating human risk projections from animal data, and (2) the possibility of differing sensitivities to the pesticide in individuals or subgroups (such as children) among the general population. The magnitude of this factor may vary, depending on the toxicological data available, but a 100-fold uncertainty factor is used in most instances.¹⁷

Before making a final tolerance decision, the EPA compares the reference dose with a Theoretical Maximum Residue Contribution (TMRC) of the pesticide, which is obtained by combining the proposed tolerance level(s) with any existing tolerance levels and multiplying this number by average food consumption estimates based on USDA's Nationwide Survey of Food Consumption. In most instances, when the basic data requirements are satisfied, the EPA will establish a tolerance level if the TMRC is less than the reference dose. However, the EPA also calculates risk estimates for subgroups within the general population (e.g., infants and children), and if any of these subgroups appear to be at risk, the pesticide may not be accepted. In addition, if the pesticide has been shown to induce cancer in test animals, the EPA uses a more conservative risk-assessment approach, applying the "negligible risk" standard suggested by the National Academy of Sciences whenever possible.

Present California Registration and Monitoring Procedures

Although California accepts the EPA tolerance levels for registered pesticides, before a

product can be used in California it must undergo an additional State registration process. The California registration process begins with a review of the Federal registration and may require the registrant to conduct and submit further tests on the chemical, physical, and biological properties of the product.¹⁸ The tests include data on efficacy, chemistry, acute and chronic health effects studies, and worker exposure studies.

These tests are evaluated to identify problems and necessary mitigation measures to assure the safety of the environment, the user, and the public before a pesticide can be used. The branch consults regularly with other State agencies, such as Fish and Game, Health Services, Water Resources, etc., regarding the potential impact of pesticides on other resources. The recommendation of these State agencies is considered before a final decision on registration is made.¹⁹

The CDFA has restricted, and in a few cases suspended, the use of certain Federally approved pesticides. Prior to such action, the agency considers the risk and attempts to mitigate or eliminate any adverse effects. In addition, the CDFA allows the manufacturer to review the evidence on which they have made their determination. Although companies informally challenge the CDFA, only in a few instances was the CDFA challenged in administrative law hearings. There have been no formal challenges since 1985.²⁰ Once registered in California, pesticides are sampled at both manufacturing and retail levels to assess their quality and review their labeling. Pesticide dealers, pest control advisors and operators, pesticide applicators, and pest control aircraft pilots must pass rigorous examinations before they are certified to use agricultural chemicals. California spends approximately \$40 million annually to run this program. The CDFA works with the 58 county commissioners and their staffs to monitor pesticide use, making some 78,000 random inspections annually. Beginning in 1990, all agricultural use of pesticides in California must be "site-specific" and "use-specific" applications. Domestic and imported produce are also sampled and inspected approximately 15,000 times annually, with sampling occurring in the field before harvest, at wholesale and chain food-distribution centers, packing sheds, processing plants, retail markets, and ports of entry.²¹

¹⁸ California Department of Food and Agriculture, Division of Pest Management, *An Introduction to CDFA's Division of Pest Management*, 1988.

¹⁹ *Ibid.*, p. 5.

²⁰ Telephone conversation with CDFA's staff, Sept. 7, 1990.

²¹ California Department of Food and Agriculture, Division of Pest Management, *An Introduction to DFA's Division of Pest Management*, 1988, p. 5.

¹⁷ *Ibid.*, p. 5.

The Delaney Paradox

The Delaney Paradox refers to an inconsistency in the methodologies used to establish tolerances for raw and processed foods. When establishing Federal tolerances for raw food, the EPA is expected to consider both risks and benefits.²² However, when establishing Federal tolerances for food additives (pesticide residues in processed foods), the EPA must consider only risks, basically establishing a "zero-risk" criterion. The Delaney Clause (found in sec. 409 of the FFDCA) has created difficulties for the EPA in establishing pesticide tolerances that are found to meet the risk/benefit criteria under FIFRA, but not under the Delaney Clause. In 1985, EPA commissioned the National Academy of Sciences (NAS) to investigate the implications of this inconsistency. In 1987, NAS issued a report, *Regulating Pesticides in Food: The Delaney Paradox*, in which it made a number of recommendations. The EPA is currently working with the Department of Health and Human Services, FDA, and USDA to develop legislation that will harmonize the legal standards for evaluating food safety and pesticides.²³ This issue is discussed here because the Initiative sets more stringent methods of setting tolerances for food additives in processed foods to all fresh and processed foods in California—whether grown, sold, processed, or imported into California for sale.

As discussed above, the EPA sets legally enforceable limits or tolerances for pesticide residues that are expected to remain on raw or processed agricultural products. Tolerances set on raw agricultural products are governed by both FIFRA and section 408 of the FFDCA, which authorizes levels—

deemed necessary to protect the public health, while considering the need for adequate, wholesome, and economical food supply. Like the FIFRA standard for registration, section 408 of the FDC Act explicitly recognizes that pesticides uses confer benefits and risks and that both should be taken into account. The inquiry authorized by section 408 may not be as broad as that under FIFRA, yet 408 clearly allows although does not compel the EPA to consider factors other than risks to human health.²⁴

The EPA also establishes a procedure for the approval of food additives under section 409 of the FFDCA, which:

²² EPA, Office of Pesticide Programs, *Environmental Fact Sheet: The Delaney Paradox and Negligible Risk*, Jan. 1990.

²³ *Ibid.*

²⁴ National Research Council, Board of Agriculture, Committee on Scientific and Regulatory Issues Underlying Pesticide Use Patterns and Agriculture Innovation, *Regulating Pesticides in Food: The Delaney Paradox*, October 1987, p. 23.

requires the sponsor of a food additive to prove with reasonable certainty that no harm to consumers will result when the additive is put to its intended use. The so-called 'general safety standard' for food additives is strictly risk based and, by negative implication, seems to preclude consideration of any economic or other benefits. In section 409, Congress also created a special rule for food additives that have been found to induce cancer in humans or animals. Under the famous Delaney Clause—enacted as a proviso to the general safety standard—no such additive can be approved (in the case of a pesticide this means "granted a tolerance") under section 409.²⁵

The Environmental Protection Act of 1990

Major Provisions

As stated, a major aim of the Initiative is to strictly limit the use of pesticides in California, revise chemical tolerances for food produced in the State of California, and apply these same tolerance levels to food entering California. Section 26901(a) and (b) of the Initiative states in part—

(a) The registration of any pesticide containing an active ingredient known to cause cancer or reproductive harm, which is registered for use on food or for which a tolerance exists as of the effective date of this Chapter, shall be cancelled and applicable tolerances revoked by January 1, 1996.

(b) The registration of any pesticide containing an active ingredient, registered for use on food, or for which a tolerance exists, which is determined after the effective date of this Chapter to cause cancer or reproductive harm shall be cancelled and applicable tolerances revoked on or before five years from the date of the determination.²⁶

As was mentioned earlier, the Initiative if passed, would require the phase out of all pesticides that are on an EPA list of pesticides classified—

as "human or possible human carcinogens;"²⁷ or that are on a similar California State list,

²⁵ *Ibid.*, p. 26.

²⁶ The proposed statutory amendment known as the "Environmental Protection Act of 1990," to be added to title 3, ch. 9, art. 1.

²⁷ The EPA classifies chemicals as group A—Human Carcinogen, sufficient evidence of cancer causality from human epidemiologic studies; group B—Probable Human Carcinogen B1, limited evidence of carcinogenicity from human epidemiologic studies, and B2, sufficient evidence of carcinogenicity from animal studies; group C—Possible Human Carcinogen, limited evidence of carcinogenicity in animals in the absence of human data; group D—Not Classifiable as to Human Carcinogenicity, either inadequate evidence of carcinogenicity or absence of data; and group E—Evidence of Non Carcinogenicity for Humans, no evidence of carcinogenicity in at least two adequate animal tests in different species or in both adequate epidemiologic and animal studies. See *Federal Register* of Oct. 19, 1988 (53 FR. 41104, 41118).

initiated under Proposition 65, of chemicals that are "known to cause cancer or reproductive toxicity."²⁸ The phaseout may be extended 3 years if there are no alternatives, or if severe economic hardship can be shown. Nevertheless, the pesticide's use must be reduced by 10 percent annually during the phaseout.

In addition to the specific active ingredients listed by the EPA and Proposition 65, pesticides could be banned from use in California under the Initiative if any of a number of inert materials (also found in the EPA or Proposition 65 lists) is found in a pesticide formulation:

26904. (a) No pesticide containing an inert ingredient known to cause cancer or reproductive harm may be registered, nor may a tolerance be established, for use on food. Existing registrations for use on food of a pesticide containing an inert ingredient known to cause cancer or reproductive harm shall be cancelled and applicable tolerances revoked within two years of the effective date of this Chapter, or for those subsequently determined to cause cancer or reproductive harm, within two years of such subsequent determination.

(b) The Director shall not permit the use of any inert ingredient in the formulation of a pesticide registered for use on food unless the inert ingredient presents no significant risk.²⁹

The Initiative defines "no significant risk" in the following way:

26906. (b) For purposes of this Chapter, the term 'no significant risk' means: (1) for pesticides that are known carcinogens or highly hazardous, the level at which the residue will not cause or contribute to a risk of human cancer in exposed population which exceeds a rate of one in a million, utilizing the most conservative risk assessment model that is generally accepted to be scientifically valid, and which complies with the criteria of Section 12703(a) of Title 22 of the California Code of Regulations. The standard specified in this subparagraph shall also apply to other adverse human health effects of any pesticides as to which there is no generally accepted scientifically valid threshold below which exposure is safe; and (2) for all pesticides not subject to subparagraph (1), the level at which the pesticide residue will not cause or contribute to any known or potential adverse human health effects, including an ample margin of safety. A

²⁸ The Proposition was enacted into law and became known as the "Safe Drinking Water and Toxic Enforcement Act of 1986." This law requires that the Governor revise and republish at least once per year the list of chemicals known to the State of California to cause cancer or reproductive toxicity.

²⁹ Environmental Protection Act of 1990, art. 2.

margin of safety is not ample unless human exposure per unit of body measurement is at least 1,000 times less than the no observable effect level in animals or humans on which the pesticide residue was tested, except that the Director may determine that a lower margin of safety is ample, but in no event, lower than 100 times the no observable effect level, and only if there is complete and reliable exposure and toxicity data.³⁰

The Initiative goes on to state that—

26909. The burden of proof shall, at all times, be on the registrant or the person on whose behalf a tolerance has been established to demonstrate that use of a pesticide conforms to the requirements of Title Three of the Environmental Protection Act of 1990.³¹

In addition to the provisions applied directly to pesticide tolerance regulations, the Initiative also includes a number of related provisions. The pesticide regulatory authority is to be shifted from the CDFA to the California Department of Health Services (DHS), which will have authority over tolerances. The DHS will revise these tolerances with particular consideration for children's dietary exposure. The DHS will also have to develop and implement a worker-protection program in which the California Occupational Safety and Health Administration Standards Board must (1) provide information, including Material Safety Data Sheets, to workers about hazardous materials they might be exposed to in the workplace and (2) prescribe postapplication quarantine periods for each crop in the State. The Initiative requires that, by January 1, 1997, all registrants demonstrate that practical analytical methods are available to monitor their pesticides.

Pesticides Subject to Potential Prohibition

Although the Initiative would prohibit the use of pesticide products "known to cause cancer or reproductive harm,"³² it does not contain a specific list of prohibited active ingredients. Rather, the Initiative defines these products in terms of categories of products developed by the EPA and Proposition 65.³³ As a consequence, it is unclear concerning which pesticides will actually be prohibited. One category of products considered most likely to be eliminated is that category composed of active ingredients and their metabolites that are listed by the EPA as group A or B (known or probable carcinogens) and products listed by Proposition 65 as known to cause cancer or reproductive toxicity.

³⁰ Ibid., art. 3.

³¹ Ibid., art. 2.

³² See for example, Environmental Protection Act of 1990, art. 1 26901. (a). Implementation is discussed in part, in art. 1-3.

³³ Art. 5, 26914 (1).

A second category of pesticides includes products that might not meet the requirements of the California reregistration. The Initiative requires that each pesticide registered for use on food in California have its tolerance evaluated to determine whether it complies with the "no significant risk" levels as defined by the Initiative. The schedule for completion of this review is shown below:

Level of risk	Completion date
Known to cause cancer/ reproductive harm	Jan. 1, 1993
High hazard pesticides	Jan. 1, 1995
All other pesticides	Jan. 1, 1997

High hazard pesticides are found on the EPA's group C list (considered possible carcinogens). The registrants of these products must petition the California DHS to be registered. Eventually, all pesticide active ingredients used in California must be reregistered. Given the magnitude of the review process and the limited available time, certain reviewers have noted that certain pesticides might be eliminated because of manufacturers' inability to meet the data requirements.³⁴

Corresponding to the California registration is the EPA accelerated reregistration required by the 1988 amendments to FIFRA. This registration is expected to be completed by 1997. It is from this requirement that EPA developed the active ingredients standards-ranking scheme (group A, B, C, etc.).³⁵ It has been suggested by Stimman and Ferguson in *California Agriculture* that some registrants will withdraw registrations (particularly for minor-use crops) when they perceive reregistration costs will exceed their return on sales or when liability exceeds potential profits.³⁶

A third category of potential product elimination arises from the stipulation that inert ingredients and contaminants known to cause cancer or reproductive toxicity will be allowed zero tolerances (residue levels) and therefore may be prohibited. Some of these inerts are listed

³⁴ See for example Jennifer Boursier, CDFA, *Memo-randum: Analysis of the Environmental Protection Act of 1990*, Jan. 10, 1990, p. 4.

³⁵ See "Regulation of Pesticides in Food: Addressing the Delaney Paradox Policy Statement," app. A, 53 FR 41104 (Oct. 19, 1988).

³⁶ M.W. Stimman and Mary P. Ferguson, "Potential Pesticide Use Cancellations in California," *California Agriculture*, July August, 1990, p. 15.

in Proposition 65. Many pesticide formulations incorporate inerts into the formulation to make the active ingredient more effective. Since the formulation of many pesticide products is often proprietary, it is difficult to determine which products will be affected. A second issue has developed over the source of contaminants.³⁷ If contaminants arising from inert material are included in the list of zero-tolerance products, then it is possible that many pesticides will be prohibited from use in California. For example, aromatics such as xylene are often used as solvents for the active ingredient. Should the solvent be contaminated with a prohibited inert, then the solvent could not be used. One industry analyst stated, "Given the wording of the Initiative, it is likely that such pesticides as sulfur, copper, and oils might be subject to the Initiative given that contaminants of these products are probable carcinogens, specifically benzenes in oil and chromium in sulfur."³⁸ However, in their testimony and their posthearing brief, the Natural Resources Defense Council (NRDC) states that comments such as this one misinterpret the law.³⁹

The NRDC maintains that the Initiative does not apply to contaminants of inerts because article 5, 26914(f) defines a contaminant to mean "a constituent of a registered pesticide which is unavoidably produced during the manufacture of the active ingredient." Various lists of potentially prohibited pesticides, as presented to the Commission, are found in appendix G. The appendix begins with (a) the EPA group designation for each food-use pesticide that the agency has classified in accordance with EPA's cancer assessment, and (b) a similar list developed by the EPA for their Inerts Strategy.

There is general agreement among all parties that adoption of the Initiative will eliminate the use in California of the products listed by EPA as groups A and B, and the products listed in Proposition 65. Beyond that, however, the exact number of excluded products depends on the interpretation of the Initiative. It is possible that portions of the Initiative will be challenged in California courts and perhaps also in the Federal courts.

³⁷ The definitions of products used in the Initiative are listed in art. 5, 26914 (a) to (u).

³⁸ Professor Sandra O. Archibald, Testimony before USITC, July 10, 1990, p. 111.

³⁹ NRDC Testimony, p. 6, and NRDC Posthearing brief, p. 5.

Chapter 3 California Agricultural Production and Trade

Production and Trade Overview

California's agricultural production is one of the most diversified in the world. The farm value of California's sales of agricultural products in 1989 (\$18.3 billion) was higher than the value of agricultural production in any other State¹ and accounted for about 11 percent of the U.S. total farm cash receipts. California has been the nation's largest producing agricultural State for over 40 years. In 1989, the farm value of California's sales of all products in the livestock (including milk and cream), poultry (including eggs), and apiary sectors accounted for \$5.1 billion, or 28 percent of the California total; fruit and nuts, \$4.3 billion (23 percent); vegetables, \$3.9 billion (21 percent); field crops, \$3.2 billion (17 percent); and miscellaneous nonfood crops (e.g., nursery products, certain seeds, flowers, and foliage) \$1.8 billion (10 percent). This last group of products is not included in this study, as such products are not considered to be within the realm of articles included in the request for the investigation (i.e., fresh and processed food products).

California ranks first among the States in the nation in the production of a number of agricultural products, including artichokes, asparagus, broccoli, carrots, cauliflower, celery, lettuce, melons, onions, strawberries, tomatoes for processing, almonds, avocados, grapes, lemons, olives, peaches, pistachios, plums, dry prunes, and chicken eggs. The State ranks second in the production of milk and cream, sugar beets, rice, cotton, oranges, fresh tomatoes, and mushrooms; third in turkeys; and fourth in the production of apples.

Of the total U.S. imports of raw and processed agricultural products in 1989 (\$22.7 billion), 16.7 percent, or \$3.8 billion, were imported through U.S. customs districts in California (table 3-1). Imports through California ports are compared with imports through other U.S. ports in figure 3-1. Nearly one-half of the imports were products within the animal protein complex; about 30 percent were processed agricultural crops; and the remainder were raw agricultural crops. Data for the first quarter of 1990 do not indicate any significant changes in the conditions of trade. In 1989, about 60 percent of total California imports entered at the

¹ Farm value as reported by the California Department of Food and Agriculture. Products of California's fishery industry (nearly \$500 million in 1989) are not included as agricultural production; however, they do meet the trade criteria (discussed later herein) for inclusion in this investigation. Product value of California's agriculture and fishery industries, as discussed later, exceeds \$27 billion.

Los Angeles Customs District,² over 30 percent at the San Francisco Customs District,³ and 10 percent at the San Diego Customs District.⁴

U.S. exports of agricultural raw and processed food products in 1989 totaled \$35 billion, of which 13 percent, or \$4.6 billion, were exported through the customs districts in California (table 3-2). Exports of agricultural products, by major commodity group, are shown for California ports and other U.S. ports in figure 3-2. Nearly 40 percent of California exports consisted of animal protein complex products, almost 39 percent were raw agricultural crops, and the remainder were processed agricultural crops. In 1989, about 49 percent by value of U.S. exports through California customs districts were through the Los Angeles district, 47 percent were through the San Francisco district, and the remaining 4 percent were accounted for by the San Diego district.

California Trade in Agricultural Products

The request for this investigation asked for certain trade information, as the Commission can provide, on the volume and value of agricultural fresh and processed food products imported through the ports of California and the volume and value of such products exported through the ports of California. In order to respond fully to the request by the United States Trade Representative, this report provides detail on trade through California ports for all agricultural fresh and processed food products at the four-digit level of the Harmonized Tariff Schedule of the United States (HTS). The four-digit HTS heading groups were organized into three major commodity groups (animal protein complex, raw agricultural crops, and processed agricultural products) to help facilitate the analysis of any potential trade effects. A complete list of HTS headings covered under the investigation is shown in appendix H.

Imports Through California Ports, by HTS Heading

In the following detailed analysis of the volume and value of imports through California ports, trade data at the four-digit level of aggregation of the HTS were examined. All raw and processed agricultural products shipped through California districts in 1989 were subjects in this review, which covered over 150 HTS headings.

² The Los Angeles Customs District includes the ports of Los Angeles, Port San Luis, Long Beach, El Segundo, Ventura, Port Hueneme, Capitan, Morro, Los Angeles International Airport, and Las Vegas, NV.

³ The San Francisco Customs District includes the ports of San Francisco International Airport, Eureka, Fresno, Monterey, San Francisco, Stockton, Oakland, Richmond, Alameda, Crockett, Sacramento, Martinez, Redwood City, Selby, San Joaquin River, San Pablo Bay, Carquinez Strait, Susan Bay, and Reno, NV.

⁴ The San Diego Customs District includes the ports of San Diego, Andrade, Calexico, San Ysidro, and Tecate.

Table 3-1
 Agricultural raw and processed food products:¹ U.S. imports for consumption, by product type, by selected customs district, 1989, January-March
 1989, and January-March 1990

Type of product and period	California customs districts				U.S. customs districts			Totals ²
	Los Angeles	San Francisco	San Diego	Total ³	California Districts	Southwest Districts ⁴	Northwest Districts ⁵	
	Value (million dollars)				Value (million dollars)			
Animal protein complex:								
1989	1,387	297	97	1,781	1,781	187	343	8,824
January-March:								
1989	383	75	25	483	483	45	80	2,168
1990	405	95	29	528	528	27	86	2,137
Raw agricultural crops:								
1989	374	375	162	911	911	571	128	6,681
January-March:								
1989	123	102	41	266	266	281	27	2,050
1990	138	77	53	268	268	540	22	2,780
Processed agricultural crops:								
1989	508	488	111	1,107	1,107	22	173	7,216
January-March:								
1989	122	103	24	248	248	5	50	1,650
1990	124	134	21	279	279	4	39	1,826
Total:	2,269	1,160	370	3,799	3,799	780	644	22,721
1989	627	280	90	997	997	331	157	5,868
January-March:								
1989	667	306	102	1,075	1,075	570	304	6,743
1990								
								Percent of California total
Animal protein complex:								
1989	77.9	16.7	5.4	100	20.2	2.1	3.9	100
January-March:								
1989	79.3	15.5	5.2	100	22.3	2.1	3.7	100
1990	76.7	18.0	5.5	100	24.7	1.3	4.0	100
Raw agricultural crops:								
1989	41.1	41.2	17.8	100	13.6	8.5	1.9	100
January-March:								
1989	46.2	38.3	15.4	100	13.0	13.7	1.3	100
1990	51.5	28.7	19.8	100	9.6	19.4	.8	100
Processed agricultural crops:								
1989	45.9	44.1	10.0	100	15.3	.3	2.4	100
January-March:								
1989	49.2	41.5	9.7	100	15.0	.3	3.0	100
1990	44.4	48.0	7.5	100	15.3	.2	2.1	100
Total:	59.7	30.5	9.7	100	16.7	3.4	2.8	100
1989	62.9	28.1	9.0	100	17.0	5.6	2.7	100
January-March:								
1989	62.0	28.5	9.5	100	15.9	8.5	4.5	100
1990								

¹ See app. H for a detailed list of items included in this investigation. ² Totals may not add because of rounding. ³ Nogales, AZ Customs District.
⁴ Portland, OR and Seattle, WA Customs Districts. ⁵ All U.S. customs districts; does not add because other customs districts are not shown.
 Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-2
 Agricultural raw and processed food products:¹ U.S. exports of domestic merchandise, by product type, by selected customs district, 1989,
 January-March 1989, and January-March 1990

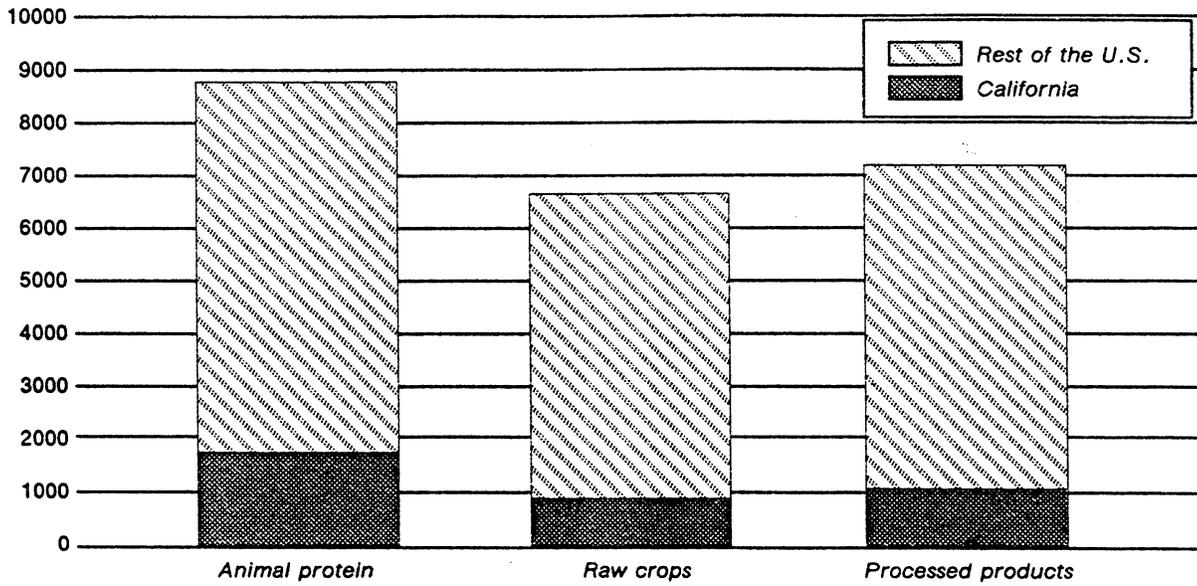
Type of product and period	California customs districts				U.S. customs districts			Total ⁵
	Los Angeles	San Francisco	San Diego	Total ²	California Districts	Southwest District ³	Northwest Districts ⁴	
	Value (million dollars)				Value (million dollars)			
Animal protein complex:								
1989	968	810	46	1,824	1,824	1,126	8	6,087
January-March:								
1989	250	205	11	466	466	238	2	1,426
1990	209	201	11	420	420	208	2	1,489
Raw agricultural crops:								
1989	829	865	79	1,773	1,773	8,586	51	24,788
January-March:								
1989	172	173	13	358	358	1,853	22	7,071
1990	179	203	16	399	399	2,861	10	6,816
Processed agricultural crops:								
1989	469	502	38	1,010	1,010	49	19	4,242
January-March:								
1989	85	107	9	201	201	12	7	973
1990	118	123	9	250	250	14	5	1,161
Total:								
1989	2,267	2,177	163	4,607	4,607	9,761	78	35,117
January-March:								
1989	507	485	33	1,025	1,025	2,103	31	9,470
1990	506	527	36	1,069	1,069	3,083	17	9,466
	Percent of California total				Percent of California total			
Animal protein complex:								
1989	53.1	44.4	2.5	100	30.0	18.5	0.1	100
January-March:								
1989	53.4	44.0	2.4	100	32.7	16.7	.1	100
1990	49.8	47.8	2.6	100	28.2	14.0	.1	100
Raw agricultural crops:								
1989	46.8	48.8	4.4	100	7.2	34.6	.2	100
January-March:								
1989	48.0	48.3	3.6	100	5.1	26.2	.3	100
1990	44.9	50.9	4.0	100	5.9	42.0	.1	100
Processed agricultural crops:								
1989	46.5	49.7	3.8	100	23.8	1.2	.5	100
January-March:								
1989	42.4	53.2	4.4	100	20.7	1.2	.7	100
1990	47.1	49.1	3.7	100	21.5	1.1	.4	100
Total:								
1989	49.2	47.2	3.5	100	13.1	27.8	.2	100
January-March:								
1989	49.5	47.3	3.2	100	10.8	22.2	.3	100
1990	47.3	49.3	3.4	100	11.3	32.6	.2	100

¹ See app. H for a detailed list of items included in this investigation. ² Totals may not add because of rounding. ³ Portland, OR and Seattle, WA Customs Districts. ⁴ Nogales, AZ Customs District. ⁵ All U.S. customs districts; does not add because other customs districts are not shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Figure 3-1
Agricultural Imports: Imports through California ports compared with total U.S. imports, 1989

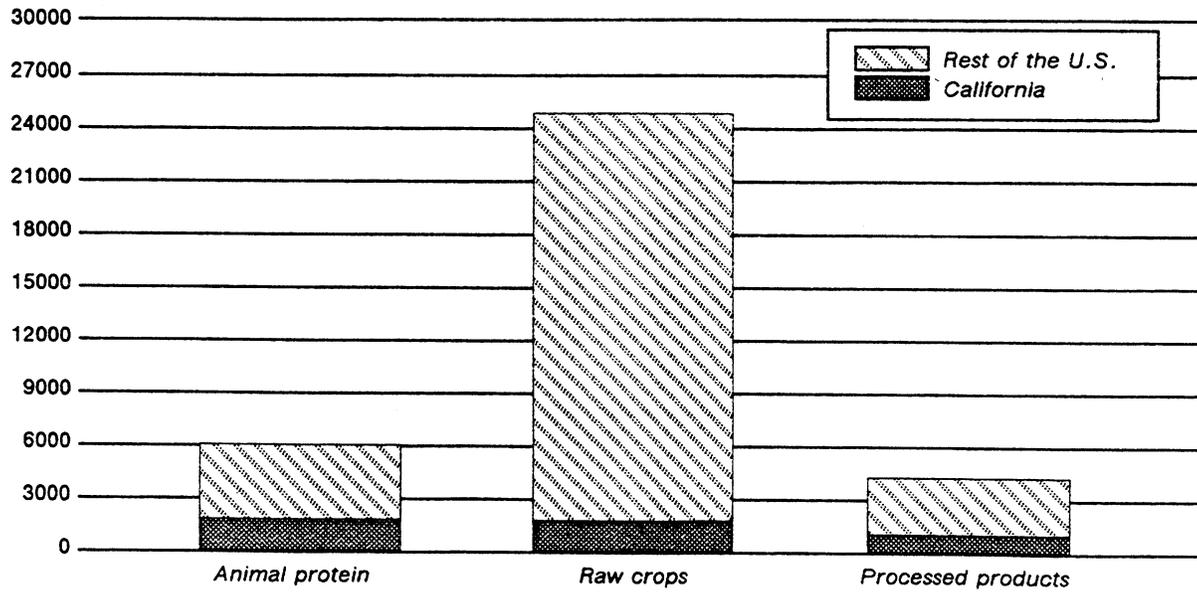
Million dollars



Source: Official statistics of the U.S. Department of Commerce.

Figure 3-2
Agricultural exports: Exports through California ports compared with total U.S. exports, 1989

Million dollars



Source: Official statistics of the U.S. Department of Commerce.

Further, it is noted that about 3.4 percent of total U.S. imports of raw and processed food products entered through the Customs District of Nogales, AZ⁵ in 1989; for January–March 1990, 19.4 percent were so imported. The increase was accounted for entirely by increased imports of raw agricultural crops (i.e., fresh vegetables) following the December 1989 freeze in the major U.S. areas producing winter vegetables. Owing to the proximity of many of the ports in the Nogales Customs District to California and the differences in density of population between the two areas, a portion of the imports of the raw food crops into the Customs District of Nogales were no doubt marketed in California.

Animal Protein Complex

Animal products that entered the United States through customs districts in California accounted for 20 percent of the value of U.S. imports of animal products in 1989 (table 3–3). The total value of such imports was \$1.8 billion. Almost 78 percent of the animal product imports that entered California were recorded at the Los Angeles Customs District.

In 1989, California customs districts were the point of entry for a large percentage of the animal products shipped to the United States by Asian and South Pacific countries. Australia was the principal supplier. China shipped 82 percent of its animal products destined for the United States through California. Almost 60 percent of animal product imports to the United States from the Philippines also arrived at California districts.

Product Composition of Animal Protein Complex Imports

Crustaceans (HTS heading 0306), primarily shrimp, were the leading item in value among animal protein products imported through California ports (table 3–4). Such imports were valued at \$720 million in 1989, which was over 40 percent of the value of all California imports in the animal protein complex. Shrimp accounted for 85 percent of the value of California imports under HTS heading 0306. Frozen beef (HTS heading 0202) had the second-highest value of animal protein commodities imported, with a value of \$304 million in 1989, and was the leading animal product import in volume (125,813 metric tons) (table 3–5). Prepared seafood products (HTS heading 1604 and HTS heading 1605) together accounted for almost \$270 million in imports through California, with combined volume of about 76,000 metric tons. About \$120 million (26,432 metric tons) in fish fillet imports (HTS heading 0304) were recorded at California ports in 1989.

⁵ The Nogales, Arizona Customs District includes the ports of Douglas, Lukeville, Naco, Nogales, Phoenix, Sasabe, and San Luis.

Origin of Animal Protein Complex Imports

The top three countries of origin for imports of animal products through California ports in 1989 were Australia, Thailand, and China, each shipping over \$250 million in products. Australia was the leading source of U.S. animal product imports through California, providing both beef and seafood products. Total value of California imports from Australia was \$277 million; \$155 million was in frozen beef and \$67 million in shellfish.

Seafood products dominated the value of shipments from Thailand and China to California ports. Thailand, the second-largest source in value for California animal protein imports, shipped \$136 million in crustaceans and over \$100 million in prepared seafood products. Seafood imports to California ports from China were predominantly crustaceans. Of the \$256 million in shipments from China, \$235 million were shellfish, mainly frozen shrimp.

Raw Agricultural Crops

Fourteen percent of the value of U.S. imports of raw agricultural crops, totaling \$911 million, entered through customs districts in California in 1989 (table 3–6). Fruits and vegetables together accounted for about 48 percent of the value of raw agricultural crops imported through California Customs Districts. Coffee and tea made up about 34 percent of the value of raw agricultural imports through California districts.

The Los Angeles and San Francisco Customs Districts each accounted for about 41 percent of the value of raw agricultural product imports into California districts. About 18 percent of raw agricultural products entered at the San Diego Customs District.

Product Composition of Raw Agricultural Imports

To facilitate analysis, data on imports of raw agricultural crops were subdivided into two categories. The first category, horticultural and beverage crops, includes fruits, vegetables, coffee, tea, and spices, of which imports through California were \$823 million in 1989 (table 3–7). Data on quantity of horticultural- and beverage-crop imports are shown in table 3–8, but comparisons between products on the basis of volume often are not relevant, because unit values of raw products vary substantially across commodities. California imports of grain- and field-crops and other food products, which in aggregate were valued at \$88 million in 1989, are shown in table 3–9. Volume of grain and field crop imports shipped through California ports is shown in table 3–10.

Table 3-3
Animal protein complex: U.S. Imports for consumption, by selected customs district, 1989

Source	California customs districts				Total California	Total U.S. Imports ¹	California customs districts share of U.S. Imports
	Los Angeles	San Francisco	San Diego	Total California			
World	1,387	297	97	1,781	8,824	20.2	
Australia	188	90	0	277	820	33.8	
Thailand	239	25	2	267	500	53.4	
China	251	4	1	257	312	82.1	
New Zealand	127	73	0	200	838	23.9	
Mexico	(²)	1	76	77	395	19.5	
Taiwan	64	8	0	73	219	32.9	
Japan	52	7	12	71	178	39.9	
Ecuador	66	1	0	67	350	19.1	
Philippines	59	5	(²)	63	109	58.7	
All other	340	82	6	429	5,079	8.4	

¹ Total for all U.S. customs districts.

² Less than \$500,000.

Note.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-4
Animal protein complex commodities: Value of U.S. imports of foreign merchandise through California ports, by principal source, 1989

(In thousands of dollars)

HTS	Description	New											Total			
		Australia	Thailand	China	Zealand	Mexico	Taiwan	Japan	Ecuador	Philippines	Singapore	All other				
0201	Fresh beef	53	0	0	0	0	0	0	0	0	0	0	0	0	0	60
0202	Frozen beef	155,538	0	0	147,524	0	0	0	0	0	0	0	0	0	508	303,570
0203	Pork	1,024	0	0	0	0	0	0	0	0	0	0	0	0	21,341	22,365
0204	Lamb	13,110	0	0	8,805	0	0	0	0	0	0	0	0	0	3	21,918
0205	Horsemeat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0206	Edible offal	4,300	0	0	605	0	0	0	0	0	0	0	0	0	923	5,828
0207	Poultry meat	0	0	0	2,427	0	0	0	0	0	0	0	0	0	131	131
0208	Other meat	40	34	0	0	0	323	0	0	0	0	0	0	0	468	3,321
0209	Pig fat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0210	Salt meat	0	0	3	0	0	0	0	0	0	0	0	0	0	568	571
0302	Fresh fish	31	95	78	1,403	7,472	7,652	794	771	3,167	661	23,329	661	8,041	23,329	45,453
0303	Frozen fish	183	3,712	3,295	975	665	13,044	13,372	595	2,582	1,427	8,041	1,427	17,043	17,043	47,891
0304	Fish filets	28,126	2,945	1,723	24,900	112	4,652	20,457	2,772	183	16,606	10,743	16,606	10,743	10,743	16,125
0305	Preserved fish	3	252	640	20	665	57	3,026	257	444	18	10,743	444	10,743	10,743	16,125
0306	Crustaceans	67,462	135,566	235,261	6,410	15,737	16,828	2,659	60,396	46,320	24,992	108,825	24,992	108,825	108,825	720,456
0307	Molluscs	745	3,530	7,252	4,560	29,116	5,047	14,682	1	5,892	284	14,494	284	14,494	14,494	85,603
0401	Milk, cream	0	0	0	823	0	0	0	0	0	0	0	0	0	0	823
0402	Condensed milk	245	0	2	0	0	0	0	0	0	0	115	0	0	115	362
0403	Buttermilk	0	0	0	0	0	0	0	0	0	0	0	0	0	169	190
0404	Whey	0	0	0	11	0	0	0	0	0	0	0	0	0	299	313
0405	Butter	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
0406	Cheese	215	0	0	10	0	0	0	0	0	0	0	0	0	18,541	18,766
0407	Eggs in shell	66	9	751	0	0	458	0	0	0	0	0	0	0	414	1,698
0408	Eggs, shelled	0	159	48	0	0	213	11	0	0	0	0	0	0	44	475
0409	Honey	4	1	1,966	15	1,175	17	0	0	0	20	0	0	0	701	3,899
0410	Other canned	0	14	467	0	0	0	0	0	0	0	0	0	0	1,118	1,617
1501	Lard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1502	Tallow	0	0	0	0	16	0	0	0	0	0	0	0	0	0	16
1503	Stearin oils	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1504	Fish oil	0	0	0	0	33	0	0	0	0	0	0	0	0	966	2,020
1506	Other fats	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1601	Sausage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1602	Other prep meat	166	0	0	792	0	50	44	0	0	0	0	0	0	1,265	1,265
1603	Meat, fish extr	0	13	0	0	0	0	1,834	0	0	0	0	0	0	15	29
1604	Prepared fish	22	76,321	872	6	436	13,714	8,964	1,698	4,489	1,444	30,453	1,444	30,453	30,453	138,419
1605	Prep crustaceans	735	44,051	4,275	188	22,036	10,606	4,407	76	387	1,962	41,539	1,962	41,539	41,539	130,462
2105	Ice cream	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3501	Casein	5,285	0	0	59	0	3	10	0	0	0	0	0	0	3,554	8,925
3502	Albumins	0	0	11	54	0	0	11	0	0	0	0	0	0	91	167
	Total	277,353	266,702	256,644	199,591	77,463	72,864	71,394	66,566	63,527	47,408	381,601	47,408	381,601	1,781,113	

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-5
Animal protein complex commodities: Volume of U.S. imports of foreign merchandise through California ports, by principal source, 1989
(In metric tons, except as noted)

HTS	Description	New										Total				
		Australia	Thailand	China	Zealand	Mexico	Taiwan	Japan	Ecuador	Philippines	Singapore		All other			
0201	Fresh beef	15	0	0	0	0	0	0	0	0	0	0	0	0	0	15
0202	Frozen beef	64,091	0	0	61,461	0	0	0	0	0	0	0	0	0	260	125,813
0203	Pork	365	0	0	0	0	0	0	0	0	0	0	0	0	9,381	9,746
0204	Lamb	5,295	0	0	2,810	0	0	0	0	0	0	0	0	0	1	8,106
0205	Horsemeat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0206	Edible offal	2,070	0	0	309	0	0	0	0	0	0	0	0	0	717	3,096
0207	Poultry meat	0	0	0	0	0	0	0	0	0	0	0	0	0	32	32
0208	Other meat	17	11	0	294	0	0	0	0	0	0	0	0	0	70	442
0209	Pig fat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0210	Salt meat	0	0	(1)	0	0	0	0	0	0	0	0	0	0	186	186
0302	Fresh fish	5	50	27	312	2,852	1,977	0	0	0	0	0	0	0	4,387	11,125
0303	Frozen fish	22	1,874	1,232	288	737	6,113	2,496	211	278	148	889	942	459	2,860	17,234
0304	Fish fillets	3,462	862	591	4,119	45	1,103	5,363	1,012	61	4,025	61	209	7	5,789	26,432
0305	Preserved fish	(1)	90	164	3	40	6	373	4	4	3,044	5,109	7	4,259	5,156	
0306	Crustaceans	2,410	14,805	40,161	223	1,302	3,436	281	7,807	(2)	0	0	0	0	19,583	98,161
0307	Molluscs	(2)	(2)	(2)	576	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	0	0
0401	Milk, cream ²	0	0	0	0	0	0	0	0	0	0	0	0	0	0	576
0402	Sweetened milk	130	0	1	0	0	0	0	0	0	0	0	0	0	77	208
0403	Buttermilk	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	0	0
0404	Whey	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	0	0
0405	Butter	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
0406	Cheese	110	0	0	5	0	0	0	0	0	0	0	0	0	0	2
0407	Eggs in shell	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	4,857	4,971
0408	Eggs, shelled	0	127	8	0	0	81	1	0	0	0	0	0	0	13	231
0409	Honey	3	0	2,646	2	1,495	6	0	0	0	0	0	0	0	603	4,790
0410	Other canned	0	1	37	0	0	0	1	0	0	0	0	0	0	23	62
1501	Lard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1502	Tallow	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1503	Stearin oils	0	0	0	0	79	0	0	0	0	0	0	0	0	0	79
1504	Fish oil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1506	Other fats	0	0	0	0	169	0	1,334	0	0	0	0	0	0	161	1,664
1601	Sausage	0	0	0	0	0	0	(1)	0	0	0	0	0	0	17	17
1602	Other prep meat	71	0	0	150	0	9	5	0	0	0	0	0	466	466	
1603	Meat, fish extr	0	17	0	0	0	0	228	0	0	0	13	0	27,431	27,678	
1604	Prepared fish	13	33,787	324	1	327	3,283	2,238	1,315	0	0	12	0	864	1,121	
1605	Prep crustaceans	24	8,386	642	29	686	1,280	640	18	162	308	2,193	207	11,856	55,645	
2105	Ice cream	0	0	0	0	0	0	8	0	0	0	0	0	8,965	21,039	
3501	Casein	1,050	0	0	11	0	(1)	(1)	0	0	0	0	0	686	0	8
3502	Albumins	0	0	1	11	0	0	0	0	0	0	0	0	12	1,747	1,747
	Total ⁴	79,153	60,011	45,833	70,031	7,731	17,340	13,172	10,644	8,198	9,624	103,478	8,198	425,084	425,084	

¹ Quantity less than 0.5 metric tons.

² HTS heading contains mixed units of quantity; therefore a total is not provided.

³ Quantity in kiloliters.

⁴ Total metric tons; does not include HTS headings 0307, 0401, 0403, 0404, and 0407.

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-6
Raw agricultural crops: U.S. imports for consumption, by selected customs district, 1989

Source	California customs districts				Total California	Total U.S. imports ¹	California customs districts share of U.S. imports
	Los Angeles	San Francisco	San Diego	Total California			
World	374	375	162	911	6,681	13.6	
Mexico	(²)	11	159	170	1,355	12.5	
Ecuador	119	12	0	131	365	35.9	
Colombia	6	76	0	83	515	16.1	
Chile	59	3	0	62	300	20.7	
Thailand	32	24	(²)	56	126	44.4	
Brazil	3	50	(²)	54	582	9.3	
Costa Rica	25	14	0	38	296	12.8	
Panama	30	2	0	32	48	66.7	
El Salvador	9	21	0	29	110	26.4	
All other	90	162	3	255	2,984	8.5	

¹ Total for all U.S. customs districts.

² Less than \$500,000.

Note.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-7
Raw agricultural commodities—Horticultural and beverage crops: Value of U.S. imports of foreign merchandise through California ports, by principal source, 1989

(In thousands of dollars)

HTS	Description	Mexico	Ecuador	Colombia	Chile	Brazil	Costa Rica	Panama	El Salvador	Philippines	Guatemala	All other	Total
0701	Potatoes	0	0	0	0	0	0	0	0	0	0	0	0
0702	Tomatoes	56,108	0	0	0	0	0	0	0	0	0	229	56,337
0703	Onions	26,665	0	0	491	0	0	0	0	0	0	4,161	31,317
0704	Cabbage, broccoli	3,113	0	0	4	0	0	0	0	0	0	16	3,133
0705	Lettuce	2,086	0	0	36	0	1	0	0	0	0	2,636	4,759
0706	Carrots	6,912	0	0	0	0	0	0	0	0	0	535	7,447
0707	Cucumbers	2,853	0	0	0	0	0	0	0	0	0	81	2,934
0708	Beans and peas	865	0	0	0	0	0	0	0	2	240	333	1,440
0709	Vegetables, nesol	34,758	0	0	203	0	894	0	0	0	5	3,355	39,215
0713	Dried beans/peas	158	0	0	146	82	0	0	0	4	0	6,496	6,886
0714	Cassava, roots	0	0	0	502	59	75	0	0	91	0	1,372	1,597
0801	Coconuts	407	0	0	0	3,409	234	0	0	2,631	279	6,063	13,525
0802	Nuts, nesol	158	0	0	0	0	559	0	0	4	107	17,238	18,066
0803	Bananas	910	116,239	26	7	44	18,852	30,183	9	302	2	74	166,648
0804	Dates	357	0	0	95	0	1,151	0	0	188	0	2,089	3,880
0805	Citrus	0	0	0	0	0	1	0	0	0	30	38	69
0806	Grapes, raisins	653	0	0	42,775	0	0	0	0	0	0	179	43,607
0807	Melons	2,080	0	0	18	0	1,151	0	0	0	23	32	3,304
0808	Apples, pears	0	0	0	1,524	0	0	0	0	0	0	4,877	6,401
0809	Stone fruit	0	0	0	12,337	0	0	0	0	0	0	233	12,570
0810	Fruits, nesol	10,935	1	0	413	47	8	1	0	11	29	5,503	16,948
0814	Citrus peel	0	0	0	0	0	0	0	0	9	0	90	99
0901	Coffee	12,505	12,389	82,621	0	44,070	15,196	1,742	29,296	23,204	21,168	90,514	332,705
0902	Tea	0	0	0	13	948	0	0	0	0	5	15,177	16,143
0903	Mate	0	0	0	0	19	0	0	0	0	0	157	176
0904	Pepper	918	0	0	3,437	0	0	0	0	0	33	17,224	21,612
0905	Vanilla beans	0	0	0	0	0	0	0	0	0	0	901	901
0906	Cinnamon	6	0	0	0	0	0	0	0	0	0	3,062	3,068
0907	Cloves	0	0	0	0	37	0	0	0	0	0	302	339
0908	Nutmeg	0	0	0	0	0	2	0	0	0	89	69	160
0909	Seeds of anise	0	0	0	0	0	0	0	0	3	0	1,050	1,053
0910	Spices, nesol	1,139	19	0	0	44	0	0	1	22	0	5,642	6,867
	Total	163,586	128,648	82,647	62,001	48,759	38,124	31,926	29,306	26,471	22,010	189,728	823,206

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3--8
Raw agricultural commodities--Horticultural and beverage crops: U.S. imports of foreign merchandise through California ports, by principal source,
1989

HTS	Description	(In metric tons)										Total			
		Mexico	Ecuador	Colombia	Chile	Brazil	Costa Rica	Panama	El Salvador	Philippines	Guatemala		All other		
0701	Potatoes	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0702	Tomatoes	140,050	0	0	0	0	0	0	0	0	0	0	0	212	140,263
0703	Onions	40,230	0	0	285	0	0	0	0	0	0	0	0	5,485	46,000
0704	Cabbage, broccoli	8,712	0	0	1	0	0	0	0	0	0	0	0	25	8,738
0705	Lettuce	3,908	0	0	15	0	(1)	0	0	0	0	0	0	1,100	5,022
0706	Carrots	17,730	0	0	0	0	0	0	0	0	0	0	0	523	18,253
0707	Cucumbers	7,744	0	0	0	0	0	0	0	0	0	0	0	54	7,798
0708	Beans and peas	817	0	0	0	0	0	0	0	0	0	284	0	1,491	1,491
0709	Vegetables, nesol	55,087	0	0	166	0	808	0	0	0	0	2	0	1,727	57,791
0713	Dried beans/peas	257	0	0	126	20	0	0	0	0	0	0	0	9,301	9,706
0714	Cassava, roots	0	0	0	0	70	151	0	0	0	0	0	0	1,842	2,141
0801	Coconuts	2,204	0	0	150	915	480	0	0	0	0	3,049	0	1,584	9,433
0802	Nuts, nesol	54	0	0	0	0	51	0	0	0	0	1	0	3,088	3,203
0803	Bananas	3,651	472,919	24	31	65	48,633	105,238	3	368	1	40	0	1,560	631,001
0804	Dates	377	0	0	110	0	1,563	0	0	0	0	0	0	15	3,650
0805	Citrus	0	0	0	0	0	2	0	0	0	0	0	0	0	32
0806	Grapes, raisins	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0807	Melons	7,749	0	0	34	0	1,442	0	0	0	0	0	0	72	9,322
0808	Apples, pears	0	0	0	5,205	0	0	0	0	0	0	0	0	2,547	7,752
0809	Stone fruit	0	0	0	18,499	0	0	0	0	0	0	0	0	139	18,638
0810	Fruits, nesol	16,742	1	0	245	32	18	(1)	0	0	0	6	0	2,471	19,546
0814	Citrus pec.	0	0	0	0	0	0	0	0	0	0	6	0	57	63
0901	Coffee	5,510	7,672	33,572	0	23,316	6,686	682	15,126	14,016	10,433	0	0	41,614	158,627
0902	Tea	0	0	0	2	550	0	0	0	0	9	0	0	6,326	6,887
0903	Mate	0	0	0	0	12	0	0	0	0	0	0	0	81	93
0904	Pepper	702	0	0	706	0	0	0	0	0	0	0	0	7,503	8,938
0905	Vanilla beans	0	0	0	0	0	0	0	0	0	0	0	0	19	19
0906	Cinnamon	(1)	0	0	0	0	0	0	0	0	0	0	0	1,223	1,223
0907	Cloves	0	0	0	0	25	0	0	0	0	0	0	0	96	121
0908	Nutmeg	0	0	0	0	0	0	1	0	0	0	0	0	12	39
0909	Seeds of anise	0	0	0	0	0	0	0	0	0	0	0	0	1,113	1,115
0910	Spices, nesol	1,821	16	0	0	53	0	0	(1)	53	0	0	0	2,735	4,679
	Total	313,346	480,608	33,596	25,575	25,058	59,834	105,921	15,129	17,623	10,915	0	0	92,979	1,180,584

¹ Quantity less than 0.5 metric tons.

Note 1.--See app. H for full description of 4-digit HTS codes.

Note 2.--Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-9
Raw agricultural commodities—Grain and field crops and other food products: Value of U.S. imports of foreign merchandise through California ports, by principal source, 1989

(In thousands of dollars)

HTS	Description	Thailand	Papua New Guinea	India	Mexico	Brazil	Ecuador	Hong Kong	Western Samoa	Japan	Malaysia	All other	Total
1001	Wheat	0	0	0	0	0	0	0	0	0	0	41	41
1002	Rye	0	0	0	0	0	0	0	0	0	0	0	0
1003	Barley	10	0	0	0	0	0	2	0	2	0	18	32
1004	Oats	0	0	0	0	0	0	0	0	0	0	0	0
1005	Corn	4	0	0	30	0	0	0	0	4	0	39	77
1006	Rice	28,658	0	7,674	0	0	0	18	0	24	0	562	36,936
1007	Sorghum	0	0	0	0	0	0	0	0	0	0	0	0
1008	Buckwheat	0	0	1	0	0	0	0	0	0	0	5	6
1201	Soybeans	3	0	0	0	0	0	0	0	20	0	69	92
1202	Peanuts	0	0	0	0	0	0	11	0	0	33	570	614
1203	Copra	0	0	0	0	0	0	0	0	0	0	0	0
1204	Flaxseed	0	0	0	0	0	0	0	0	0	0	0	0
1205	Rapeseed	0	0	0	0	0	0	0	0	0	0	0	0
1206	Sunflower	38	0	36	6,500	0	0	52	0	12	0	197	209
1207	Misc. oilseeds	0	0	0	0	0	0	0	0	139	0	1,362	8,127
1210	Hops	0	0	0	0	0	0	0	0	0	0	67	67
1214	Rutabagas	0	0	0	0	0	0	0	0	26	0	8	34
1801	Cocoa beans	0	13,312	0	0	5,032	2,785	0	653	0	642	352	22,776
2301	Flours of meat	0	0	0	125	0	0	0	0	15	0	40	180
2302	Bran, sharps	2	0	0	0	0	0	0	0	0	0	180	182
2303	Residue, starch	0	0	0	14	0	0	0	0	1	0	5	20
2304	Oilcake, soy	0	0	0	0	0	0	0	0	5	0	29	34
2305	Oilcake, peanut	0	0	0	0	0	0	0	0	0	0	0	0
2306	Oilcake, veg	0	0	0	0	0	0	0	0	0	0	0	0
2307	Wine lees	0	0	0	0	0	0	0	0	0	0	0	0
2308	Veg. residues	0	0	0	0	0	0	0	0	0	0	0	0
2309	Animal feed	11,921	0	0	0	0	0	1,747	1,131	1,257	565	1,717	18,338
	Total	40,636	13,312	7,711	6,669	5,032	2,785	1,830	1,784	1,505	1,240	5,264	87,768

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-10
Raw agricultural commodities--Grain and field crops and other food products: Volume of U.S. imports of foreign merchandise through California ports, by principal source, 1989

(In metric tons)

HTS	Description	Papua New Guinea											Total	
		Thailand	India	Mexico	Brazil	Ecuador	Hong Kong	Western Samoa	Japan	Malaysia	All other			
1001	Wheat	0	0	0	0	0	0	0	0	0	0	0	0	345
1002	Rye	0	0	0	0	0	0	0	0	0	0	0	0	0
1003	Barley	9	0	0	0	0	2	0	0	0	0	1	0	38
1004	Oats	0	0	0	0	0	0	0	0	0	0	0	0	0
1005	Corn	5	0	61	0	0	0	0	0	0	0	1	0	105
1006	Rice	68,608	5,399	0	0	0	42	0	0	0	0	24	0	74,764
1007	Sorghum	0	0	0	0	0	0	0	0	0	0	0	0	0
1008	Buckwheat	0	2	0	0	0	0	0	0	0	0	0	5	7
1201	Soybeans	4	0	0	0	0	0	0	0	0	0	9	44	57
1202	Peanuts	0	0	0	0	0	11	0	0	0	0	0	434	460
1203	Copra	0	0	0	0	0	0	0	0	0	0	0	0	0
1204	Flaxseed	0	0	0	0	0	0	0	0	0	0	0	0	0
1205	Rapeseed	0	0	0	0	0	0	0	0	0	0	0	0	0
1206	Sunflower	0	0	0	0	0	0	0	0	0	0	37	543	579
1207	Misc. oilseeds	42	37	5,983	0	0	14	0	0	0	0	57	1,187	7,319
1210	Hops	0	0	0	0	0	0	0	0	0	0	0	10	10
1214	Rutabagas	0	0	0	0	0	0	0	0	0	0	144	5	149
1801	Cocoa beans	0	0	0	3,649	0	0	0	0	0	0	0	314	17,210
2301	Flours of meat	0	0	284	0	0	2,323	0	0	0	0	8	81	373
2302	Bran, sharps	10	0	0	0	0	0	0	0	0	0	0	1,656	1,666
2303	Residue, starch	0	0	218	0	0	0	0	0	0	0	1	5	224
2304	Oilcake, soy	0	0	0	0	0	0	0	0	0	0	(1)	11	11
2305	Oilcake, peanut	0	0	0	0	0	0	0	0	0	0	0	0	0
2306	Oilcake, veg	0	0	0	0	0	0	0	0	0	0	0	0	0
2307	Wine lees	0	0	0	0	0	0	0	0	0	0	0	0	0
2308	Veg. residues	0	0	0	0	0	0	0	0	0	0	0	9	9
2309	Animal feed	72,136	0	0	0	0	37,898	1,376	0	0	0	361	17,857	133,812
	Total	140,814	10,145	5,438	3,649	2,323	37,967	1,685	4,669	23,260	642	4,669	237,138	

¹ Quantity less than 0.5 metric tons.

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Horticultural and Beverage Crops

Coffee shipments accounted for more than two-fifths of the value of California imports of horticultural and beverage crops. Imports of coffee (HTS heading 0901) through California ports totaled \$333 million. Following coffee, fruit was the second leading commodity group of this category imported through California ports. The total value of fruit shipments imported through California was \$253 million, of which \$167 million were bananas and plantains (HTS heading 0803). Vegetables, the third leading class of raw agricultural crops within horticultural and beverage crops, recorded imports of over \$155 million. Tomatoes (HTS heading 0702) were the leading individual vegetable imported through California, with imports valued at \$56 million.

Grain and Field Crops and Other Food Products

Rice (HTS heading 1006) was the major type of grain imported through California ports in 1989. Rice imports to California were valued at \$37 million and amounted to nearly 75,000 metric tons. Cocoa beans (HTS heading 1801) followed rice imports in value, at about \$23 million. Animal feed, an item comprised of miscellaneous preparations (HTS heading 2309), was also an important shipment through California ports, with imports totaling \$18 million in value (133,812 metric tons). Dog and cat food comprised almost one-half the value of U.S. imports through California under HTS heading 2309.

Origin of Raw Agricultural Imports

Horticultural and Beverage Crops

Mexico led among source countries in the value of vegetables, fruits, and other horticultural products imported by the United States through California ports in 1989. The majority of the import value from Mexico was vegetables. Total value of Mexican shipments to California ports of commodities within this grouping was \$164 million. More than two-thirds of the value of these imports was tomatoes (HTS heading 0702, \$56 million), onions (HTS heading 0703, \$27 million), and other vegetables, including asparagus and artichokes (HTS heading 0709, \$35 million). Besides Mexico, no other country was a significant source of U.S. imports through California of the subject vegetables.

Ecuador was an important source of U.S. imports through California by virtue of the \$116 million in banana shipments recorded in 1989. Banana imports from Ecuador were supplemented by \$12 million in coffee shipments.

Colombian coffee shipments to California ports were valued at \$83 million. Coffee was the only significant import through California from Colombia. Several other Central and South

American countries were also sources of U.S. coffee imports through California ports.

Grain and Field Crops and Other Food Products

Thailand was the leading source of rice imported through California customs districts. The approximately \$29 million in rice shipments, and \$41 million in total imports, made Thailand the top-ranked country of origin in imports of grain and field crops. Papua New Guinea ranked second, with \$13 million in cocoa bean shipments to California.

Processed Agricultural Crops

Fifteen percent of the total value of U.S. imports of processed agricultural products, totaling \$1.1 billion, entered through custom districts in California in 1989 (table 3-11). Fruit and vegetable products accounted for about 32 percent of the total value of processed agricultural crops imported through California customs districts. Beer and wine accounted for about 28 percent of the value of processed agricultural imports through California districts.

The Los Angeles and San Francisco Customs Districts each accounted for about 40 percent of the value of processed agricultural products imported into California districts in 1989. Imports that entered through the San Diego Customs District accounted for the remaining value of California imports.

Imports of processed agricultural products through California customs districts originated in several countries. The Philippines, Mexico, and France were leading sources of imports through California districts when measured in value terms, with imports valued at \$151 million, \$120 million, and \$109 million, respectively.

In 1989, California customs districts were the point of entry for a large share of the processed agricultural products shipped to the United States by Asian countries. Japan and Taiwan shipped about 50 percent of processed agricultural crops destined for the United States through California districts. About 40 percent of processed agricultural imports into the United States from China, Thailand, and the Philippines entered through California.

Product Composition of Processed Agricultural Imports

The processed agricultural crops category represents an aggregation of a wide variety of food products (tables 3-12, 3-13). Some of the major processed products include frozen and canned fruits and vegetables, bakery products, refined oils, and alcoholic beverages. The total value of processed agricultural product imports that entered the United States through California

Table 3-11
Processed agricultural crops: U.S. Imports for consumption, by selected customs district, 1989

Source	California customs districts				Total U.S. Imports ¹	California customs districts share of U.S. imports
	Los Angeles	San Francisco	San Diego	Total California		
	Million dollars					Percent
World	508	488	111	1,107	7,216	15.3
Philippines	32	119	0	151	382	39.5
Mexico	2	8	111	120	530	22.6
France	46	63	(²)	109	542	20.1
Japan	53	19	(²)	72	145	49.7
Thailand	45	25	(²)	70	184	38.0
Italy	34	28	0	62	489	12.7
Taiwan	38	21	1	59	115	51.3
China	29	27	(²)	56	130	43.1
Spain	35	17	0	52	381	13.6
All other	194	160	(²)	354	4,318	8.2

¹ Total for all U.S. customs districts.

² Less than \$500,000.

Note.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-12
 Processed agricultural commodities: Value of U.S. imports of foreign merchandise through California ports, by principal source, 1989

(In thousands of dollars)

HTS	Description	Philippines	Mexico	France	Japan	Thailand	Italy	Taiwan	China	Spain	Netherlands	All other	Total
0710	Froz. vegetables	23	69	59	109	504	16	4,695	1,143	14	15	2,933	9,580
0711	Pres. vegetables	14	642	8	105	198	72	244	231	770	2	1,553	3,839
0712	Dried vegetables	2	1,679	461	2,611	196	445	4,046	5,338	141	75	6,356	21,350
0811	Frozen fruit	289	469	19	3	963	3	3	18	0	18	2,181	3,966
0812	Preserved fruit	7	132	0	19	56	0	583	49	46	0	729	1,621
0813	Dried fruit	28	61	7	76	452	0	456	145	0	0	4,208	5,433
1101	Wheat flour	0	3	0	211	3	0	1	11	0	0	82	311
1102	Cereal flours	9	48	0	29	671	8	1	15	0	0	45	826
1103	Cereal groats	2	21	103	0	64	0	0	0	0	25	2,573	2,788
1104	Cereal grains	0	0	0	16	60	0	0	13	0	127	1,161	1,377
1105	Potato flour	0	0	0	0	0	0	1	11	0	36	3	51
1106	Veg./fruit flour	7	4	0	65	382	0	256	171	40	0	30	955
1107	Malt	0	0	0	4	173	0	0	11	0	0	77	92
1108	Starches	7	958	87	40	0	0	258	167	0	392	485	2,310
1109	Wheat gluten	0	0	41	5	0	0	0	4	0	39	8,967	9,314
1208	Oilseed flour	0	0	0	17	0	0	5	5	0	0	10	37
1507	Soybean oil	0	0	0	2,601	0	0	0	0	0	0	0	2,606
1508	Peanut oil	0	0	8	0	0	0	0	17	0	0	131	156
1509	Olive oil	0	0	176	0	0	26,751	0	0	2,723	0	1,975	31,025
1510	Olive oil blends	0	0	0	0	0	99	0	0	299	0	0	398
1511	Palm oil	0	0	0	0	0	0	0	0	0	0	5,459	5,459
1512	Sunflwr/cottnsd	0	5,309	21	0	0	0	0	0	0	0	0	5,330
1513	Coconut/palm oil	53,834	0	0	0	5	0	0	0	0	0	18,823	72,662
1514	Rapeseed oil	0	0	0	0	0	0	0	0	0	0	1,712	1,712
1515	Vegetable oils	0	2,217	335	3,322	443	265	717	581	0	66	1,526	9,472
1516	Fats/oils, hydrog	0	0	7	3	0	0	0	0	0	0	148	158
1517	Margarine	0	0	8	156	0	0	0	0	0	1	124	289
1518	Misc. fats/oils	0	0	0	1	0	0	0	0	0	0	2	3
1701	Cane/beet sugar	28,970	29	51	8	145	4	6	20	0	0	3,303	32,536
1702	Sugars, nesol	0	0	73	167	66	0	0	23	0	0	323	652
1703	Molasses	0	0	0	0	0	0	0	0	0	0	1,317	1,317
1704	Confectionery	73	5,342	64	2,478	228	422	869	1,568	642	911	10,162	22,759
1803	Cocoa paste	0	0	0	0	0	0	0	0	0	158	173	331
1804	Cocoa butter	549	0	0	0	0	0	0	0	0	144	3,642	4,577
1805	Cocoa powder	0	0	60	0	0	16	0	242	14	7,164	2,130	9,384
1901	Chocolate	5	554	1,270	127	8	271	2	17	40	252	12,891	15,437
1902	Malt extract	228	53	16	448	48	0	219	45	0	16	818	1,891
1903	Pasta	1,238	329	185	6,269	3,676	7,751	5,545	4,701	0	6	7,094	36,794
1904	Taploca	26	10	17	9	415	0	49	7	0	0	24	557
1905	Breakfast cereal	39	1,144	0	33	72	0	27	3	0	0	1,503	2,821
2001	Bread, pastry	1,338	8,336	3,091	8,097	1,258	2,029	3,753	543	988	726	34,987	65,146
2002	Veg./frt vinegar	5	8,223	264	646	419	46	460	115	2,423	20	3,030	15,651
2003	Tomatoes	53	3,245	0	0	2,134	231	8,967	845	0	0	1,594	17,069
2004	Canned mushrooms	0	0	344	270	529	57	11,211	22,676	97	25	11,857	47,066
2005	Frozen vegetables	13	792	7	117	25	9	43	41	5	0	109	1,161
2006	Canned vegetables	29	1,093	147	2,406	10,525	316	7,057	9,357	24,447	14	7,808	63,199
2007	Fruit in sugar	163	5	19	10	2,394	2	216	128	0	0	1,121	4,058
2008	Jams, jellies	824	64	1,131	182	37	16	134	51	0	23	4,737	7,199
2009	Fruit, nuts nesol	43,093	1,945	177	6,505	23,338	48	1,937	3,170	5,571	3	19,596	105,303
	Fruit juice	12,457	934	163	44	10,504	0	313	224	1,809	881	23,190	50,599

Table 3-12—Continued
 Processed agricultural commodities: Value of U. S. imports of foreign merchandise through California ports, by principal source, 1989

(In thousands of dollars)

HTS	Description	Philip- pines	Mexico	France	Japan	Thai- land	Italy	Taiwan	China	Spain	Nether- lands	All other	Total
2101	Coffee/tea conc	3	1,206	96	75	51	3	0	0	115	549	4,237	6,335
2102	Yeast	675	20	53	8	15	0	0	0	0	10	979	1,760
2103	Sauces, condiments	1,551	3,634	995	8,101	4,802	36	1,941	1,273	9	340	13,046	35,788
2104	Soups, preps	840	3,634	21	5,064	4,247	0	191	135	0	21	6,291	16,444
2106	Food preps, nesol	3,893	1,872	655	8,757	4,273	308	4,665	708	85	32	13,626	38,874
2203	Beer	864	65,970	472	9,747	4,480	481	14	2,075	0	31,731	35,597	147,431
2204	Wine	0	37	98,622	5	0	21,673	0	142	11,418	77	24,064	156,038
2205	Vermouth	0	0	125	0	17	940	0	2	10	0	53	1,147
2206	Fermented bev	0	126	26	3,109	13	171	168	407	49	0	379	4,448
	Total	151,151	120,269	109,484	72,075	69,969	62,489	59,059	56,449	51,755	43,899	310,374	1,106,973

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U. S. Department of Commerce.

Table 3-13

Processed agricultural commodities: Volume of U.S. imports of foreign merchandise through California ports, by principal source, 1989

(In metric tons, except as noted)

HTS	Description	Philippines	Mexico	France	Japan	Thailand	Italy	Taiwan	China	Spain	Netherlands	All other	Total
0710	Froz. vegetables	21	127	23	31	239	7	2,137	935	20	18	3,551	7,110
0711	Pres. vegetables	6	865	2	69	200	42	106	176	766	1	2,196	4,429
0712	Dried vegetables	1	2,290	131	206	58	16	510	3,184	40	15	1,230	7,681
0811	Frozen fruit	319	651	19	1	557	1	4	13	0	20	2,130	3,714
0812	Preserved fruit	3	553	0	3	66	0	256	30	17	0	341	1,270
0813	Dried fruit	29	86	(¹)	30	275	0	92	57	0	0	2,666	3,235
1101	Wheat flour	0	31	0	333	2	0	1	15	0	0	103	484
1102	Cereal flours	17	61	0	28	1,260	7	1	17	0	0	119	1,510
1103	Cereal groats	1	118	140	0	124	0	0	8	0	41	5,040	5,464
1104	Cereal grains	0	0	0	7	111	0	0	0	0	204	4,076	4,406
1105	Potato flour	0	0	0	0	0	0	0	25	0	83	8	117
1106	Veg./fruit flour	6	17	0	89	921	0	139	71	82	0	47	1,370
1107	Malt	0	0	0	0	0	0	0	17	0	0	70	87
1108	Starches	10	2,764	279	16	398	0	1	218	0	1,194	1,293	6,174
1109	Wheat gluten	0	0	39	(¹)	0	0	123	3	0	36	7,722	7,924
1208	Oliseed flour	0	0	0	4	0	0	4	3	0	0	2	13
1507	Soybean oil	0	0	0	349	0	0	1	0	0	0	0	350
1508	Peanut oil	0	0	6	0	0	0	0	12	0	0	96	114
1509	Olive oil	0	0	54	0	0	14,093	0	0	1,328	0	771	16,246
1510	Olive oil blends	0	0	0	0	0	78	0	0	163	0	0	241
1511	Palm oil	0	0	0	0	0	0	0	0	0	0	14,283	14,283
1512	Sunflwr/cottnsd	0	0	16	0	0	0	0	0	0	0	0	6,802
1513	Coconut/palm oil	0	0	0	0	7	0	0	0	0	0	0	147,211
1514	Rapeseed oil	0	6,786	0	0	0	0	0	0	0	0	38,007	3,979
1515	Vegetable oils	0	0	131	0	0	0	334	401	0	32	647	4,306
1516	Fats/oils,hydrog	0	1,409	0	981	201	170	0	0	0	0	146	149
1517	Margarine	0	0	3	(¹)	0	0	0	0	0	(¹)	127	233
1518	Misc. fats/oils	0	0	2	104	0	0	0	0	0	0	0	0
1701	Cane/beet sugar	0	36	47	2	961	(¹)	2	38	0	0	8,292	77,441
1702	Sugars, nesol	0	0	143	33	44	0	0	28	0	0	562	810
1703	Molasses ²	0	0	0	0	0	0	0	0	0	0	18,663	18,666
1704	Confectionery	35	3,298	19	378	107	101	248	878	143	417	6,061	11,685
1803	Cocoa paste	0	0	0	0	0	0	0	0	0	48	113	161
1804	Cocoa butter	180	0	0	0	0	0	0	67	0	38	1,369	1,654
1805	Cocoa powder	0	0	11	0	0	5	0	0	13	0	2,142	6,648
1806	Chocolate	3	202	425	14	4	42	3	2	8	58	3,718	4,478
1901	Malt extract	(²)											
1902	Pasta	811	503	195	2,692	3,518	9,932	3,330	5,089	0	3	5,295	31,369
1903	Tapioca	20	6	16	1	981	0	50	3	0	0	31	1,107
1904	Breakfast cereal	18	948	0	7	109	0	7	4	0	0	932	2,026
1905	Bread, pastry	699	3,968	987	2,012	694	649	1,611	257	493	244	12,409	24,024
2001	Veg./frt,vinegar	1	12,619	83	192	441	23	253	124	1,049	18	3,235	18,035
2002	Tomatoes	94	4,396	0	0	2,190	301	11,319	1,158	0	0	1,532	20,990
2003	Canned mushrooms	0	0	38	68	316	1	3,982	10,091	46	12	4,770	19,324
2004	Frozen vegetables	7	735	2	32	22	4	20	29	3	0	82	936
2005	Canned vegetables	18	1,136	68	591	12,352	70	6,551	12,171	11,941	23	7,609	52,530
2006	Fruit in sugar	100	8	3	1	1,492	(¹)	62	89	0	0	358	2,113
2007	Jams, jellies	913	115	421	118	24	3	138	104	0	9	5,705	7,550
2008	Fruit,nuts nesol	72,506	2,377	50	4,438	36,272	22	1,194	3,054	5,817	2	24,639	150,370

Table 3-13—Continued
 Processed agricultural commodities: Volume of U.S. imports of foreign merchandise through California ports, by principal source, 1989

(In metric tons, except as noted)

HTS	Description	Philippines	Mexico	France	Japan	Thailand	Italy	Taiwan	China	Spain	Netherlands	All other	Total
2009	Fruit juice ²	63,010	1,333	145	19	50,581	0	386	337	9,299	4,349	86,230	215,689
2101	Coffee/tea conc	(1)	149	45	36	38	(1)	0	0	105	72	2,073	2,517
2102	Yeast	634	15	37	1	1	0	0	0	0	3	410	1,100
2103	Sauces, condiments	1,459	3,305	762	3,731	5,093	9	2,295	2,265	5	116	10,637	29,677
2104	Soups, preps	197	1,082	8	783	118	0	97	60	0	5	2,535	4,866
2106	Food preps, nesol	4,465	1,057	270	1,001	4,785	86	1,299	336	23	5	5,092	18,420
2203	Beer ²	1,579	90,039	343	9,959	666	554	16	2,519	0	31,637	41,391	178,702
2204	Wine ²	0	19	14,422	1	0	7,096	0	58	3,460	1	8,228	33,286
2205	Vermouth ²	0	0	56	0	8	455	0	(1)	4	0	25	549
2206	Fermented bev ²	0	60	19	1,258	6	143	53	152	39	0	290	2,020
	Total metric tons ⁴	259,832	51,713	4,476	18,384	73,982	25,659	36,170	41,033	22,061	7,194	198,249	738,753
	Total kiloliters ⁵	64,569	91,451	14,985	11,237	51,261	8,249	455	3,068	12,803	35,987	154,827	448,912

¹ Quantity less than 0.5 metric tons.

² Quantity in kiloliters.

³ HTS heading contains mixed units of quantity; therefore total is not provided.

⁴ Total metric tons; does not include HTS headings 1703, 1901, 2009, 2203, 2204, 2205, 2206.

⁵ Total kiloliters; includes HTS headings 1703, 2009, 2203, 2204, 2205, 2206.

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

ports in 1989 was over \$1 billion. The largest grouping in value terms was alcoholic beverages, which totaled \$309 million in 1989. An aggregate of preserved and prepared vegetables followed, totaling \$179 million in imports through California ports. Preserved and prepared fruits and nuts, which covers seven HTS headings, was the third-largest category of imports among processed products, at \$178 million. Imports of fats and oils through California amounted to \$129 million. Comparisons of the quantity of processed agricultural products that entered California ports are often not valid because of different units of measurement for various products.

Imports of wine (HTS heading 2204) were the largest single processed item in value of imports recorded in 1989. Wine imports were \$156 million (33 million liters), followed by beer imports at \$147 million (179 million liters) (HTS heading 2203).

Fruits and nuts, not elsewhere specified (HTS heading 2008), was ranked third in value among processed items imported through California ports, totaling \$105 million. Heading 2008 includes peanuts, peanut butter, almonds, pineapple products, and citrus pulp and peel.

Origin of Processed Agricultural Imports

The Philippines had the largest share of the value of processed product imports that entered through California in 1989. Products from the Philippines were led by coconut oil (HTS heading 1513), which made up almost \$54 million of the \$151 million in total processed products originating in the Philippines. Coconut oil sent from the Philippines to California amounted to 109,197 metric tons in 1989. Fruits and nuts, not elsewhere specified (HTS heading 2008), amounted to \$43 million in shipments from the Philippines. This subheading includes processed tropical fruits.

Mexico was the second-largest source of U.S. processed product imports through California in value terms. Mexico supplied almost \$66 million in beer, which accounted for over one-half the value of all Mexican shipments to California among processed items. More than one-half of the volume of all beer that came through California originated in Mexico. The remainder of imports from Mexico to California ports were distributed among several foods, including preserved vegetables, oils, confectionery, bread and pastry products, and sauces and other food preparations.

France ranked third in the value of U.S. imports through California ports, with wine shipments dominating the processed product category. Wine accounted for almost \$99 million of the \$109 million in shipments from France.

France was the source for 14 million of the 33 million liters of wine that entered at California ports.

Exports Through California Ports by HTS Heading

Animal Protein Complex

Thirty percent of the total value of U.S. exports of animal protein complex products, totaling \$1.8 billion, were shipped through customs districts in California in 1989 (table 3-14). Japan was the primary destination for U.S. animal product exports through California customs districts, accounting for 77 percent of the value of U.S. animal product exports from California districts. Such exports to Japan, most of which were meat and meat products, were valued at \$1.4 billion.

In 1989, California customs districts were the point of export for a large share of the animal protein complex products shipped from the United States to Asian countries. About 70 percent of U.S. exports to Taiwan and Thailand of the subject products were through California, primarily the Los Angeles district. Of U.S. animal product exports to Hong Kong, South Korea, and the Philippines, over 50 percent were shipped through California districts.

Product Composition of Animal Protein Complex Exports

Frozen beef (HTS heading 0202) accounted for the largest share, in value terms, of animal protein complex exports through California ports (table 3-15). Frozen beef exports were valued at \$688 million in 1989, which was over one-third of the value of all exports in the animal protein complex. Frozen beef exports through California amounted to 150,385 metric tons in 1989 (table 3-16). Fresh beef (HTS heading 0201) was the second-largest animal protein commodity exported, with a value of \$202 million in 1989 and volume of 102,213 metric tons. Pork (HTS heading 0203), edible offal (HTS heading 0206), and poultry meat (HTS heading 0207) exports through California ports were each slightly greater than \$190 million in value in 1989.

Destination of Animal Protein Complex Exports

Japan was the leading importer of U.S. animal product exports in 1989. Japan imported nearly \$600 million in frozen beef and nearly \$190 million in pork from the United States through California ports in 1989. Edible offal (HTS heading 0206) and fresh beef were also important products in U.S. animal protein exports to Japan. In quantity terms, the leading animal product exports from the United States to Japan were frozen beef and poultry meat, each amounting to nearly

Table 3-14
Animal protein complex: U.S. exports of domestic merchandise, by selected customs district, 1989

Source	California customs districts				Total U.S. imports ¹	California customs districts share of U.S. imports
	Los Angeles	San Francisco	San Diego	Total California		
World	968	810	46	1,824	6,087	30.0
Japan	758	649	0	1,407	3,292	42.7
South Korea	79	30	0	109	185	58.9
Hong Kong	31	53	0	84	155	54.2
Taiwan	45	15	0	60	85	70.6
Mexico	(²)	0	46	46	587	7.8
Singapore	7	14	0	21	45	46.7
Thailand	7	4	0	11	15	73.3
French Polynesia	1	7	0	8	8	100.0
Philippines	3	5	0	7	11	63.6
All other	34	31	0	65	1,641	4.0

¹ Total for all U.S. customs districts.

² Less than \$500,000.

Note.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-15
Animal protein complex commodities: Value of U.S. exports of domestic merchandise from California ports, by principal market, 1989

(In thousands of dollars)

HTS	Description	Japan	S. Korea	Hong Kong	Taiwan	Mexico	Singapore	Thailand	French Polynesia	Philippines	Australia	All other	Total
0201	Fresh beef	166,830	22,831	2,118	4,619	974	1,833	9	2	348	17	2,206	201,787
0202	Frozen beef	599,176	50,125	6,652	18,939	5,499	3,109	1,053	122	650	12	2,472	687,809
0203	Pork	189,042	349	1,392	566	1,850	150	11	138	21	5	777	194,301
0204	Lamb	322	273	176	188	63	121	0	73	4	23	44	1,287
0205	Horsemeat	1,042	0	0	0	19	0	0	0	0	0	609	1,670
0206	Edible offal	176,184	2,165	2,834	3,401	6,492	148	11	14	30	45	313	191,637
0207	Poultry meat	120,320	388	37,171	486	10,108	9,012	49	6,421	54	16	9,019	193,044
0208	Other meat	2,252	16	1,411	273	353	43	37	17	0	26	83	4,511
0209	Pig fat	33	0	0	0	49	12	0	0	0	0	0	94
0210	Salt meat	9,867	374	650	197	1,521	115	12	390	0	53	304	13,483
0302	Fresh fish	3,980	296	39	468	212	13	19	0	0	331	1,703	7,061
0303	Frozen fish	22,111	11,324	188	5,505	172	86	581	0	28	656	5,861	46,512
0304	Fish fillets	1,081	99	484	225	437	328	0	10	21	73	1,152	3,910
0305	Preserved fish	1,060	523	4,842	1,632	123	25	1,337	13	0	198	664	10,417
0306	Crustaceans	8,249	829	713	3,403	411	119	1,323	171	0	20	2,462	17,700
0307	Molluscs	54,382	307	184	550	477	169	169	10	48	576	9,558	66,430
0401	Milk, cream	0	10	4	38	2,186	99	0	2	0	0	199	2,538
0402	Sweetened milk	195	0	2,327	1,852	1,129	451	512	13	158	28	2,463	9,128
0403	Buttermilk	30	0	7	305	528	63	110	0	6	222	674	1,835
0404	Whey	8,637	763	196	498	201	73	0	0	766	1,012	241	12,497
0405	Butter	58	204	76	0	9	55	0	8	126	0	0	536
0406	Cheese	1,180	103	384	288	776	361	0	86	512	60	148	3,898
0407	Eggs in shell	31	0	54	2	46	0	0	0	0	0	1,105	3,802
0408	Eggs, shelled	8,155	0	103	140	0	131	49	3	76	2	37	8,642
0409	Honey	408	59	29	0	6	24	76	0	130	6	536	1,506
0410	Other canned	440	0	0	174	0	0	0	0	0	14	22	10,122
1501	Lard	22	3,798	35	822	6,057	134	82	3	1,417	27	6,883	29,302
1502	Tallow	7,999	11,001	243	0	691	0	0	27	0	0	8	128
1503	Stearin oils	5	0	0	0	88	0	0	0	0	0	12	476
1504	Fish oil	125	19	0	165	11	0	0	0	0	144	0	495
1506	Other fats	27	146	0	0	317	0	0	0	0	2	3	495
1601	Sausage	13,536	223	2,608	137	2,604	358	2	56	75	21	326	19,946
1602	Other prep meat	4,337	2,156	1,064	400	688	507	5	45	542	8	696	10,448
1603	Meat, fish extr	1,146	13	0	17	179	14	4	0	0	10	18	1,401
1604	Prepared fish	263	88	505	81	336	442	8	377	20	961	3,323	6,404
1605	Prep crustaceans	1,038	900	14,663	13,992	1,586	2,664	1,572	2	2,326	570	6,352	45,665
2105	Ice cream	274	4	2,651	356	183	363	3	27	6	82	458	4,407
3501	Casein	598	5	0	326	29	0	3,950	0	41	95	2	5,046
3502	Albumins	2,851	0	22	24	0	69	215	0	19	3	42	3,245
	Total	1,407,286	109,391	86,443	60,110	46,410	21,111	11,456	8,030	7,424	5,414	60,929	1,824,004

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-16
Animal protein complex: Volume of U.S. exports of domestic merchandise from California ports, by principal market, 1989

(In metric tons, except as noted)

HTS	Description	Japan	S. Korea	Hong Kong	Taiwan	Mexico	Singapore	Thailand	Polynesia	Philippines	Australia	All other	Total
0201	Fresh beef	90,017	6,547	567	3,815	401	369	1	(1)	52	1	443	102,213
0202	Frozen beef	129,144	13,569	1,291	3,176	1,877	514	143	20	101	2	548	150,385
0203	Pork	41,508	96	470	231	881	77	2	33	19	1	390	43,709
0204	Lamb	60	92	63	17	33	31	0	24	1	6	8	1,045
0205	Horsemeat	744	0	0	0	35	0	0	0	0	0	266	89,903
0206	Edible offal	78,076	1,815	1,551	1,273	6,688	68	5	11	40	77	299	194,580
0207	Poultry meat	127,557	287	36,939	252	8,904	7,593	24	5,569	22	7	7,423	2,732
0208	Other meat	1,031	6	1,083	82	419	15	9	10	0	8	0	115
0209	Pig fat	4	0	0	0	90	21	0	0	0	0	0	3,166
0210	Salt meat	1,681	104	180	40	886	25	1	130	0	14	105	2,192
0302	Fresh fish	938	148	7	68	69	7	18	0	0	349	593	18,003
0303	Frozen fish	7,542	6,134	13	800	77	2	49	0	4	756	2,621	1,223
0304	Fish fillets	283	47	42	67	133	111	0	2	7	4	528	3,291
0305	Preserved fish	418	145	1,580	648	28	33	119	2	0	14	304	1,941
0306	Crustaceans	716	135	148	395	60	27	131	22	0	3	305	5,639
0307	Molluscs	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	7,336
0401	Milk, cream ³	0	14	3	53	5,155	137	375	8	76	45	275	1,580
0402	Sweetened milk	500	0	1,312	1,438	1,671	330	0	2	0	0	1,580	7,336
0403	Buttermilk	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
0404	Whey	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
0405	Butter	17	186	51	0	5	30	0	3	76	0	0	369
0406	Cheese	401	41	133	113	320	102	0	31	146	20	41	1,346
0407	Eggs in shell	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
0408	Eggs, shelled	5,537	0	57	14	0	5	117	0	10	1	14	5,754
0409	Honey	385	0	46	123	0	73	37	1	81	3	457	1,207
0410	Other canned	20	26	7	0	(1)	10	1	0	0	2	51	117
1501	Lard	37	11,400	48	514	14,324	0	0	0	0	30	14	26,366
1502	Tallow	22,012	29,679	321	2,183	1,740	205	57	5	3,666	12	18,900	78,780
1503	Stearin oils	9	0	0	0	195	0	0	43	0	0	5	252
1504	Fish oil	33	5	0	84	15	0	0	0	0	30	(1)	167
1506	Other fats	31	184	0	0	924	0	0	0	0	(1)	6	1,145
1601	Sausage	5,356	28	1,322	44	885	175	0	19	28	42	131	8,029
1602	Other prep meat	1,947	527	335	123	353	182	2	16	158	1	331	3,974
1603	Meat, fish extr	1,364	2	0	37	36	2	1	0	0	2	3	1,447
1604	Prepared fish	79	33	159	10	121	132	2	139	27	234	804	1,741
1605	Prep crustacean	79	162	528	588	326	77	163	(1)	1,965	127	3,942	7,957
2105	Ice cream	159	3	1,937	234	331	154	2	9	1	147	233	3,211
3501	Casein	88	3	0	50	4	0	575	0	12	14	(1)	746
3502	Albumins	638	0	7	2	0	17	263	0	4	1	6	939
	Total ⁴	518,415	71,405	50,195	16,422	41,831	10,388	2,097	6,097	6,496	1,952	40,422	765,719

¹ Quantity less than 0.5 metric tons.

² HTS heading contains mixed units of quantity; therefore total is not provided.

³ Quantity in kiloliters.

⁴ Total metric tons; does not include HTS headings 0307, 0401, 0403, 0404, and 0407.

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

130,000 metric tons. Poultry meat exports to Japan through California were valued at \$120 million in 1989.

South Korea, the second-largest destination for U.S. animal protein exports, took \$109 million in U.S. shipments, far below the value of California exports to Japan. Frozen beef was the highest valued animal product exported from California to South Korea, accounting for almost half of the value of South Korean imports in this category. South Korea imported larger quantities of tallow (HTS heading 1502) than beef, with tallow amounting to almost 30,000 metric tons compared with about 20,000 metric tons of frozen and fresh beef.

U.S. animal-product exports to Hong Kong were valued at \$84 million in 1989. Hong Kong imported \$37 million in poultry meat (HTS heading 0207) from the United States, and nearly \$15 million in prepared crustaceans (HTS heading 1605). Poultry meat was the leading animal product imported by Hong Kong from the United States, in quantity as well as in value, totaling almost 37,000 metric tons. Other important animal product-exports from California districts to Hong Kong, in quantity terms, were ice cream (HTS heading 2105; 1,937 metric tons) and preserved fish (HTS heading 0305; 1,580 metric tons).

Raw Agricultural Crops

U.S. exports of raw agricultural products valued at \$1.8 billion were shipped through customs districts in California in 1989 (table 3-17). California districts accounted for 7 percent of the total value of U.S. exports of raw farm products. Fruit and vegetable products led other raw commodity groupings with about 68 percent of the total value of raw agricultural exports from California customs districts. Grains, oilseeds, and animal-feed products were the next largest commodity grouping exported through California districts, accounting for about 28 percent of value.

The Los Angeles and San Francisco Customs Districts each recorded nearly one-half of the value of raw agricultural exports from California districts. The share exported through the San Diego Customs District was about 4 percent of the total value of exports shipped from California districts.

Exports of raw agricultural products through California customs districts were distributed among several destinations. Japan was the leading destination for exports from California districts, valued at \$632 million in 1989. Hong Kong and West Germany followed, taking \$124 million and \$123 million, respectively, in raw-product shipments through California districts.

Product Composition of Raw Agricultural Exports

Data on exports through California ports of raw agricultural crops have been subdivided into two categories: (1) horticultural and beverage crops and (2) grain and field crops and other food products. The horticultural and beverage crops category covers California exports of fruits, vegetables, coffee, tea, and spices, which were valued at \$1.2 billion in 1989 (table 3-18). Volume of exports in horticultural and beverage crops is shown in table 3-19. The second category of raw products, grain and field crops and other food products, includes grains and animal feeds, of which exports through California were valued at \$539 million in 1989 (table 3-20). The volume of California grain, field crop, and other exports is shown in table 3-21.

Horticultural and Beverage Crops

Fruits and nuts dominated California exports in horticultural and beverage crops, when measured by value. Exports of fruits through California ports totaled \$626 million, followed by exports of nuts at \$482 million. Vegetable exports through California amounted to \$99 million. Coffee and tea exports through California were \$19 million; exports of spices totaled almost \$7 million.

A basket class of nuts that includes almonds (HTS heading 0802) was the leading single item in export value of the subject category, at \$482 million in 1989. Almond exports were valued at \$360 million, 75 percent of the value of shipments under HTS heading 0802. Citrus fruit (HTS heading 0805) followed nuts in value of exports, totaling \$305 million. Grape exports were valued at \$190 million. The value of vegetable exports was fairly evenly distributed among several items, led by dried legumes (HTS heading 0713) at \$37 million and a class of vegetables that includes artichokes and asparagus (HTS heading 0709) at \$32 million. Asparagus accounted for about two-thirds of the value of exports from California under HTS heading 0709.

Coffee exports (HTS heading 0901) through California ports amounted to \$14 million in 1989, and tea exports (HTS heading 0902) were valued at nearly \$5 million. A classification that includes ginger, saffron, and other spices (HTS heading 0910) was the leading export item among spices, with aggregated value of \$4 million.

Grain and Field Crops, and Other Food Products

Grains exported through California ports were valued at over \$289 million in 1989, over one-half the value of exports in the grain and animal feed category. Wheat (HTS heading 1001) was the single largest value item among grain and feed exports, amounting to \$134 million in value and 676,107 metric tons in volume. Rice exports (HTS heading 1006) through California were almost 337,000 metric tons, valued at \$111 million.

Table 3-17
 Raw agricultural crops: U.S. exports of domestic merchandise, by selected customs district, 1989

Source	California customs districts				Total California	Total U.S. imports ¹	California customs districts share of U.S. imports
	Los Angeles	San Francisco	San Diego	San Francisco			
World	829	865	80	80	1,773	24,788	7.2
Japan	396	236	0	0	632	4,241	14.9
Hong Kong	78	45	2	2	124	170	72.9
West Germany	43	80	0	0	123	478	25.7
United Kingdom	45	36	0	0	81	341	23.8
Taiwan	28	46	0	0	74	1,293	5.7
Mexico	(²)	(²)	63	63	63	1,493	4.2
Turkey	0	54	5	5	59	206	28.6
Saudi Arabia	32	20	0	0	51	320	15.9
Netherlands	25	20	0	0	45	1,372	3.3
All other	182	327	11	11	521	14,874	3.5

¹ Total for all U.S. customs districts.

² Less than \$500,000.

Note.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-18
Raw agricultural commodities—Horticultural and beverage crops: Value of U.S. exports of domestic merchandise from California ports, by principal market, 1989

(In thousands of dollars)

HTS	Description	Japan	West Germany	Hong Kong	United Kingdom	Taiwan	Nether-lands	France	Spain	Australia	Sweden	All other	Total
0701	Potatoes	0	0	137	0	40	0	0	0	9	38	1,139	1,363
0702	Tomatoes	0	0	1,211	0	0	0	0	0	0	0	15	1,226
0703	Onions	856	0	991	926	138	29	485	0	1,739	0	3,471	8,635
0704	Cabbage, broccoll.	3,075	0	624	30	62	0	0	0	0	0	331	4,122
0705	Lettuce	26	17	7,282	702	880	225	0	0	0	59	1,202	10,393
0706	Carrots	52	5	140	0	14	0	0	0	40	64	1,860	2,175
0707	Cucumbers	21	0	189	0	0	0	0	0	0	0	13	223
0708	Beans and peas	105	60	10	35	6	0	0	0	32	0	394	642
0709	Vegetables, nesol	24,257	407	2,691	918	1,208	19	23	0	434	0	2,570	32,527
0713	Dried beans/peas	12,164	446	601	3,680	1,29	1,727	610	761	1,059	91	16,102	37,370
0714	Cassava, roots	149	0	4	0	0	0	0	0	0	0	186	339
0801	Coconuts	64	0	20	5	6	0	0	0	14	0	83	192
0802	Nuts, nesol	77,959	101,848	3,853	31,269	16,751	30,309	24,413	28,015	11,582	13,665	142,712	482,376
0803	Bananas	0	0	0	0	0	0	0	0	0	0	0	0
0804	Dates	2,280	347	685	1,751	90	170	3,121	103	1,804	81	1,943	12,375
0805	Citrus	201,145	426	58,867	1,974	4,944	4,464	2,240	0	7,471	536	24,170	305,237
0806	Grapes, raisins	39,385	12,313	20,019	33,012	16,419	5,309	747	531	158	9,648	52,807	190,348
0807	Melons	5,700	0	2,935	70	60	0	0	0	10	0	126	8,901
0808	Apples, pears	57	108	318	245	1,739	0	0	0	0	1,719	8,428	12,614
0809	Stone fruit	25,514	36	8,634	4,975	17,084	118	101	0	138	532	5,743	62,875
0810	Fruits, nesol	16,542	780	1,009	1,002	2,100	406	9	0	3,324	372	2,522	28,066
0814	Citrus peel	10,761	2,900	0	0	0	0	856	0	27	0	1,476	6,100
0901	Coffee	10,167	4	859	6	348	90	0	0	68	0	2,802	14,344
0902	Tea	3,161	0	75	0	743	0	0	0	227	0	634	4,840
0903	Mate	0	0	0	0	0	0	0	0	0	0	57	57
0904	Pepper	101	69	168	40	27	0	3	0	53	26	707	1,194
0905	Vanilla beans	47	0	0	0	0	0	0	0	0	0	9	56
0906	Cinnamon	120	2	7	23	2	0	0	0	0	0	534	688
0907	Cloves	0	2	0	0	0	0	0	0	0	0	7	9
0908	Nutmeg	0	2	0	0	0	0	0	0	0	0	218	227
0909	Seeds of anise	151	11	0	0	0	0	0	0	0	0	133	295
0910	Spices, nesol	255	178	75	334	219	109	63	0	747	287	1,837	4,104
	Total	424,114	120,041	111,404	79,997	63,009	42,975	32,671	29,410	28,943	27,118	274,231	1,233,913

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-19
Raw agricultural commodities--Horticultural and beverage crops: Volume of U.S. exports of domestic merchandise from California ports, by principal market, 1989

(In metric tons)

HTS Description	Nether-										All other	Total
	Japan	West Germany	Hong Kong	United Kingdom	Taiwan	lands	France	Spain	Australia	Sweden		
0701 Potatoes	0	0	236	0	90	0	0	0	66	87	3,054	3,533
0702 Tomatoes	0	0	1,969	0	0	0	0	0	0	0	10	1,979
0703 Onions	1,673	0	3,079	902	401	18	356	0	1,201	0	5,788	13,416
0704 Cabbage, broccoll.	4,660	0	1,139	8	191	0	0	0	0	0	605	6,603
0705 Lettuce	44	9	19,142	841	1,804	139	0	0	64	47	2,732	24,758
0706 Carrots	34	1	268	0	20	0	0	0	0	178	4,905	4,905
0707 Cucumbers	10	0	572	0	0	0	0	0	0	0	37	618
0708 Beans and peas	102	65	8	38	7	0	0	0	28	0	456	703
0709 Vegetables,	12,503	220	6,268	630	2,278	16	0	0	165	0	4,482	26,563
0713 Dried beans/peas	17,604	832	971	3,826	240	1,448	865	1,233	1,498	109	25,000	53,626
0714 Cassava, roots	277	0	3	0	0	0	0	0	0	0	353	632
0801 Coconuts	44	0	6	1	1	0	0	0	4	0	21	79
0802 Nuts, nesol	28,148	38,121	1,597	10,265	4,571	10,609	8,957	15,096	3,703	4,274	52,729	178,070
0803 Bananas	0	0	0	0	0	0	0	0	0	0	0	0
0804 Dates	1,497	122	294	1,022	52	114	2,306	52	580	47	988	7,074
0805 Citrus	293,662	726	114,100	2,309	8,785	14,259	4,473	0	11,907	1,242	46,444	497,906
0806 Grapes, raisins	24,231	8,205	22,224	22,274	15,440	3,534	517	382	97	5,961	38,461	141,326
0807 Melons	11,239	0	6,189	80	47	0	0	0	9	0	154	17,718
0808 Apples, pears	59	253	745	653	2,882	0	0	0	0	4,415	16,564	25,571
0809 Stone fruit	6,775	34	8,838	3,999	23,869	134	43	0	89	391	6,802	50,975
0810 Fruits, nesol	4,811	407	688	555	1,273	323	2	0	1,859	216	1,622	11,756
0814 Citrus peel	953	4,184	104	0	0	11	1,114	0	30	0	2,592	8,873
0901 Coffee	1,609	(¹)	12	1	62	0	0	0	9	0	399	2,195
0902 Tea	600	0	0	0	231	0	0	0	39	0	108	989
0903 Mate	0	0	0	0	0	0	0	0	0	0	9	9
0904 Pepper	48	27	87	18	9	0	1	0	18	11	266	484
0905 Vanilla bean	16	0	0	0	0	0	0	0	0	0	1	18
0906 Cinnamon	9	1	1	15	0	0	0	0	0	0	173	199
0907 Cloves	0	(¹)	0	0	0	0	0	0	0	0	2	2
0908 Nutmeg	0	1	0	0	0	0	0	0	0	0	80	83
0909 Seeds of anise	25	19	0	0	0	0	0	0	0	0	50	94
0910 Spices, nesol	84	51	25	136	114	42	19	0	157	109	453	1,192
Total	410,719	53,277	188,563	47,574	62,369	30,648	18,653	16,761	21,524	17,086	214,777	1,081,952

¹ Quantity less than 0.5 metric tons.

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Raw agricultural commodities—Grain and field crops and other food products: Value of U.S. exports of domestic merchandise from California ports, by principal market, 1989

(In thousands of dollars)

HTS	Description	Japan	Turkey	Saudi Arabia	Mexico	Bangladesh	Jordan	Soviet Union	Spain	Hong Kong	Indonesia	All other	Total
1001	Wheat	0	4,750	41,794	146	22,545	53	22,050	0	0	9,909	32,794	134,041
1002	Rye	0	0	0	6	0	0	0	0	0	0	0	6
1003	Barley	13	0	1,487	1,954	0	0	0	0	0	0	15	3,469
1004	Oats	0	0	0	418	0	0	0	0	0	0	0	418
1005	Corn	5,876	0	130	17,865	0	0	0	0	207	138	2,940	27,156
1006	Rice	474	54,123	177	1,527	0	22,022	0	12,475	3,825	0	16,434	111,057
1007	Sorghum	1,078	0	0	9,029	0	0	0	0	15	0	540	10,647
1008	Buckwheat	805	0	0	766	0	0	0	7	0	0	905	2,498
1201	Soybeans	7,593	0	0	37	0	0	0	0	51	0	118	7,799
1202	Peanuts	1,414	0	0	0	0	0	0	0	72	0	391	1,877
1203	Copra	0	0	0	0	0	0	0	0	0	0	0	0
1204	Flaxseed	0	0	0	0	0	0	0	0	0	0	0	0
1205	Rapeseed	0	0	0	0	0	0	0	0	0	0	0	0
1206	Sunflowerseed	49	226	0	258	0	0	0	88	0	0	1,157	1,778
1207	Misc. oilseeds	13,644	0	0	1,103	0	0	0	0	41	0	151	14,939
1210	Hops	8	0	0	529	0	0	0	0	23	0	1,475	2,035
1214	Rutabagas	65,090	0	0	1,080	0	0	0	0	34	0	291	66,495
1801	Cocoa	0	0	0	0	0	0	0	0	0	0	0	0
2301	Flours of meat	553	0	0	88	0	0	0	0	172	790	7,701	9,299
2302	Bran, sharps	122	0	0	816	0	0	0	0	283	0	168	1,389
2303	Residue, starch	2,665	0	0	508	0	0	0	0	208	260	2,534	6,175
2304	Oilcake, soy	0	0	0	803	0	0	0	0	0	0	124	927
2305	Oilcake, peanut	0	0	0	12	0	0	0	0	0	0	0	12
2306	Oilcake, veg	341	0	0	154	0	0	0	0	8	11	280	794
2307	Wine lees	0	0	0	0	0	0	0	0	0	0	68	68
2308	Veg. residues	39,692	0	0	1,831	0	0	0	0	15	0	222	41,760
2309	Animal feed	68,597	0	25	1,795	0	0	0	0	7,312	244	16,391	94,364
	Total	208,014	59,099	43,613	40,720	22,545	22,075	22,050	12,570	12,266	11,352	84,707	539,011

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-21
Raw agricultural commodities—Grain and field crops and other food products: Volume of U.S. exports of domestic merchandise from California ports, by principal market, 1989

(In metric tons, except as noted)

HTS	Description	Japan	Turkey	Saudi Arabia	Mexico	Bangladesh	Jordan	Soviet Union	Spain	Hong Kong	Indonesia	All other	Total
1001	Wheat	0	27,500	124,141	774	138,093	105	135,109	0	0	61,748	188,637	676,107
1002	Rye	0	0	0	69	0	0	0	0	0	0	0	69
1003	Barley	117	0	7,884	11,943	0	0	0	0	0	0	155	20,099
1004	Oats	0	0	0	3,470	0	0	0	0	0	0	0	3,470
1005	Corn	6,601	0	193	135,358	0	0	0	0	1,087	266	9,368	152,873
1006	Rice	1,985	170,514	610	4,232	0	60,892	0	45,747	10,203	0	43,813	336,998
1007	Sorghum	1,441	0	0	69,968	0	0	0	0	0	0	449	71,857
1008	Buckwheat	736	0	0	2,777	0	0	0	19	4	0	862	4,398
1201	Soybeans	26,972	0	0	164	0	0	0	0	144	0	434	27,715
1202	Peanuts	2,009	0	0	0	0	0	0	0	28	0	525	2,562
1203	Copra	0	0	0	0	0	0	0	0	0	0	1	1
1204	Flaxseed	0	0	0	0	0	0	0	0	0	0	0	0
1205	Rapeseed	0	0	0	0	0	0	0	0	0	0	0	0
1206	Sunflowerseed	26	6	0	517	0	0	0	129	0	0	1,408	2,085
1207	Misc. oilseeds	2	0	0	3,939	0	0	0	0	52	0	234	4,225
1210	Hops	2	0	0	61	0	0	0	0	4	0	653	719
1214	Rutabagas	472,092	0	0	10,657	0	0	0	0	236	0	2,251	485,236
1801	Cocoa	0	0	0	0	0	0	0	0	0	0	0	0
2301	Flours of meat	805	0	0	246	0	0	0	0	93	272	15,410	16,826
2302	Bran, sharps	1,334	0	0	10,572	0	0	0	0	1,892	0	1,744	15,532
2303	Residue, starch	18,530	0	0	3,011	0	0	0	0	574	803	13,461	36,379
2304	Oilcake, soy	0	0	0	2,719	0	0	0	0	0	0	349	3,067
2305	Oilcake, peanut	895	0	0	34	0	0	0	0	83	31	625	2,273
2306	Oilcake, veg	0	0	0	639	0	0	0	0	0	0	113	113
2307	Wine lees	0	0	0	0	0	0	0	0	0	0	0	0
2308	Veg. residues	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
2309	Animal feed	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	Total ²	532,543	198,021	132,829	261,149	138,093	60,997	135,109	45,895	14,390	63,120	280,492	1,862,638

¹ HTS heading contains mixed units of quantity; therefore total is not provided.

² Total metric tons; does not include HTS headings 2308 and 2309.

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Animal-feed products were an important export in value through California ports. Certain feed preparations (HTS heading 2309) were the leading single export item in value among animal-feed exports in 1989. Value of exports under HTS heading 2309 through California ports was \$94 million in 1989; dog and cat food was almost half the value of exports under HTS heading 2309. (Quantity data for HTS heading 2309 at the four-digit level combine unlike units and thus are not meaningful.) Forage-product exports under HTS heading 1214, which includes hay, alfalfa, and similar meals and pellets, had export value of \$66 million in 1989. Quantity exported under HTS heading 1214 was 485,236 metric tons in 1989. The export value of aggregated oilseeds and oilseed products was \$28 million in 1989, although tonnage was fairly low, at 2,419 metric tons.

Destination of Raw Agricultural Exports

Horticultural and Beverage Crops

Japan was the leading importer of U.S. vegetables, fruits, and beverage crops through California ports in 1989. Total value of such shipments to Japan was \$424 million, with almost half of the value in citrus fruits (HTS heading 0805). Japan also imported \$39 million in grapes and raisins (HTS heading 0806) and \$25 million in stone fruit (HTS heading 0809). Japan was the largest single market for U.S. exports of coffee through California; Japan took \$10 million of the \$14 million in coffee exported from California.

Trade patterns on quantity of exports for the horticultural and beverage crops are not consistently comparable with patterns determined from analysis of data on value of shipments. Certain high-value items are important in the value of California exports of raw produce, but these items may not be the leading export when ranked according to quantity of shipments.

West Germany was the second-largest market for exports through California in value terms. The value of U.S. exports to West Germany from California ports was dominated by \$102 million in shipments of nuts, primarily almonds. Grapes were another significant export item to West Germany, at \$12 million. The United Kingdom, France, and Spain had similar distributions of products imported from California, with nuts generally the leading product and grapes also a leading item imported from California. The pattern of exports from California to Hong Kong resembled that of Japan. Citrus imports, at \$59 million, accounted for over one-half of the total value of Hong Kong imports from California ports. Citrus was followed by grapes, valued at \$20 million. Hong Kong also was the leading country of destination for lettuce shipped abroad from California. Lettuce exports to Hong Kong

were valued at \$7 million, which accounted for over 70 percent of lettuce exports from California customs districts to all sources.

Grain and Field Crops, and Other Food Products

Japan imported \$208 million of U.S. grain and feed from California ports in 1989, making Japan the leading recipient of such products. Most of Japanese import value in this category was in animal feed. Animal-feed preparations (HTS heading 2309), were the leading single export item in value among Japan's imports in this category. Over \$68 million in U.S. exports through California of this item were destined for Japan, \$40 million of which were dog and cat food. Forage-product shipments (HTS heading 1214) to Japan were next in value, at \$65 million. This classification includes hay, alfalfa, and similar meals and pellets; nearly all California exports of these products were to Japan. Japan also imported from California nearly \$40 million in vegetable residues used for animal feed (HTS heading 2308).

Rice exported through California ports was primarily destined for Turkey. The value of rice shipments from California to Turkey was \$54 million in 1989, and the quantity totaled 170,514 metric tons.

Saudi Arabia was the main recipient of U.S. wheat exports through California ports. Of Saudi Arabia's \$44 million in total imports from California, about \$42 million was in wheat. Over 124,000 metric tons in wheat shipments to Saudi Arabia went through California during 1989.

Mexico imported a variety of grain and feed products from California ports, led by nearly \$18 million of corn imports (HTS heading 1005) and \$9 million of sorghum (HTS heading 1007). The quantity of corn exports to Mexico through California amounted to 135,358 metric tons, and sorghum exports were nearly 70,000 metric tons.

Processed Agricultural Crops

Twenty-four percent of the value of U.S. exports of processed agricultural products, totaling \$1.0 billion, was shipped from customs districts in California in 1989 (table 3-22). Processed fruits and vegetables, aggregated, led other commodity groupings with about 42 percent of the total value of processed-food exports through California customs districts. Sauces, soups, and other edible preparations accounted for about 22 percent of the value of processed agricultural exports through California districts, which was the second-largest share among the major commodity groupings.

The Los Angeles and San Francisco Customs Districts each accounted for almost one-half of the value of processed agricultural food product exports from California districts. The value of processed foods that were exported through the

Table 3-22
Processed agricultural crops: U.S. exports of domestic merchandise, by selected customs district, 1989

Source	California customs districts					Total California	Total U.S. imports ¹	California customs districts share of U.S. imports
	Los Angeles	San Francisco	San Diego	Total California				
	Million dollars							
World	469	502	38	1,010	4,242	23.8		
Japan	165	174	0	339	710	47.7		
Hong Kong	42	34	0	76	115	66.1		
South Korea	51	22	0	72	91	79.1		
Taiwan	39	23	0	62	94	66.0		
West Germany	13	31	0	44	88	50.0		
United Kingdom	13	29	0	42	106	39.6		
Philippines	11	31	0	41	73	56.2		
Mexico	(²)	(²)	38	39	310	12.6		
Australia	21	16	0	38	55	69.1		
All other	114	143	0	257	2,600	9.9		

¹ Total for all U.S. customs districts.

² Less than \$500,000.

Note.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

San Diego Customs District was much less, about 4 percent of the total value of processed exports shipped through California.

Exports of processed agricultural food products through California customs districts were distributed among several markets. Japan was the leading market for exports through California districts, valued at \$339 million in 1989. Hong Kong and South Korea imported much less, accounting for \$76 million and \$72 million in shipments through California districts.

In 1989, California customs districts were the point of export for a large share of the processed agricultural food products shipped from the United States to Asian countries. Almost 80 percent of U.S. exports to South Korea of the subject products were through California, primarily the Los Angeles District. Of U.S. processed agricultural exports to Hong Kong, Taiwan, and the Philippines, over 50 percent were shipped through California districts. Australia and West Germany also received a large percentage of processed exports from the United States via California ports—69 percent and 50 percent, respectively.

Product Composition of Processed Agricultural Exports

The total value of processed agricultural food products exported through California ports in 1989 was slightly greater than \$1 billion (table 3-23). Preserved and prepared fruits and nuts, which covers seven HTS heading items at the four-digit level, comprised the largest category of exports among processed products, at \$311 million. Another leading grouping in value terms among processed exports was food preparations, which includes sauces, soups, and various other products. The value of California exports of these items (HTS headings 2103, 2104, and 2106) was about \$220 million in 1989. Processed vegetables, at \$117 million, and alcoholic beverages, at \$106 million, were also important groupings of processed exports through California ports. Data on quantity of these exports through California ports are shown in table 3-24.

Exports under a basket class of food preparations (HTS heading 2106) recorded the highest value of any four-digit HTS item among processed products, \$164 million. Products in this class include protein concentrates, preparations used in making beverages, dairy substitutes, and miscellaneous other products. Preparations for making beverages accounted for about 46 percent of U.S. exports via California ports of the total for HTS heading 2106. Exports of prepared and preserved fruits and nuts (HTS heading 2008) through California ports, the second-largest item in value, totaled \$132 million. HTS heading 2008 includes peanuts, peanut butter, almonds, and various prepared and preserved fruits. Pre-

pared and preserved almond exports through California ports were the leading component of HTS heading 2008, valued at \$74 million. Dried fruits (HTS heading 0813) exported through California ports were valued at \$102 million.

Destination of Processed Agricultural Exports

Japan was the leading country of destination for processed products exported through California ports in 1989. The \$339 million of U.S. products imported by Japan was more than four times larger than the value of California imports by any other single country. The largest class of California shipments (\$66 million) to Japan was food preparations (HTS heading 2106), mainly including preparations for manufacture of beverages and miscellaneous other edible preparations. Over \$45 million in U.S. exports through California of processed fruits and nuts (HTS heading 2008) were destined for Japan. Other important products imported by Japan from California were beer, wine, sunflower seed, and dried fruit. The value of exports to Japan of each of these products was greater than \$20 million.

Hong Kong and South Korea were the second- and third-leading importers of processed foods through California ports, each taking over \$70 million in processed products.

California's Production and Trade in Selected Agricultural Product Groups

The request for this investigation asked for information on the volume and value of imported agricultural fresh and processed food products marketed in California and the volume and value of California agricultural fresh and processed food products that are exported. Although information on products moving through the ports of California is readily available, data on the share of such trade that is produced or marketed within the State are more difficult to obtain for two reasons: (1) data are not available on State-level consumption of agricultural products, and (2) data on Statewide agricultural production is generally shown for farm-level aggregates, such as livestock products, rather than the level of detail in the HTS, which shows fresh and frozen products in separate categories. In the following section, this report provides estimates of the share of imports through California ports that remained within the State, and the share of exports from California ports that had been produced within the State. These estimates are based on official statistics of the U.S. Department of Commerce, USDA, and California Department of Food and Agriculture, and on discussions with industry experts. For this report, these estimates were limited to those products covered by the four-digit HTS headings having values of either exports from California ports, or imports into such ports, of \$35 million or more in 1989.

Table 3-23 Value of U.S. exports of domestic merchandise from California ports, by principal market, 1989
Processed agricultural commodities: (In thousands of dollars)

HTS	Description	Japan	Hong Kong	South Korea	Taiwan	West Germany	United Kingdom	Philippines	Mexico	Australia	Singapore	All other	Total
0710	Froz. vegetables	6,148	4,204	418	162	43	102	106	618	2,012	1,012	4,867	19,692
0711	Pres. vegetables	703	58	0	15	0	25	107	51	307	5	15	1,286
0712	Dried vegetables	12,635	377	25	142	7,615	8,201	755	301	5,772	207	15,076	51,106
0811	Frozen fruit	6,046	634	9	42	861	762	301	39	1,095	198	1,173	11,160
0812	Preserved fruit	772	10	0	11	37	247	0	60	0	310	145	1,592
0813	Dried fruit	20,938	1,101	408	1,338	14,099	4,088	366	528	1,076	1,123	56,791	101,856
1101	Wheat flour	168	14	2	85	0	0	1,877	131	0	91	963	3,233
1102	Cereal flours	635	14	4	255	0	32	26	2,075	12	66	125	3,040
1103	Cereal groats	1,890	24	4	33	0	8	8	337	79	30	317	2,976
1104	Cereal grains	354	22	96	303	13	115	191	1,410	5	202	100	2,421
1105	Potato flour	562	41	0	0	0	51	0	70	22	2	135	1,263
1106	Veg./fruit flour	13	0	40	0	0	0	0	96	29	50	229	508
1107	Malt	421	10	347	124	0	0	389	1,843	1,574	365	1,473	2,338
1108	Starches	1,956	383	0	0	0	0	0	46	0	0	22	7,577
1109	Wheat gluten	2,397	0	18	14	2	0	157	1,373	132	0	3,120	2,483
1208	Oilseed flour	48	77	98	33	2	0	227	20	78	0	73	4,944
1507	Soybean oil	581	63	20	0	0	5	49	140	5	141	0	1,111
1508	Peanut oil	41	2	0	0	0	0	0	0	0	0	0	237
1509	Olive oil	0	0	284	0	0	0	0	0	0	0	0	284
1510	Olive oil blends	129	0	0	0	4	0	0	0	0	0	2	143
1511	Palm oil	22,480	170	10,599	230	44	36	30	2,473	260	108	12,910	49,340
1512	Sunflwr/cotnsd	9	70	0	0	0	29	0	28	0	0	559	723
1513	Coconut/palm oil	187	0	0	0	0	0	0	0	2	0	52	241
1514	Rapeseed oil	4,503	65	182	439	2,421	431	46	502	213	32	3,078	11,912
1515	Vegetable oils	872	17	63	601	4	47	83	160	133	110	696	2,154
1516	Fats/oils,hydrog	776	2,422	1,184	1,160	0	5	106	792	99	289	696	7,524
1517	Margarine	17	11	0	0	0	5	8	109	7	0	116	305
1518	Misc. fats/oils	32	32	117	12	67	10	177	168	197	87	205	1,095
1701	Cane/beet sugar	23	354	224	876	16	7	345	167	849	204	622	8,659
1702	Sugars, nesol	4,995	0	0	0	18	0	7	122	2	0	19	180
1703	Molasses	12	1,768	4,856	991	38	269	1,537	2,256	670	576	775	21,935
1704	Confectionery	31	0	36	0	0	0	0	76	0	0	0	143
1803	Cocoa paste	0	0	0	0	0	0	0	3	0	0	0	3
1804	Cocoa butter	78	100	2	3	0	0	49	44	0	0	44	320
1805	Cocoa powder	14,663	3,330	7,870	7,443	119	8	9,253	1,994	688	636	1,297	47,301
1806	Chocolate	5,418	1,552	236	1,082	0	26	1,935	2,961	1,067	489	6,407	21,173
1901	Malt extract	523	46	16	30	0	68	44	148	25	7	130	1,037
1902	Pasta	0	6	0	5	0	0	8	0	0	0	0	32
1903	Tapioca	2,019	447	481	367	0	3	138	126	131	739	1,405	5,856
1904	Breakfast cereal	6,444	1,597	2,455	993	0	833	3,713	673	840	997	1,929	20,474
1905	Bread, pastry	1,098	136	133	58	0	6	60	20	141	38	136	1,826
2001	Veg./frt vinegar	5,225	325	1,300	0	0	4	866	231	500	304	762	9,517
2002	Tomatoes	0	84	0	6	0	0	0	23	13	23	42	191
2003	Canned mushrooms	668	163	196	66	0	383	103	500	364	112	746	3,301
2004	Frozen vegetables	7,781	4,521	939	3,848	152	105	3,615	1,315	290	1,967	5,311	29,844
2005	Canned vegetables	30	28	27	0	0	70	111	32	6	204	153	661
2006	Fruit in sugar	2,407	371	1,149	383	0	0	99	301	27	306	522	5,567
2007	Jams, jellies	45,278	7,048	1,349	5,999	14,802	8,619	4,906	1,621	1,441	4,244	36,564	131,871

Table 3-23—Continued
 Processed agricultural commodities: Value of U.S. exports of domestic merchandise from California ports, by principal market, 1989

(In thousands of dollars)

HTS	Description	Japan	Hong Kong	South Korea	Taiwan	West Germany	United Kingdom	Philippines	Mexico	Australia	Singapore	All other	Total
2009	Fruit juice	12,820	3,742	19,747	4,267	1,262	266	1,370	641	3,703	1,965	8,337	58,120
2101	Coffee/tea conc	6,232	2,188	3,269	3,381	0	54	489	35	1,115	3,352	1,833	20,948
2102	Yeast	579	73	422	294	0	0	7	3	91	75	870	2,414
2103	Sauces, condiment	12,510	8,087	4,217	1,776	58	113	814	2,905	1,384	1,424	4,681	37,969
2104	Soups, preps	2,939	4,918	1,174	413	0	82	525	6,007	1,699	844	325	17,296
2106	Food preps, nesol	66,486	19,134	6,980	19,946	670	633	5,782	929	11,002	8,832	23,907	164,301
2203	Beer	24,726	4,265	794	3,196	0	97	0	511	615	443	3,734	38,381
2204	Wine	20,569	1,697	215	1,138	2,043	15,870	502	604	356	494	20,163	63,651
2205	Vermouth	96	20	45	0	0	0	0	34	0	0	151	346
2206	Fermented bev	1,854	158	46	443	0	0	93	32	0	9	761	3,396
	Total	339,020	75,985	72,169	62,023	44,390	41,712	41,380	38,671	37,500	32,666	223,991	1,009,507

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-24
Processed agricultural commodities: Volume of U.S. exports of domestic merchandise from California ports, by principal market, 1989

(In metric tons, except as noted)

HTS	Description	Japan	Hong Kong	South Korea	Taiwan	West Germany	United Kingdom	Philippines	Mexico	Australia	Singapore	All other	Total
0710	Froz. vegetables	6,203	2,004	408	147	48	197	93	2,067	2,211	782	3,840	18,001
0711	Fres. vegetables	584	154	0	22	0	10	400	56	900	8	26	2,160
0712	Dried vegetables	4,802	110	8	20	3,237	3,576	396	260	2,309	59	7,111	21,889
0811	Frozen fruit	5,609	404	8	23	800	619	202	31	2,984	127	7,717	9,525
0812	Preserved fruit	262	4	0	3	24	88	0	48	0	203	83	716
0813	Dried fruit	12,719	579	233	1,191	7,797	2,305	186	285	535	621	33,556	60,006
1101	Wheat flour	232	20	7	18	0	0	7,881	561	0	120	382	14,308
1102	Cereal flours	1,027	9	7	119	0	86	80	10,482	33	95	1,483	9,683
1103	Cereal groats	5,567	144	5	785	0	22	25	1,352	142	22	1,69	10,524
1104	Cereal grains	695	10	129	56	9	78	785	8,654	3	2	147	1,160
1105	Potato flour	615	26	0	178	0	64	0	135	52	37	278	6,646
1106	Veg./fruit flour	31	0	51	0	0	0	0	5,141	2	0	39	6,084
1107	Malt	779	29	94	0	0	0	0	2,640	2,105	520	1,583	10,315
1108	Starches	1,949	344	387	205	0	0	581	39	0	0	1	4,554
1109	Wheat gluten	4,484	0	116	12	(1)	0	404	4,356	222	0	8,369	13,516
1208	Oilseed flour	37	0	34	31	2	7	294	28	48	0	68	1,139
1507	Soybean oil	553	108	0	0	0	0	30	78	0	167	0	311
1508	Peanut oil	29	5	0	0	0	0	0	0	2	0	0	179
1509	Olive oil	65	0	537	0	0	0	0	0	0	0	0	537
1510	Olive oil blends	0	0	0	0	4	0	0	8	0	0	1	130
1511	Palm oil	117	216	19,734	197	32	28	23	4,551	220	135	12,773	69,229
1512	Sunflwr/cottnsd	31,320	130	8	0	0	15	0	46	0	0	1,512	1,324
1513	Coconut/palm oil	22	0	0	0	0	0	0	0	1	0	15	6,057
1514	Rapeseed oil	308	0	30	344	634	176	31	340	66	19	2,267	1,945
1515	Vegetable oils	2,096	52	54	403	(1)	16	40	238	62	37	75	6,538
1516	Fats/oils,hydrog	1,011	10	54	1,032	0	3	95	974	55	236	780	2,999
1517	Margarine	617	1,675	1,073	4	0	0	3	160	2	0	105	284
1518	Misc. fats/oils	14	8	0	4	131	19	84	231	173	53	284	1,070
1701	Cane/beet sugar	19	33	39	4	1,363	311	1,344	9,112	1,466	256	123,347	158,210
1702	Sugars, nesol	18,407	429	1,966	209	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
1703	Molasses	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
1704	Confectionery	2,096	610	1,463	408	12	62	365	974	327	172	331	6,818
1803	Cocoa paste	15	11	0	0	0	0	0	53	0	0	0	79
1804	Cocoa butter	0	0	0	0	0	0	0	2	0	0	0	2
1805	Cocoa powder	43	38	2	1	0	0	17	18	0	0	20	139
1806	Chocolate	4,773	1,172	2,252	2,861	62	1	2,336	867	328	212	423	15,288
1901	Malt extract	7,240	571	146	269	0	26	5,388	4,517	775	380	19,682	38,993
1902	Pasta	322	23	1	28	0	62	30	93	17	5	92	672
1903	Tapioca	0	7	0	6	0	0	1	39	0	0	606	2,997
1904	Breakfast cereal	1,124	270	207	164	0	(1)	43	56	85	442	1,247	10,603
1905	Bread, pastry	2,845	1,307	931	798	0	585	1,423	482	383	602	1,247	3,229
2001	Veg./frt,vinegar	2,320	269	276	64	0	2	55	21	94	32	96	9,339
2002	Tomatoes	5,088	287	1,084	0	0	7	1,008	252	505	310	798	111
2003	Canned mushrooms	0	48	0	3	0	0	0	11	(1)	10	39	5,252
2004	Frozen vegetables	718	1,621	252	63	0	332	133	758	330	143	903	28,554
2005	Canned vegetables	8,152	5,464	807	3,841	157	89	1,930	1,517	77	1,882	4,639	246
2006	Fruit in sugar	13	19	12	0	0	48	44	27	2	71	426	3,993
2007	Jams, jellies	1,652	300	758	277	0	(1)	60	294	18	207	13,802	61,951
2008	Fruit, nuts nesol	23,858	2,890	636	4,432	5,059	2,737	4,015	1,291	452	2,778	13,802	61,951

Table 3-24—Continued
 Processed agricultural commodities: Volume of U.S. exports of domestic merchandise from California ports, by principal market, 1989

(In metric tons, except as noted)

HTS	Description	Japan	Hong Kong	South Korea	Taiwan	West Germany	United Kingdom	Philippines	Mexico	Australia	Singapore	All other	Total
2009	Fruit juice ³	22,868	7,655	44,955	10,538	2,778	531	2,810	1,514	5,981	3,920	15,523	119,072
2101	Coffee/tea conc	708	320	421	524	0	22	135	13	20	477	302	2,941
2102	Yeast	146	47	487	284	0	0	2	3	38	22	173	1,202
2103	Sauces, condiment	8,584	7,708	2,669	1,233	45	91	530	2,440	726	987	4,291	29,304
2104	Soups, preps	2,852	5,342	954	273	0	27	432	4,335	20	850	255	15,341
2106	Food preps, mesol	18,450	6,108	2,069	7,787	244	118	1,146	476	1,434	2,273	8,289	48,394
2203	Beer ³	30,999	8,093	1,600	6,270	0	183	0	977	638	824	6,633	56,217
2204	Wine ³	14,688	1,178	127	674	1,639	10,730	402	679	242	304	14,016	44,680
2205	Vermouth ³	115	27	13	0	0	0	0	45	0	0	118	318
2206	Fermented bev ³	3,407	162	137	348	0	0	100	66	0	27	1,634	5,880
	Total metric tons ⁴	191,170	41,003	40,390	28,320	19,663	11,806	32,067	70,512	17,232	15,730	260,893	728,785
	Total kiloliters ⁵	72,077	17,115	46,833	17,830	4,417	11,444	3,312	3,281	6,861	5,075	37,924	226,167

¹ Quantity less than 0.5 metric tons.

² HTS heading contains mixed units of quantity; therefore total is not provided.

³ Quantity in kiloliters.

⁴ Total metric tons; does not include HTS headings 1703, 2009, 2203, 2204, 2205, 2206.

⁵ Total kiloliters; includes HTS headings 2009, 2203, 2204, 2205, 2206.

Note 1.—See app. H for full description of 4-digit HTS codes.

Note 2.—Because of rounding, figures may not add to totals shown.

Source: Compiled from official statistics of the U.S. Department of Commerce.

In aggregate, the agricultural fresh- and processed-food products included in these groups of trade (i.e., those having either imports or exports of \$35 million or more in 1989) accounted for about \$3.3 billion, or 87 percent, of the total value of agricultural products imported through the ports of California and \$4.0 billion, or 88 percent, of the total products exported through California ports in that year (table 3-25). The distribution of main commodity groupings in the value of California agricultural production and trade is shown in figure 3-3.

Animal Protein Complex

Production in California of the meats, fish, and poultry included in the animal protein complex amounted to about \$4.6 billion in 1989 (table 3-25). California, with a population of some 30 million people, is a deficit production State in the products included in this sector. Beef, fresh or frozen, accounted for about 41 percent of California's total production in the animal protein sector in 1989. Pork, poultry, prepared or preserved meats (largely pork), and fresh fish made up most of the remainder.

Imports through California ports of selected products included in the animal protein complex totaled \$1.7 billion in 1989. An estimated 92 percent of the combined imports from offshore sources of meats, fish, and poultry through the ports of California in 1989 were marketed in that State (table 3-25, fig. 3-4). Crustaceans (mostly shrimp) accounted for 42 percent of the imports of the products in the sector through the ports of California in 1989. Frozen beef (used for further processing); fish, prepared or preserved; crustaceans and molluscs, prepared or preserved; and fish fillets accounted for most of the remainder.

California ports accounted for \$1.7 billion of exports of products in the animal protein complex. Exports of these products were mostly of non-California production, and only 15 percent consisted of products produced in that State (table 3-25, fig. 3-5). Fresh molluscs, frozen fish, and prepared or preserved crustaceans and molluscs, combined, accounted for about 60 percent of the exports of California production in the animal protein sector that were exported through the ports of California in 1989. The remaining exports of California production consisted largely of frozen beef, edible offal, and crustaceans.

Raw Agricultural Crops

Production in California of the raw agricultural crops included herein amounted to about \$7.4 billion in 1989. Animal feeding preparations, grapes and raisins, coffee (processed from unroasted Hawaiian and imported coffee), forage products, unroasted nuts, citrus fruit, and miscellaneous fresh vegetables accounted for about 85 percent of production. Apricots, cherries,

peaches, and plums, fresh tomatoes, wheat, rice, and dried beans and peas accounted for most of the remainder.

California ports accounted for 731 million dollars worth of imports of raw agricultural crops in 1989. An estimated 73 percent of the imports from offshore sources of raw agricultural crops through the ports of California in that year were marketed in that State (table 3-25, fig. 3-4). Unroasted coffee and bananas accounted for about two-thirds of the imports; the remainder consisted largely of fresh tomatoes, grapes, miscellaneous fresh vegetables, and rice.

California ports exported \$1.6 billion of raw agricultural crops in 1989. About 95 percent of the exports of such crops through the ports of California in 1989 consisted of products produced in that State (table 3-25, fig. 3-5). About four-fifths of these exports consisted of unroasted nuts, citrus fruits, grapes and raisins, wheat, and rice.

Processed Agricultural Crops

Production of processed agricultural crops in California in 1989 is estimated at \$15.1 billion, or about double the value of the raw agricultural crops (table 3-25). Bread, pastry and pizza, wine, sauces and condiments, fruits and nuts, and beer accounted for about 77 percent of the total; the remainder consisted largely of fruit juices, canned vegetables, chocolate, and miscellaneous food preparations.

Processed agricultural-product imports shipped through California ports totaled \$866 million in value in 1989. About 78 percent of the imports from offshore sources through the ports of California in 1989 were marketed in that State (table 3-25, fig. 3-4). Wine, beer, and prepared fruits and nuts including canned pineapple accounted for about 50 percent of the imports. Other important imports included coconut and palm oil, bread, pastry and pizza, canned vegetables, and fruit juices.

The value of processed product exports through California ports was \$796 million in 1989. About 85 percent of the exports of processed agricultural crops through the ports of California in 1989 consisted of products produced in California. Miscellaneous food preparations, prepared fruits and nuts, and miscellaneous dried fruit (mostly prunes) constituted one-half of the exports. The remainder of the exports consisted largely of wine, fruit juices, dried vegetables, and sunflower and cottonseed oil.

In sum, of the \$3.3 billion of agricultural fresh and processed food products imported through the ports of California in 1989, about 84 percent, or \$2.8 billion, was marketed in that State. Of the \$4.0 billion of such agricultural food products exported through the ports of California in 1989,

Table 3-25
Food products: California production and trade for major products having values of exports from or imports into California ports of by HTS heading,
1989

4-digit HTS heading	Brief description	Production			Exports			Imports		
		Value Million dollars	Share staying in Calif. Percent	Value of share staying in Calif. Million dollars	Value Million dollars	Share produced in Calif. Percent	Value of share produced in Calif. Million dollars	Value Million dollars	Share staying in Calif. Percent	Value of share staying in Calif. Million dollars
Animal protein complex:										
0201	Fresh beef	1,900.0	95	1,805.0	201.8	5	10.1	0.1	100	0.1
0202	Frozen beef	(1)	95	(1)	687.8	5	34.4	303.6	80	242.9
0203	Pork, fresh, frozen	800.0	95	760.0	194.3	0	0.0	22.4	100	22.4
0206	Edible offal	63.0	85	53.6	191.6	10	19.2	5.8	80	4.6
0207	Poultry meat	690.0	99	683.1	193.0	5	9.7	0.1	100	0.1
0302	Fresh fish	453.0	42	190.3	7.1	95	6.7	45.5	95	43.2
0303	Frozen fish	(2)	42	(2)	46.5	95	44.2	47.9	95	45.5
0304	Fish filets	(2)	42	(2)	3.9	95	3.7	119.5	95	113.5
0306	Crustaceans	(2)	42	(2)	17.7	95	16.8	720.5	95	684.5
0307	Molluscs	(2)	42	(2)	66.4	95	63.1	55.6	95	81.3
1602	Prepared meat	722.0	95	685.9	10.4	2	0.2	75.7	80	60.6
1604	Prepared fish	(2)	42	(2)	6.4	95	6.1	138.4	95	131.5
1605	Prep crustaceans	(2)	42	(2)	45.7	95	43.4	130.5	95	124.0
	Subtotal (13 headings)	4,628.0	90	4,177.8	1,672.6	15	257.5	1,695.6	92	1,554.2
Raw agricultural crops:										
0702	Tomatoes	247.8	18	44.6	1.2	100	1.2	56.3	60	33.8
0709	Vegetables, nesol	604.6	25	151.2	32.5	100	32.5	39.2	50	19.6
0713	Dried beans/peas	104.5	10	10.5	37.3	80	29.8	6.9	90	6.2
0802	Nuts, nesol	780.6	10	78.1	482.4	99	477.6	18.1	80	14.5
0803	Bananas	0.0	0	0.0	0.0	0	0.0	166.6	47	78.3
0805	Citrus fruit	650.7	18	117.1	305.2	95	289.9	0.1	100	0.1
0806	Grapes, raisins	919.5	6	55.2	190.3	100	190.3	43.6	20	8.7
0809	Stone fruit	266.3	15	39.9	62.9	99	62.3	12.3	70	8.6
0901	Coffee	1,056.6	20	211.3	14.3	100	14.3	332.7	99	329.4
1001	Wheat	203.9	50	102.0	134.0	80	107.2	(4)	100	(4)
1006	Rice	197.6	25	49.4	111.1	100	111.1	36.9	50	18.5
1214	Rutabagas, forage	878.0	93	816.5	66.5	75	49.9	(4)	100	(4)
2308	Veg. residues	88.0	50	44.0	41.8	100	41.8	(4)	100	(4)
2309	Animal feed	1,400.0	94	1,316.0	93.4	100	93.4	18.3	100	18.3
	Subtotal (14 headings)	7,398.1	41	3,035.7	1,572.9	95	1,501.3	731.0	73	535.9

Table 3-25—Continued
 Food products: California production and trade for major products having values of exports from or imports into California ports of by HTS heading, 1989

4-digit HTS heading	Brief description	Production			Exports			Imports		
		Value	Share staying in Calif.	Value of share staying in Calif.	Value	Share produced in Calif.	Value of share produced in Calif.	Value	Share staying in Calif.	Value of share staying in Calif.
		Million dollars	Percent	Million dollars	Million dollars	Percent	Million dollars	Million dollars	Percent	Million dollars
	Processed agricultural crops:									
0712	Dried vegetables	445.0	10	44.5	51.1	80	40.9	21.3	75	16.0
0813	Dried fruit	187.1	10	18.7	101.9	100	101.9	5.4	90	4.9
1512	Sunflower/cottonseed oil	258.0	67	172.9	49.3	100	49.3	5.3	100	5.3
1513	Coconut and palm oil	(⁶)	(⁶)	(⁶)	0.7	100	0.7	72.7	75	54.5
1806	Chocolate	542.7	95	515.6	47.3	50	23.7	15.4	100	15.4
1902	Pasta	146.0	95	138.7	1.0	100	1.0	36.8	68	25.0
1905	Bread, pastry	2,887.0	95	2,742.7	20.5	50	10.3	65.1	50	32.6
2003	Canned mushrooms	19.2	8	1.4	0.2	100	0.2	47.1	10	4.7
2005	Canned vegetables, nesol	670.0	15	100.5	29.8	75	22.4	63.2	80	50.6
2008	Fruit, nuts, nesol	1,941.0	5	97.1	131.9	85	112.1	105.4	95	100.1
2009	Fruit juices	731.0	10	73.1	58.1	95	55.2	50.6	90	45.5
2103	Sauces, condiments	2,457.0	10	245.7	38.0	100	38.0	35.8	95	34.0
2106	Food preparations, nesol	500.0	75	375.0	164.3	75	123.2	38.9	99	38.5
2203	Beer	1,707.0	71	1,212.0	38.4	95	36.5	147.4	85	125.3
2204	Wine	2,600.0	25	650.0	63.6	100	63.6	156.0	80	124.8
	Subtotal (15 headings)	15,091.0	42	6,387.7	796.1	85	678.8	866.4	78	677.2
	Grand total (42 headings)	27,117.1	50	13,601.3	4,041.6	60	2,437.7	3,293.0	84	2,767.3

¹ Included in HTS heading 0201.

² Included in HTS heading 0302.

³ Roasted coffee produced from domestic and foreign raw product shipped into California; includes about 33 percent value added to

⁴ Less than \$50,000.

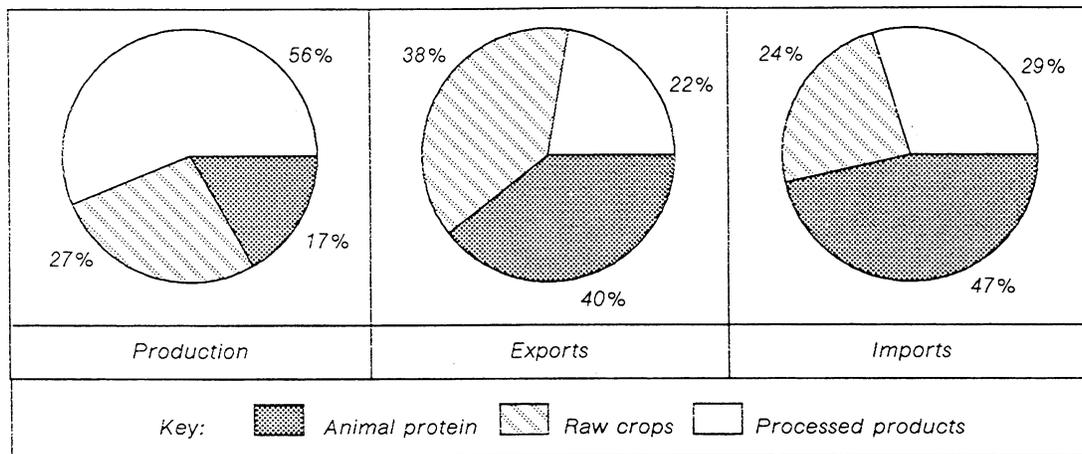
⁵ Included in HTS heading 1512.

Note 1.—1988 data used when data for 1989 were not available.

Note 2.—See app. H for full description of 4-digit HTS codes.

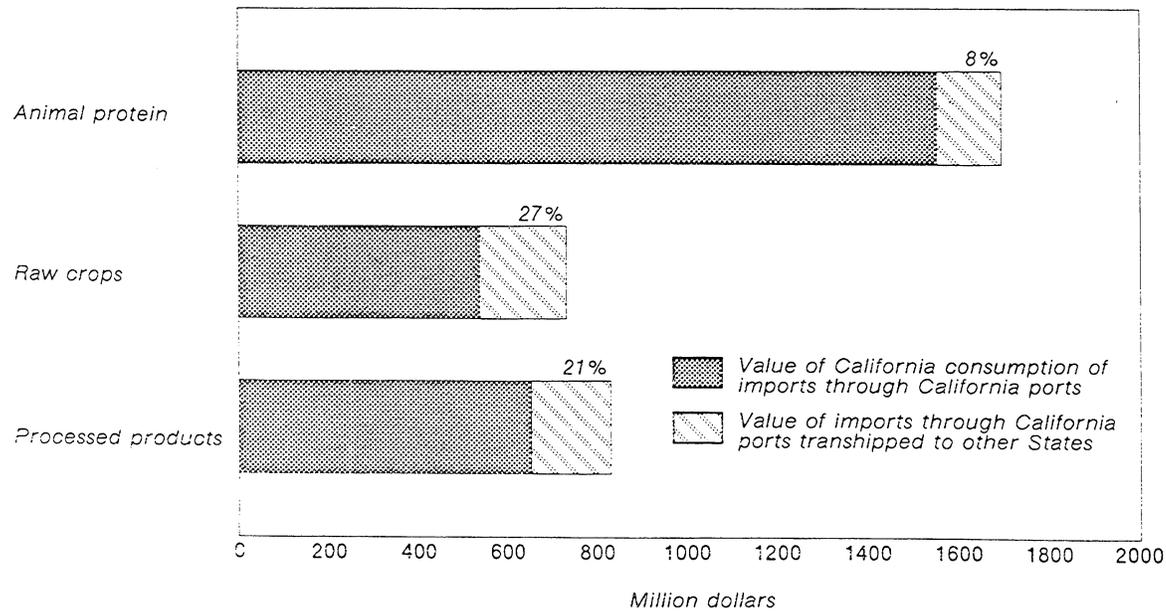
Source: Production compiled, or estimated, from official statistics of the California Department of Food and Agriculture, U.S. Department of Commerce and industry sources; exports and imports through California ports compiled from official statistics of the U.S. Department of Commerce; and share percentages estimated by staff of the U.S. International Trade Commission based on information from the U.S. Department of Commerce, U.S. Department of Agriculture, California Department of Food and Agriculture, and discussions with industry experts.

Figure 3-3
California agricultural production and trade, value by major commodity group, 1988-89



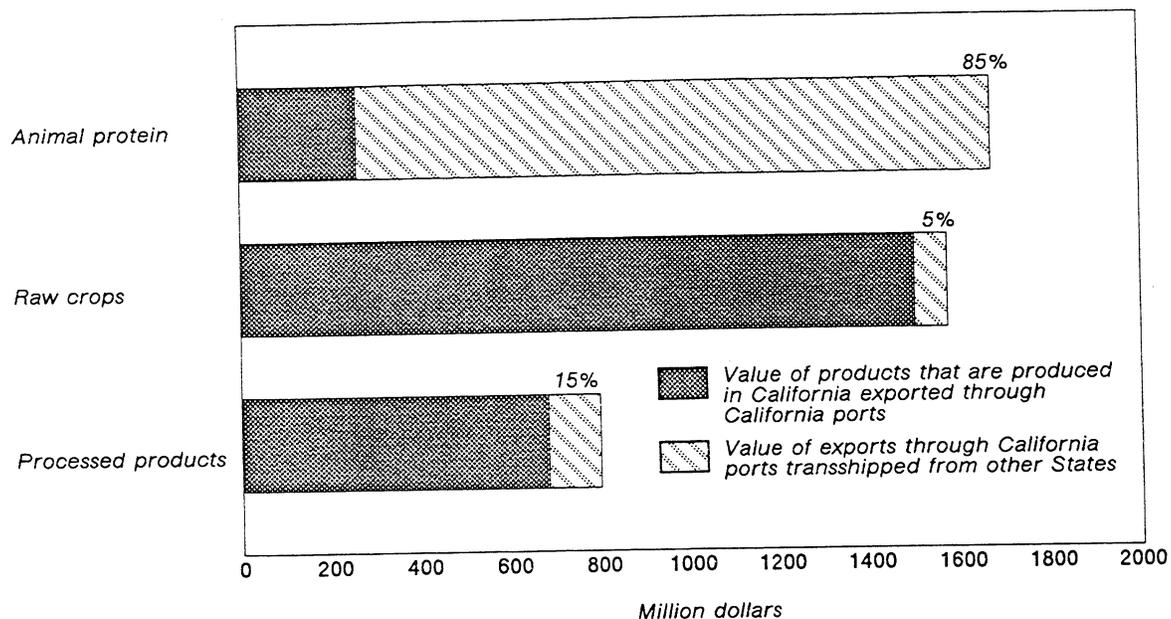
Source: Production data from California Department of Food and Agriculture and estimates by Commission staff; trade data based on U.S. Department of Commerce statistics.

Figure 3-4
California agricultural imports: Estimated share entering California ports that is consumed within the State, by major commodity group, 1989



Source: Official statistics of the U.S. Department of Commerce and estimates by Commission staff.

Figure 3-5
 California agricultural exports: Estimated share of California exports that is produced in the State, by major commodity group, 1989



Source: Official statistics of the U.S. Department of Commerce and estimates by Commission staff.

\$2.4 billion, or 60 percent, was produced in California. About three-fourths of the imports consisted of crustaceans (mostly shrimp), coffee, frozen beef, bananas, wine, beer, prepared or preserved fish, prepared or preserved crustaceans and molluscs, fish fillets, and prepared fruits and

nuts. About three-fourths of the exports consisted of frozen beef, unroasted nuts, citrus fruit, fresh or chilled beef, fresh or frozen pork, poultry meat, edible offal, grapes and raisins, miscellaneous food preparations, wheat, miscellaneous prepared fruits and nuts, rice, and dried fruit.

Chapter 4 Economic Consequences of the Initiative on U.S. Trade

Principles of Changes in Trade Patterns

Changes in trade patterns resulting from changes in pesticide usage mandated by the Initiative depend largely on the magnitude of any changes in the cost of production, the extent of California excess supply or excess demand, and the availability of alternative low-cost and/or residue-free domestic or foreign supplies. These factors are likely to be different for different products. Existing estimates of cost changes by product are incomplete. The second phase of this report will use the more complete set of estimates that we hope to have available at that time. We have not yet established the availability and sources of alternative supplies.

Changes in the Cost of Production

According to testimony at the Commission's hearing, briefs filed with the Commission, and various published reports, cost increases for California agricultural products could range from near zero to over 100 percent. Cost increases for residue-free products from outside of California have not been so directly addressed, but presumably they fall within this range. The greater the cost increase, the greater the potential for changes in U.S. imports and exports. If there are significant increases in production costs, increases in imports and decreases in exports would be expected for many products. However, if a product containing residues of the banned pesticides is currently imported into California, then a reduction in these imports could occur.

In general, current production and trade patterns reflect comparative advantages and transportation costs so alternative suppliers, both domestic and foreign, can be expected to have at least somewhat higher costs than California producers currently serving U.S. and world commodity markets. Therefore, if production from other States replaces California production in the U.S. market, due to the effects of the Initiative, U.S. prices will be somewhat higher than they were before the implementation of the Initiative and some increase in imports or decrease in exports can be expected.

Pesticide restrictions will have an effect mainly on the cost of raw products.¹ Therefore, the relative increase in final product cost is likely to be

¹ Processing costs could be higher if the pesticide restrictions lead to a shorter growing season and a less efficient use of processing facilities.

lower than the relative increase in raw product cost, so that the more value added from processing and shipping, the lower will be the impact of the pesticide restrictions on final product price. Similarly, the relative price increase will be higher for goods produced and sold locally than those sold further away.

California Supply or Demand

California accounted for 11.4 percent of the population and 13 percent of the personal income of the United States in 1987.² California can be expected to account for a roughly similar proportion of final U.S. consumption of most products. Therefore, as a rough approximation, if California production is in the range of about 10 to 15 percent of U.S. consumption, small effects on U.S. trade are likely, even when pesticide restrictions lead to cost increases in California.³ California and U.S. production levels are presented in table 4-1. For example, for HTS category 0713, dried beans and peas, California accounts for around 15 percent of U.S. production. California is already producing roughly what it consumes of this commodity. If the Initiative causes California production costs and the costs of residue-free produce to increase significantly, California may become an isolated market, supplying its own needs at a higher cost, with little effect on U.S. trade.

There are a number of possible exceptions to these rules of thumb, either because California consumption is not proportional to its share of national population or personal income or because relative cost conditions change, thus affecting California producers in their own market. Differences in transportation costs and consumer preferences could result in a California consumption share that is significantly at variance with its share of population or personal income, thereby affecting the level of excess supply or demand in California.

Foreign producers may have a comparative advantage in producing some crops without pesticides, whereas California may have a comparative advantage in producing such crops with pesticides. It also may be possible to use

² U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, August 1988, vol. 68, No. 8.

³ This result could occur if non-California producers have higher costs than do California producers in the production of residue free commodities for the California market. However, if non-California producers can produce lower cost residue free commodities than can California producers after the implementation of the Initiative, there then may be a significant effect on interstate or international trade of the commodity into the California market.

Table 4-1
Value of agricultural production, California and United States, 1989

4-digit HTS heading	Brief description	California	United States	Ratio Calif. to U.S.
		— Millions of dollars —		Percent
Animal protein complex:				
0201	Fresh beef	1,900.0	36,000.0	5.28
0202	Frozen beef	(¹)	(¹)	(¹)
0203	Pork	800.0	15,000.0	5.33
0206	Edible offal	63.0	2,066.0	3.05
0207	Poultry meat	690.0	18,884.0	3.65
0302	Fresh fish	453.0	6,400.0	7.08
0303	Frozen fish	(²)	(²)	(²)
0304	Fish fillets	(²)	(²)	(²)
0306	Crustaceans	(²)	(²)	(²)
0307	Molluscs	(²)	(²)	(²)
1602	Prepared meat	722.0	8,876.0	8.13
1604	Prepared fish	(²)	(²)	(²)
1605	Prep. crustaceans	(²)	(²)	(²)
	Subtotal (13 headings)	4,628.0	87,226.0	5.31
Raw agricultural crops:				
0702	Tomatoes	247.8	1,153.0	21.49
0709	Vegetables, nesoi	604.6	1,917.0	31.54
0713	Dried beans/peas	104.5	696.0	15.01
0802	Nuts, nesoi	780.6	1,003.0	77.83
0803	Bananas	0.0	4.0	0.00
0805	Citrus fruit	650.7	1,105.0	58.89
0806	Grapes and raisins	919.5	1,087.0	84.59
0809	Stone fruit	266.3	551.0	48.33
0901	Coffee	³ 1,056.6	6,401.0	16.51
1001	Wheat	203.9	7,742.0	2.63
1006	Rice	197.6	1,097.0	18.01
1214	Rutabagas, other forage	878.0	11,778.0	7.45
2308	Vegetable residues	88.0	1,100.0	8.00
2309	Animal feeding preparations	1,400.0	17,321.0	8.08
	Subtotal (14 headings)	7,398.1	52,955.0	13.97
Processed agricultural crops:				
0712	Dried vegetables	445.0	865.0	51.45
0813	Dried fruit, nesoi	187.1	663.0	28.22
1512	Sunflower/cottonseed oil	258.0	1,000.0	25.80
1513	Coconut and palm oil	(⁴)	(⁴)	(⁴)
1806	Chocolate	542.7	10,900.0	4.98
1902	Pasta	146.0	1,110.0	13.15
1905	Bread, pastry	2,887.0	25,284.0	11.42
2003	Canned mushrooms	19.2	594.6	3.23
2005	Canned vegetables, nesoi	670.0	6,446.0	10.39
2008	Fruit, nuts, nesoi	1,941.0	5,615.0	34.57
2009	Fruit juices	731.0	7,461.0	9.80
2103	Sauces, condiments	2,457.0	7,377.1	33.31
2106	Food preparations, nesoi	500.0	2,900.0	17.24
2203	Beer	1,707.0	14,800.0	11.53
2204	Wine	2,600.0	3,440.0	75.58
	Subtotal (15 headings)	14,945.0	87,345.7	17.11
	Grand total (42 headings)	26,971.1	227,526.7	11.85

¹ Included in HTS heading 0201.

² Included in HTS heading 0302.

³ Roasted coffee produced from domestic and foreign raw product shipped into California; includes about 33 percent value added to the raw product.

⁴ Included in HTS heading 1512.

Note.—1988 data used when data for 1989 were not available.

Source: California production compiled, or estimated, from official statistics of the California Department of Food and Agriculture; U.S. production compiled, or estimated, from U.S. Census of Manufactures, U.S. Census of Agriculture, and similar sources.

pesticides to grow crops that are residue free in their final form, perhaps making their production in California uncompetitive with residue-free products from outside of California.

The Extent of California Excess Supply or Demand

When the difference between California production and consumption is large, there is a potential for significant trade effects. When California production exceeds consumption, there is excess California supply. When California consumption exceeds production, there is excess California demand.

For example, HTS category 0809, apricots, cherries, peaches, and plums, the potential for significant trade effects is high because California produces nearly one-half of U.S. output—well in excess of likely California consumption.

Availability of Low-Cost Alternative Domestic or Foreign Supplies

When present California excess supply or excess demand is large, the source of alternative low-cost supplies will determine whether the effects on U.S. trade will be significant. The relative price responsiveness of alternative suppliers will determine which supplier will fill most of the gap. When there is excess California supply, other States and foreign suppliers constitute the alternative sources of production. If other States are the major alternative source, then the effects on U.S. trade are likely to be small. If foreign sources are the major alternative, the effects on U.S. trade are likely to be larger. When there is excess California demand, California producers, other States, and foreign countries can all be possible suppliers of residue-free produce.

Consider the following examples of possible circumstances when the pesticide restrictions cause a significant cost increase:

1. *California excess supply and the United States is a net exporter.* If other parts of the United States can replace most California excess supply, then total U.S. production and net exports will drop very little. On the other hand, if foreign suppliers are the major alternative, they may replace U.S. exports in the world market.
2. *California excess supply and U.S. imports and exports are currently insignificant.* Again, if the major alternative is domestic production, there will be very little effect on trade, but if foreign sources are the major alternative, the increase in imports could be large.
3. *California excess demand and the United States is a net importer.* The outcome depends on whether other States, California, or foreign producers are most

responsive to price increases for residue-free produce. If other States or California producers are more responsive, imports could fall. If foreign producers are more responsive, imports could rise.

The trade effects can ultimately be estimated only after the products that will be affected by the pesticide ban are identified and likely cost increases are established. For this reason, we have not attempted to identify alternative sources of supply in this phase of the study. The trade effects are likely to be greater the higher the production cost increases, the greater the extent of California excess supply, and the greater the responsiveness of foreign suppliers relative to U.S. suppliers.

Review of Selected Reports

The Commission has received copies of numerous articles, statements, published reports, and research studies concerned with pesticides, food safety, and economics thereof. Most of these works focused on changes in the cost of production and yield for various crops. Some of these works have been directed specifically at the California Initiative. The following summaries of selected reports indicate the findings of various authors who have estimated economic effects of changes in pesticide usage.

Economic Research Service, USDA⁴

Results of this study on a potential ban of soil fumigants suggest that U.S. producers who formerly had used fumigants would be worse off by \$100 to \$200 million per year, despite higher prices, while U.S. producers who had not used fumigants would gain because prices would rise and their yields and costs would not change. For those producers affected by a nationwide theoretical ban, production costs would rise in the short run, crop output would decline sharply, and product prices would increase. U.S. consumers would pay \$3.0 to \$5.1 billion more for food in the short run. Estimates for price increases were obtained for the following crops in percent:

<i>Crop</i>	<i>Price increase</i>
Citrus fruit	0
Potatoes	11
Tomatoes:	
Fresh	53
Canned	8

The study estimated the effect of all soil-borne pests on yield during a growing season, on the basis of biological analysis and using the average of 1982–84 practices to determine the portion of crop acreage treated by fumigants or alternative practices. Estimates of price elasticities of

⁴ U.S. Department of Agriculture, Economic Research Service, *Economic Effects of Banning Soil Fumigants*, by Joseph R. Barse, Walter Ferguson, and Robert Seem, AER-602, December 1988.

demand for the various crops at farm and retail levels were expressed in ranges and resulted in ranges of dollar values for the estimated effects on producers and consumers. This short-run analysis did not examine the potential long-term effects of a ban on fumigants.

*Knutson and Associates*⁵

The authors of this study concluded that if pesticides and inorganic nitrogen fertilizers in U.S. agriculture were substantially curtailed, the annual consumer food costs would increase by \$428 per household, representing a 12-percent rise for the middle-income household. The rise would be \$228 annually if pesticides alone were restricted. The authors also project that food-price inflation following chemical restrictions would reach double-digit levels. Substantial reductions in yields and increases in unit costs of production would be found in all crops. The authors highlight the findings for unit cost increases for crops under a "no chemicals" scenario and a "no pesticides" scenario, as follows in percent:

Crop	Unit production cost increase	
	No chemicals	No pesticides
Corn	61	27
Soybeans	45	(¹)
Wheat	50	33
Rice	133	100
Peanuts	200+	(¹)

¹ Not separated.

Under reductions in pesticide use throughout the United States, average export volume for the major grains would fall by about 15 percent during 1995-98, according to estimates. The authors also found that without pesticides, crop producers would experience higher incomes due to higher prices, but livestock-producer income would fall by an equal amount because of the higher costs of feed. Price increases projected for the 1995-98 period for four crops were soybeans, 101 percent; rice, 82 percent; corn, 38 percent; and wheat, 5 percent.

The results were based on examination of seven chemical-use reduction scenarios, including "no herbicides," "no insecticides and fungicides," "no inorganic nitrogen," and various combinations of these scenarios. Crops covered accounted for more than 75 percent of the pesticides applied to crops in the United States. The baseline year for estimates of yield reductions

⁵ Ronald D. Knutson and others, *Economic Impacts of Reduced Chemical Use*, (College Station, TX: Knutson and Associates, 1990). The study was sponsored by Tennessee Valley Authority, American Farm Bureau Federation, and seven other agricultural groups.

from loss of pesticides was 1987. National and regional estimates for production, prices, and income by commodity were obtained using the AG-GEM model, a merger of a model of the agricultural sector and a macroeconomic model.

*Spectrum Economics*⁶

Spectrum Economics examined the potential economic effects of provisions of the California Initiative relating to pesticides. The report concludes that the Initiative would raise consumer food prices and government spending, reduce crop yield and food quality, and lower aggregate agricultural income in California. Detail is provided for five crops: grapes, lettuce, almonds, oranges, and strawberries. These crops represent 5 of the 11 highest valued agricultural commodities grown in California. Price-effect estimates are summarized as follows in percent:

Crop	Price increase	Maximum yield loss
Grapes	300	100
Lettuce	10-25	10-30
Almonds	10-40	10-40
Oranges	0	25-30
Strawberries	10-35	20-50

Spectrum Economics surveyed growers, extension specialists, and other experts to estimate yield losses from pesticide restrictions. Changes in consumer prices were then estimated using a simple economic impact model that focuses on output level, commodity markets, and consumer demand. Among the pesticides presumed to be banned for this analysis were sulfur, mancozeb, and other fungicides used on horticultural crops.

*David Pimentel*⁷

Dr. David Pimentel assessed reductions in pesticide usage that can be obtained using alternative, non-chemical controls. The cost of implementing alternative pest controls to reduce

⁶ Steven J. Moss, project manager, Proposition 128 Analysis, *Impact on California Agriculture of the Food Safety and Pesticides Section*, prepared for the California Coordinating Council by Spectrum Economics, Inc., San Francisco, CA, July 1990. This title is one of a series of reports on the California Environmental Protection Act of 1990 by Spectrum Economics, Inc., and supporting case studies on alternatives to pesticide use. The California Coordinating Council appeared as a witness at the Commission's hearing, represented by Sandra O. Archibald, assistant professor of agricultural economics, Food Research Institute, Stanford University.

⁷ David Pimentel and others, *Environmental and Economic Impacts of Reducing U.S. Agricultural Pesticide Use*, submitted attachment to a brief (and forthcoming in *CRC Handbook of Pest Management in Agriculture*, CRC Press, Boca Raton, FL); and David Pimentel, *The Potential Impact of the Withdrawal of 19 Pesticides Based on the Proposed Environmental Protection Initiative: A Preliminary Assessment*, submitted attachment to a brief, draft report, June 28, 1990. Dr. Pimentel is a professor of entomology and agricultural sciences at Cornell University, and presented testimony at the Commission's hearing on behalf of the Natural Resources Defense Council.

pesticide use throughout the United States ranged from \$10 in per-hectare cost savings to \$15 per hectare cost increases, depending on the alternative technology and crop. In an analysis focused on California crops, Pimentel reports that consumer food prices for five crops (grapes, lettuce, almonds, oranges, and strawberries) would increase between 0.2 and 29 percent, depending on the assumptions about alternative practices used. If no chemical control were used, some crop yields would decline and prices would rise by about 29 percent. If pesticides that are currently in use and would remain available under the Initiative were substituted for pesticides banned under the Initiative, and chemical control costs rose, consumer food prices would rise by 0.2 percent. The estimates by Pimentel were based on the assumption that 19 pesticides would be prohibited under the Initiative, primarily fungicides.

GRC Economics⁸

GRC Economics concludes that the Initiative would lead to a 40 percent reduction in California output of fruits, vegetables, and field crops. Prices at the farm level would rise as much as 50 percent or more, due to the decline in output and the restriction on imports from other States or foreign sources. The price rise would reach livestock, poultry, and dairy products through animal-feed products that are now imported from outside the State. A large segment of California's agricultural production would shift to other States and Mexico, and California Gross State Product and employment would decline.

The GRC Economics study indicates that U.S. agricultural imports would rise to replace fresh fruits and vegetables now grown in California. U.S. agricultural exports would decline, because exportable surplus production of rice and cotton from California would fall.

The study focused on 12 horticultural crops, 3 grains, and cotton, which together account for about one-half the value of all crops produced in California. Potential effects on livestock and dairy producers were also examined. Estimated price effects for certain crops are listed below in percent:

Crop	Price increase
Oranges	12.0
Grapes	2.7
Lettuce	163.8
Tomatoes:	
Fresh	120.9
Processed	115.2
Rice	89.0

⁸ GRC Economics, *Economic Implications of the Food Safety and Pesticide Provisions of the California Environmental Protection Act of 1990*, April 1990 update. A representative of GRC Economics, John Urbanchuk, presented testimony at the Commission's hearing. The study was commissioned by the Western Agricultural Chemicals Association, with additional support from Californians for Food Safety.

Yield effects of the removal of pesticides were estimated by agricultural specialists and experts at universities and extension services in California. Only initial impacts were studied, and not potential crop substitution or producers' passing cost increases on to consumers. The list of pesticides presumed to be banned for this analysis includes the most widely used fungicides, insecticides, and herbicides, but does not include inert ingredients or metabolites.

Possible Impact on U.S. International Trade Obligations

A number of interested parties addressed the issue of the effect that passage and implementation of the Initiative might have on U.S. international trade obligations, particularly U.S. obligations under GATT (the General Agreement on Tariffs and Trade). The views of parties who addressed the issue tended to be divided according to whether they supported or opposed the Initiative, with supporters tending to argue that passage and implementation of the Initiative would not cause the United States to be in violation of international obligations and opponents tending to argue that it would. The assertions of a number of parties are summarized below. The Commission takes no position concerning the validity of any of the assertions; the Office of the U.S. Trade Representative is the U.S. Government agency charged with determining whether U.S. actions are consistent with U.S. GATT and other international trade obligations.

Opponents of the measure commenting on its international aspects outnumbered supporters by a wide margin. The American Farm Bureau Federation provided one of the more detailed responses. It argued that the Initiative could be challenged as being "arbitrary" and thus violate article XX of the GATT.^{9 10} In addition, the Farm Bureau said that the Initiative "would place" the United States in violation of its obligations under articles 2 and 3 of the Agreement on Technical Barriers to Trade (the GATT Standards Code), which requires countries to harmonize technical regulations or standards to the extent possible, and similar U.S. commitments under article 9 of the U.S.-Israel Free

⁹ Posthearing submission of American Farm Bureau Federation, July 24, 1990, p. 6.

¹⁰ Article XX of the GATT provides in pertinent part as follows:

Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

* * *

(b) necessary to protect human, animal or plant life or health.

Trade Agreement and article 708 of the U.S.-Canada Free Trade Agreement.¹¹ The Farm Bureau argued that the Initiative would "severely undercut" U.S. opposition to "similarly misguided" health-related measures of U.S. trading partners, such as the European Community's meat hormone ban and the Korean ban on grapefruits treated with alar.¹² In view of the fact that the Uruguay Round negotiations are scheduled to be completed by the end of December, the Initiative, the Farm Bureau said, "could not [have] come at a worse time."¹³ The Farm Bureau referred to a speech of USTR Carla Hills before the U.S. Chamber of Commerce on October 27, 1989, in which she said that "if [technical barriers to trade] are not checked in the Uruguay Round, health regulations could spark the trade disputes of the 1990s."¹⁴ The Farm Bureau said that international harmonization is the only viable approach, and referred to (without specifically endorsing) the health standards promulgated by the U.N.'s Codex Alimentarius Commission, which the Bureau said contain pesticide tolerance levels that are more stringent in many instances than U.S. EPA standards.¹⁵

The American Frozen Food Institute, the California-Arizona Citrus League, and the International Apple Institute, among others, made similar arguments with respect to a possible violation of article XX of GATT and the provisions of free trade agreements and the need for harmonization of international pesticide level standards.¹⁶ The California State World Trade Commission also asserted that the Initiative would "violate" U.S. international obligations and stated that European Community (EC) officials have already begun to question the Initiative.¹⁷ In its submission the World Trade Commission stated that the recent disagreement with the EC over

¹¹ Ibid., p. 7.

¹² Ibid.

¹³ Ibid.

¹⁴ Ibid., p. 8. The quoted material reflects the Farm Bureau's paraphrasing of Mrs. Hills' remarks.

¹⁵ Ibid., pp. 8-10.

¹⁶ Statement of the American Frozen Food Institute, July 10, 1990, pp. 1, 4; brief of the California-Arizona Citrus League, p. 2; and brief of the International Apple Institute, July 3, 1990, pp. 2, 7.

¹⁷ Submission of the California State World Trade Commission, July 10, 1990 (no page number).

hormone-treated beef had at one point threatened \$300 million of California specialty crops, and the "spurious" Korean claim that U.S. grapefruit had been treated with alar reduced California export sales by an estimated \$400 million in 1990.¹⁸ The Mexican Secretariat of Agriculture and Hydraulic Resources, noting the possibility that passage of the Initiative could lead to upwards of 50 different sets of State rules, expressed the view that the Initiative, if passed, "will modify the traditional scheme of negotiations with [the] USA as a country, in the framework of the GATT negotiations or the North-American Trade Free Zone, as well."¹⁹

The Natural Resources Defense Council, which supports the Initiative, stated that the Initiative would be "trade neutral" and would subject domestic and foreign producers to the same pesticide standards for the California market.²⁰ The Initiative, the Council said, meets the requirement of GATT article III that imported products be accorded treatment no less favorable than domestic products, and conforms with GATT article XX because it is a measure "necessary to protect human . . . life or health."²¹ The Council said that it would be impossible to judge whether the Initiative would be inconsistent with revised provisions of GATT relating to sanitary and phytosanitary measures because those standards are still being negotiated.²² The Council further said that the U.S. GATT proposal on harmonization of pesticide standards would require that U.S. standards more restrictive than international standards be based on "sound scientific evidence," and asserted that the Initiative is based on such evidence.²³

¹⁸ Ibid.

¹⁹ Letter dated July 24, 1990, to the U.S. International Trade Commission from Marco A. Martinez, Assistant Agricultural Counselor in the Mexican Embassy in Washington, on behalf of the Mexican Secretariat of Agriculture and Hydraulic Resources.

²⁰ Written statement of Eric Christensen on behalf of the Natural Resources Defense Council, July 10, 1990, p. 7.

²¹ Ibid.

²² Ibid., p. 8.

²³ Ibid., pp. 8-9. The U.S. proposal referred to was identified by the Council as a submission to the GATT Negotiating Group on Agriculture on October 25, 1989, on long term agricultural reform, pp. 11-15.

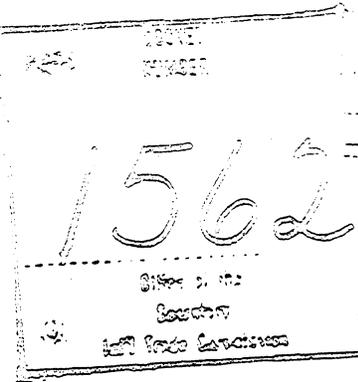
APPENDIX A
LETTER OF REQUEST FROM THE UNITED STATES TRADE REPRESENTATIVE

THE UNITED STATES TRADE REPRESENTATIVE
Executive Office of the President
Washington, D.C. 20503

RECEIVED
OFFICE OF THE SECRETARY
U.S. INTERNATIONAL TRADE COMMISSION

90 MAY 14 4 58

The Honorable Anne E. Brunsdale
Chairman
U.S. International Trade Commission
500 E Street, S.W.
Washington, D.C. 20436



90 APR 10 AM: 45

RECEIVED

Dear Madam Chairman:

Under authority delegated by the President and pursuant to section 332 (c) of the Tariff Act of 1930, as amended, I am writing to request that the Commission institute an investigation for the purpose of providing me with a report on the probable international trade effects of a proposed California state law.

Specifically, we are interested in the potential agricultural trade implications of Title Three of the proposed "California Environmental Protection Act of 1990" (the Initiative). California voters will vote on this measure in November.

As we interpret the language of the Initiative, it could establish California standards for residue levels in food which could be more stringent than those existing under applicable Federal laws. This potential conflict between Federal and state standards could affect current U.S. obligations under the General Agreement on Tariffs and Trade (GATT) and under the U.S.-Israel and U.S.-Canada Free Trade Agreements. Furthermore, since the international harmonization of health and safety standards for food and agriculture products is a major component of the U.S. proposal on agriculture in the current Uruguay Round of multilateral trade negotiations, adoption of the Initiative could significantly affect any new U.S. agricultural trade obligations arising out of the ongoing GATT negotiations.

We are particularly interested in receiving as much of the following information as the Commission can provide:

1. The extent to which enactment of the Initiative could create major differences between California and Federal standards for chemical residues in food;
2. The volume and value, by country of origin, of agricultural fresh and processed food products imported through the ports of California, and the volume and value, by country of origin, of the imported agricultural fresh and processed food products marketed in California;

The Honorable Anne E. Brunsdale
Page Two

3. The volume and value, by country of destination, of agricultural fresh and processed food products exported through the ports of California, and the volume and value, by country of destination, of California agricultural fresh and processed food products which are exported, and;
4. The potential international trade effects which would flow from enactment of the Initiative.

The fate of the California Initiative will be decided in the November election. The Uruguay Round negotiations are expected to conclude with a ministerial level meeting scheduled to be held in Brussels in early December. Accordingly, we request that the Commission provide an interim report on this matter no later than September 30, 1990, and a final report by December 31, 1990.

In accordance with USTR policy, I direct you to mark as "Confidential" such portions of the Commission's report and its working papers as my Office will identify in a classification guide. Information Security Oversight Office Directive No. 1, section 2001.21 (implementing Executive Order 12356, sections 2.1 and 2.2) requires that classification guides identify or categorize the elements of information which require protection. Accordingly, I request that you provide my Office with an outline of this report as soon as possible. Based on this outline and my Office's knowledge of the information to be covered in the report, a USTR official with original classification authority will provide detailed instructions.

We appreciate the Commission's assistance.

Sincerely,



Carla A. Hills

APPENDIX B
FEDERAL REGISTER NOTICE OF INSTITUTION OF INVESTIGATION

UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.

(Investigation No. 332-292)

CALIFORNIA PESTICIDE RESIDUE INITIATIVE: PROBABLE EFFECTS ON U.S.
INTERNATIONAL TRADE IN AGRICULTURAL FOOD PRODUCTS

AGENCY: United States International Trade Commission.

ACTION: Institution of investigation

SUMMARY: Following receipt on May 10, 1990, of a request from the United States Trade Representative (USTR), the Commission instituted investigation No. 332-292, under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)) for the purpose of providing information with respect to the following:

- (1) The extent to which enactment of the "California Environmental Protection Act of 1990" (Initiative) could create major differences between California and Federal standards for chemical residues in food;
- (2) The volume and value, by country of origin, of agricultural fresh and processed food products imported through the ports of California, and the volume and value, by country of origin, of the imported agricultural fresh and processed food products marketed in California;
- (3) The volume and value, by country of destination, of agricultural fresh and processed food products exported through the ports of California, and the volume and value, by country of destination, of California agricultural fresh and processed food products which are exported; and
- (4) The potential international trade effects which would flow from enactment of the Initiative.

As requested by the USTR, the Commission will submit an interim report not later than September 30, 1990, and a final report not later than December 31, 1990.

EFFECTIVE DATE: May 29, 1990

FOR FURTHER INFORMATION CONTACT: Stephen Burket (202-252-1318) or David Ingersoll (202-252-1309), Agriculture Division, Office of Industries, U.S. International Trade Commission. Hearing-impaired persons can obtain information on this study by contacting our TDD terminal on (202) 252-1810.

PUBLIC HEARING: A public hearing in connection with this investigation will be held beginning at 9:30 a.m. on July 10, 1990, at the U.S. International Trade Commission Building, 500 E Street, SW., Washington, D.C. All persons have the right to appear by counsel or in person, to present information, and to be heard. Requests to appear at the hearing should be filed in writing with the Secretary, United States International Trade Commission, 500 E Street SW., Washington, D.C. 20436, not later than the close of business (5:15 p.m.) on June 26, 1990. The deadline for filing prehearing briefs (original and 14 copies) is July 3, 1990. The deadline for filing post hearing briefs is the close of business on July 24, 1990.

WRITTEN SUBMISSIONS: Interested persons may submit written statements concerning the investigation. To be assured of consideration, written statements (original plus 14 copies) must be received by the close of business (5:15 p.m.) on July 24, 1990. Commercial or financial information that a submitter desires the Commission to treat as confidential must be submitted on separate sheets of paper, each clearly marked "Confidential Business Information" at the top. All submissions requesting confidential treatment must conform to the requirements of section 201.6 of the Commission's Rules of Practice and Procedure (19 CFR 201.6). All written submissions, except for confidential business information, will be made available for inspection by interested persons. All submissions should be addressed to the Secretary at the Commission's office in Washington, DC.

By order of the Commission.


Kenneth R. Mason
Secretary

Issued: May 30, 1990

APPENDIX C
LIST OF WITNESSES APPEARING AT THE HEARING

CALENDAR OF PUBLIC HEARING

Those listed below are scheduled to appear as witnesses at the United States International Trade Commission's hearing on:

Subject : CALIFORNIA PESTICIDE RESIDUE
INITIATIVE: PROBABLE EFFECT ON
U.S. INTERNATIONAL TRADE IN
AGRICULTURAL FOOD PRODUCTS

Inv. No. : 332-292

Date and Time : July 10, 1990 - 9:30 a.m.

Sessions will be held in connection with the investigation in the Main Hearing Room 101, United States International Trade Commission, 500 E Street, S.W., in Washington, D.C.

GOVERNMENT APPEARANCE:

Cary Walker, Washington Representative, California State World Trade Commission

WITNESS AND ORGANIZATION:

Panel:

Joel Nelsen, President
California Citrus Mutual

Tom DiMare, President,
DiMare Brothers, Inc.

John McClung, V.P., Government Affairs
United Fresh Fruit and Vegetable
Association

Fred T. LoBue, Chairman
California-Arizona Citrus League

- MORE -

WITNESS AND ORGANIZATION:

California Coordinating Council
Burlingame, California

Professor Sandra O. Archibald, Stanford
University Food Research Institute

Purdue University

Professor Otto Doering
Department of Agricultural Economics

American Frozen Food Institute
McLean, Virginia

Steven C. Anderson, President

Resources for the Future
Washington, D.C.

Leonard P. Gianessi, Fellow

Natural Resources Defense Council
Washington, D.C.

Eric Christensen, Project Attorney

- MORE -

WITNESS AND ORGANIZATION:

GRC Economics
Washington, D.C.

John M. Urbanchuk, Senior Vice President
and Group Director

Consumer Pesticide Project
San Francisco, California

Craig Merrilees, Director

National Agricultural Chemicals Association
Washington, D.C.

Jay J. Vroom, President

Natural Resources Defense Council
San Francisco, California

Dr. David Pimentel, Cornell University

- END -

APPENDIX D
SUMMARIES OF TESTIMONY AND WRITTEN SUBMISSIONS
BY INTERESTED PARTIES

SUMMARIES OF TESTIMONY AND WRITTEN SUBMISSIONS BY INTERESTED PARTIES

Government

The Mexican Embassy, on behalf of the Mexican Secretariat of Agriculture and Hydraulic Resources, in a letter, is concerned that the Initiative would have adverse effects on Mexican producers. The Secretariat fears that the Initiative could interfere with the GATT negotiations and the North American Free Trade Zone. The Mexican Government feels that because Mexico and California already have a trade agreement that has solved the problems of the past, the Initiative is unnecessary. Mexico is concerned that the other States may follow suit and enact their own set of regulations, thus making it difficult for Mexico to coordinate with the different States.

California Assemblyman Jim Costa, in a brief, explains that the Initiative would create more problems for California than it would solve, particularly in its serious implications for agricultural trade. Costa states that chemical tools are critical to agricultural production in California, and the Initiative will have negative effects on the State's leading industry and employer. California producers would lose much of their interstate and international sales under the Initiative, according to Costa, because of relative productivity losses. There would be no corresponding benefit for California citizens in Costa's view, since the pesticide bans are unrelated to risk and California pesticide regulations are the most stringent in the world. Imports of foods into California would also be targeted under the Initiative, Costa states.

The California State World Trade Commission, in testimony and a brief, questions the Initiative's methods and its effects on agricultural trade. The Initiative would separate California from the rest of the United States, which would have serious international implications, according to the Commission. The Commission is concerned that the Initiative is inconsistent with U.S. efforts to create global guidelines for health and sanitary standards and that the Initiative would create new trade barriers. Further, California producers would be handcuffed by not having access to production tools available to their competitors, the Commission maintains. Finally, the Initiative would raise the cost of doing business with California by complicating interstate commerce.

Support

The Natural Resources Defense Council (NRDC), in testimony and a brief, states that the Initiative will protect consumers from pesticides in food and promote development of alternatives to pesticides. The NRDC maintains the opponents to the Initiative overstate the number of pesticides that will be phased out. The phaseout of pesticides that cause cancer or birth defects is a decision that should be left to the people of California, the NRDC maintains. The long phaseout time allowed under the Initiative will permit development of alternatives, so that in the NRDC's judgment, economic effects will be small. The Initiative is trade neutral, according to the NRDC, because it subjects domestic and foreign producers to the same pesticide standards for the California market. Further, GATT allows measures necessary to protect human life or health, the NRDC suggests. California producers could gain a competitive advantage under the Initiative, in the NRDC's view, because foreign producers now enjoy low production costs because of lax environmental or worker protection standards. The NRDC argues that foreign producers will have sufficient time to phase in use of alternative pesticides that will be permitted in the California market under the Initiative. Further, according to the NRDC, the Initiative will improve the reputation of California produce as being safe and boost sales to health-conscious consumers overseas.

The National Family Farm Coalition, in testimony and a brief, states that the Initiative is a bold step toward sustainable agriculture. The coalition reports on a study that demonstrates viable alternatives to each of the chemicals that would be banned under the Initiative. Additional research support for safe alternatives, which would be provided for in the Initiative, would minimize the costs of making a transition away from toxins. The coalition criticizes the administration's proposal to the GATT to level all health and safety standards with respect to agricultural trade.

The California Association of Family Farmers, in testimony, supported the Big Green initiative because farmers want to minimize the dangers to farming and are looking for ways to lower chemical use. According to the association, additional research can minimize the cost to California consumers in higher food prices resulting from a transition away from toxins. The Initiative, they say, can only help to improve the reputation of California-grown produce. Administration proposals under the GATT to level all health and food safety standards with respect to agricultural trade are aimed in part at preempting democratic measures such as Big Green, they state, whereas California citizens are attempting to raise their quality of life. The association noted that international standards list acceptable tolerance levels for DDT residues (a U.S. banned pesticide). Also they state that current domestic laws on marketing prevent California growers from selling blemished fruit, thus favoring the use of chemicals.

The director of the Consumer Pesticide Project of San Francisco, California (also the National Toxics Campaign Fund and Fair Trade Campaign to Protect the Environment), in testimony and a brief, stated that the California Environmental Protection Act of 1990 (the Initiative) was a political fight within the State, and that the U.S. International Trade Commission by this investigation was drawn into the fight inappropriately. Proposals through the GATT for elimination of Federal water subsidies to California growers, and other Federal proposals, he stated, would be more devastating to California agriculture than the Initiative and should be the subject of economic impact investigations. The Initiative is on the ballot in California, he stated, because Washington has failed to protect California from dangerous pesticides. The State has 1,500 drinking water wells in the Central Valley that are contaminated with pesticides and are now unfit for human consumption. Many California farmers are leading the way toward safer alternatives, despite inadequate government programs, according to the witness. The director states that the Initiative will make California growers more competitive in environmentally sensitive world markets such as Europe and Asia.

Opposition

The DiMare Co., a geographically diverse produce farming, exporting, and importing operation, states in testimony and a brief that the Initiative will have immediate, detrimental effects on interstate and international trade. California's pesticide standards are already the strictest in the world, according to DiMare, and they will be made unworkable by the regulations contained in the Initiative. Other States and countries will then have the advantage in growing agricultural produce, DiMare claims.

The United Fresh Fruit and Vegetable Association, in testimony and a brief, expresses concern about the harm the Initiative would cause to California's \$4 billion produce industry. The differences in Federal and California standards would disrupt the U.S. food-distribution system and U.S. international trade, in the association's view. United Fresh Fruit reports that the EC has criticized the United States for seeking to exempt State regulatory activities from international rules. The Initiative would result in the California market being closed to other countries as well as to other States that have differing standards. While the association supports uniform Federal regulations based on sound scientific evidence, it claims that the proposed Initiative is not in step with scientifically established Federal rules and would inhibit domestic and international trade.

The California-Arizona Citrus League, in testimony and a brief, contends that the Initiative would disrupt commerce between States and with the rest of the world. The league argues that the Initiative is a protectionist measure that would likely be imitated by other countries. Also, the Initiative would interfere with integrated pest-management systems used by California growers. The Citrus League criticizes the Initiative as having no basis in scientific practices and procedures. Without the availability of pesticides, according to the Citrus League, insect damage would reduce California citrus production and raise production costs. Exports of top-quality fresh oranges, which are important to the economic well-being of California industry, would be lost if pesticide use were restricted under the Initiative, the league states.

The American Farm Bureau Federation, in testimony and a brief, expresses concern about the extensive ban on pesticides proposed in the Initiative. The Farm Bureau reports on a study that concludes that elimination of pesticides would be costly to agriculture. According to the Farm Bureau, respected scientists emphasize the inconclusiveness of scientific evidence, the insignificance of manmade carcinogens relative to natural

carcinogens in food, and the tendency of agricultural products not treated with pesticides to generate natural carcinogens. The Farm Bureau states that the California Initiative would eliminate the cost-benefit analysis of current pesticide regulation and ban a wide range of pesticides. The results would be lower yields per acre, and thus more acreage under cultivation, using more water and other inputs. The Farm Bureau prefers that standards for agricultural health be set by uniform Federal laws based on the latest scientific testing procedures. In international trade, the Farm Bureau states that the Initiative would reduce the competitiveness of U.S. agricultural exports, and ultimately would restrict access to foreign markets as trade partners erect retaliatory barriers. The Initiative conflicts with the trade obligations and objectives of the United States, according to the Farm Bureau, and undermines U.S. efforts to create uniform standards for agricultural food products in world trade. Harmonization of health standards, argues the bureau, would raise the level of food safety in the United States and the rest of the world.

The Fresno County Farm Bureau, in testimony and a brief, states that existing California regulations of pesticide use represent common sense, but the proposed Initiative disregards sound scientific reasoning. The bureau states that use of integrated-pest management systems that reduce the need for pesticide treatment will be threatened because the Initiative restricts inert ingredients in pesticide formulations. The Initiative also would place farmers in California in a competitive disadvantage by eliminating use of certain pesticides, according to the Farm Bureau.

The International Apple Institute, in testimony and a brief, states its belief that the California Initiative will have significant adverse effects on the marketing of apples and apple products domestically and internationally. The Initiative conflicts with the Federal regulatory program for pesticide residues, the Apple Institute contends, and neglects the key consideration of weighing the risk from trace amounts of residues in relation to the benefits of pesticide use. The Institute feels that differing regulatory programs will restrict the marketing in California of apples produced in other States. Further, the Apple Institute states that the Initiative is contrary to efforts to harmonize health and safety standards in the international community and could be considered an unjustifiable trade barrier that would invite retaliation.

The American Frozen Food Institute, in testimony and a brief, maintains that the Initiative would compromise the ability of the United States to negotiate in the GATT and to fulfill its agricultural trade obligations under existing free-trade agreements. The Frozen Food Institute states that the U.S. proposal to the Uruguay Round features elimination of arbitrary health and safety standards that serve as nontariff trade barriers, and that the Initiative would interfere with negotiations. Domestically, the Initiative conflicts with U.S. regulations and would create barriers within U.S. commerce, according to the Institute. The size of California's economy would allow the Initiative to have a ripple effect over environmental policy nationwide.

The National Agricultural Chemicals Association (NACA), in testimony and a brief, states that the Initiative threatens to undo the progress made in productivity and quality in modern agriculture. Producers will likely suffer as their costs of production rise, the NACA maintains. The association questions whether mechanical cultivation can replace herbicides, and if environmental costs are less using more fossil fuels to accomplish this. The Initiative would cut California off from trade with the rest of the nation and the world, in the association's view.

California Citrus Mutual, in a brief and testimony, expresses concern that the Initiative will affect yields and quality, thereby leading to a decline in the availability of the product and higher prices for the consumer. California producers will not be able to export their product if the Initiative is passed because of lower quality and yields, according to California Citrus Mutual. California Citrus Mutual also maintains that produce will not be available to California consumers, because imported produce will no longer be able to pass inspection. In addition, California Citrus Mutual pleads with the Commission to ignore the "emotional rhetoric" offered by proponents of the Initiative.

Asociacion de Exportadores de Chile, in a brief, expresses concern about the operational difficulties and obstacles to free international trade that it stated would arise under the Initiative. The Chilean exporters estimate that 51 percent of its fruit and vegetable production is exported to the United States and that California buys 18 percent

of the fruit exported by Chile to the United States. Chilean producers apply pesticides in compliance with U.S. Environmental Protection Agency rules, have met pesticide-residue tolerances in FDA monitoring, and comply with strict USDA quarantine regulations on insects, according to the association. The Chilean exporters view the Initiative as an attempt against the principles of free trade promoted by the GATT. The association expects that, should the Initiative be approved, volumes sold to California would decrease and prices would increase.

The National Grain and Feed Association, in a brief, states that the California Initiative is a serious threat to both interstate and international commerce for the State of California. According to the association, suppliers of food and feedstuffs to California, who ship more than 6 million tons of grain annually into the State, would not be willing to accept the risk that shipments be rejected at the border because a small fraction of a banned chemical residue may be found. Accordingly, California would have difficulty meeting the demand for animal feed and consumer foods if the Initiative went into effect. The association maintains that there is a strong need for national uniformity in pesticide- and chemical-residue tolerances in food products.

The American Soybean Association, in a brief, writes of its fear that the Initiative would inflict serious adverse economic consequences on the U.S. soybean farmer. Although soybeans are not grown extensively in California, the State does depend on soybean meal. This high-protein animal and poultry feed is shipped into California from other States throughout the United States. The Initiative would prohibit these shipments and consequently disrupt other agricultural enterprises in California, according to the association. The Initiative would also cut into the agricultural exports from some California ports. The Association feels that the Initiative ignores the realities of today's complex, interrelated global economy.

The Chemical Producers and Distributors Association (CPDA), in a brief, feels that the Initiative is an ill-conceived and potentially damaging proposal. The CPDA fears that the Initiative could lead to a reduction in yields, an increase in produce prices, and unemployment within the pesticide industry. The Initiative could also lead to a situation across the country wherein certain fruits and vegetables will no longer be available offseason, the CPDA states. The CPDA also feels that the Initiative is too broad in scope and that it was designed by politicians who sought an advantage in the California gubernatorial race. The Initiative is inconsistent with U.S. efforts to harmonize global guidelines for health and sanitary standards, according to the CPDA.

The American Dehydrated Onion and Garlic Association, in a brief, stated that it is troubled by the prospect of differing State and Federal standards of food safety under the Initiative. The Initiative would impose a competitive disadvantage on U.S. producers, including growers in other States who produce for the California market, according to the association. The association anticipates that output would fall, prices would rise, and California's overall economy would decline. Imports would likely increase under the Initiative, states the association, since domestic quality would decline and prices would increase. Further, the GATT prohibits the United States from adopting arbitrary or unjustifiable sanitary standards, and the association contends that negotiations toward unification of food safety standards would be inhibited by the Initiative.

The Agricultural Council of California, in a brief, contends that the Initiative is contradictory to the U.S. efforts to harmonize health and safety standards in the international marketplace. Trade partners would see the Initiative as a trade barrier, and retaliate, the council states. Crop-yield losses under the Initiative would affect total U.S. supplies of fresh produce and contribute to an increase in imports. The council expects that other aspects of the California Initiative would add to energy and water quality costs for California producers and processors. The combined effect would jeopardize competitiveness in the world market.

The California Avocado Commission, in a brief, states its concern that the Initiative will have adverse economic effects on marketing and sale of avocados. California growers will be forced to grow their avocados without pesticides that will remain available to competitors. Low-priced imports could displace California avocados from markets in the rest of the United States. The commission feels that the Initiative runs counter to U.S. efforts to harmonize international health and safety standards. The commission fears retaliation from agricultural exporting countries that would be excluded from the California market under the Initiative.

The California Cling Peach Advisory Board, in a brief, expresses concern that the Initiative will mean lost sales in domestic markets and denied access to export markets. The board feels that the Initiative would compromise U.S. efforts to harmonize phytosanitary regulations worldwide and would infringe on U.S. international obligations under GATT and the Canada-United States Free-Trade Agreement. Without the pesticides banned under the Initiative, California cling peach production would drop and costs would increase. Alternatives to the pesticides to be banned are labor intensive and not cost efficient, according to the board. The industry expects to lose 100 percent of the domestic market to imports if the Initiative goes into effect and is concerned that export markets will be lost if other countries retaliate in response to the Initiative's ban on imports.

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The Dried Fruit Association of California (DFA), in a brief, predicts that the Initiative would lead to a disaster for California agriculture. The DFA maintains that the production of foods would be significantly disrupted. The DFA is concerned that without the help of certain pesticides, the quality its members produce will decline to a level that would put them on equal footing with competitors, thus leaving them without a market. The DFA also maintains that the Initiative will hamper the U.S. position in international negotiations. The DFA feels that the Initiative is unnecessary because most pesticides being used by producers in the dried fruit and tree-nuts industry are short lived and specific for control desired.

The Processed Tomato Foundation, in a brief, opposes the Initiative because it fears that the Initiative would have an adverse effect on the growers and processors of tomato products in the United States. The tomato crop is concentrated in California (82 to 90 percent of the U.S. processing-tomato crop is grown there). The foundation maintains that the tomato yields would be reduced because of a lack of efficient pest control alternatives. The foundation also fears that the Initiative would reduce the efficiency of tomato processing plants. The Foundation states that the Initiative would also set up trade barriers to imports. The Foundation is puzzled that this Initiative is coming at a time when the United States is working towards international harmonization of health standards related to agricultural chemicals.

Blue Diamond Growers of California, in a brief, stated that the Initiative will have a significant effect on the almond industry. Nearly all of the commercially produced almonds in the United States are grown in California, and U.S. production accounts for nearly 70 percent of the average world almond crop. According to Blue Diamond Growers, the Initiative may cause crop reductions of 10 to 40 percent due to brown rot and other fungal conditions. The effects may not be felt for a couple of years, but just a 10-percent reduction in almond production could mean a \$65.5 million loss, according to the Blue Diamond Growers. Blue Diamond Growers also states that the alternatives available are not adequate. Blue Diamond Growers fears that the Initiative would have detrimental effects on the export market for almonds. They feel that the Initiative runs contrary to U.S. efforts to harmonize global health and sanitary standards and will send a negative trading signal to some of Blue Diamond's largest markets. Blue Diamond Growers worries that the Initiative will complicate interstate commerce by raising the cost of doing business in California. At the same time, Blue Diamond Growers states that the Initiative will encourage foreign retaliation in the shape of more trade barriers. Blue Diamond Growers also states its concern for the elimination of California almond growers' access to production tools that are easily available to their competitors in other nations. Blue Diamond Growers fears that the Initiative will create more barriers and hurt the U.S. trade deficit.

Florida Citrus Mutual, in a brief, stated that the Initiative will adversely affect commerce in agricultural products. Existing regulations assure that pesticide use by citrus growers does not result in harmful residues that threaten the health of consumers, contends the group. The California Initiative would ban imports, foreign or domestic, of citrus products that are perfectly safe according to Federal regulation, the group maintains. Citrus Mutual expects that the Initiative would restrict the access of California consumers to orange juice that originates in Florida or outside the United States. Florida Citrus Mutual is further concerned that U.S. trading partners will restore differing phytosanitary regulations in response to the Initiative, thus undermining efforts to harmonize international standards.

The Florida Fruit and Vegetable Association, in a brief, maintains that the Initiative would be harmful to the U.S. international trading position as well as to interstate trade. The Initiative may well be GATT-illegal, the association states. Florida ships a substantial volume of fruits and vegetables to California, and the association expects that the Initiative will substantially interfere with shipments.

Dupont Company, a producer of agricultural chemical products, stated in a brief that the Initiative, if passed and enacted, would mandate standards for food products substantially different from the rest of the United States and the world. National uniform standards for pesticide residues, referred to as "tolerances," the Company stated, are required under the Federal Food, Drug and Cosmetic Act to protect the public health. The Initiative would not only revoke tolerances for class "A" and "B" carcinogens, but tolerances for class "C" carcinogens will also be revoked because of the requirement that these compounds must be demonstrated not to cause cancer, thus, the impossible task of "proving a negative." Even if the task were possible, the timeline specified in the Initiative is impossible to meet and the default action is revocation of tolerances. In addition to the 44 compounds named in their brief, the Initiative would also prohibit the inclusion in food of any chemical which has been listed under California's Proposition 65. This list could potentially include most remaining pesticides as well as many food additives essential to the production of safe, storable foods, Dupont asserted. Tolerances, therefore, on common processed food items, such as coffee, cheese, breakfast cereals, canned fruits and vegetables, and "virtually any other food item one could think of would also be prohibited." They stated that the international trade implications, should this measure become law, are obviously serious. The company submitted a list of active ingredients and a list of commodities with tolerances for such active ingredients subject to phase out under the Initiative.

Draper-King Cole, Inc., a canned-food processor in Delaware, in a letter, opposes the Initiative. The Initiative would create significant problems in domestic as well as international trade, according to Draper-King Cole. Draper-King Cole cannot understand why California should be allowed to preempt Federal policy, especially when the United States is pressing for uniformity.

Ateco, Inc., a frozen food producer in Pennsylvania, in a letter, opposes the California Initiative on the grounds that it would undermine U.S. agricultural trade proposals in the GATT negotiations and compromise the ability of the United States to fulfill its existing trade obligations. The Initiative also would create barriers with U.S. interstate commerce, argues Ateco.

J. R. Simplot Co., a food processor in Idaho, in a letter, stated that enactment of the Initiative would undermine U.S. agricultural trade proposals in the Uruguay round of GATT and seriously compromise the U.S. ability to fulfill its agricultural trade obligations under existing free trade agreements. The Initiative would create barriers within domestic commerce because it would prohibit shipment of agricultural and food products from other States into California, even though such shipments comply in every aspect with Federal regulations.

Other

Leonard Gianessi of Resources for the Future, in testimony and a brief, describes the difficulties of conducting studies on the potential economic impact of the Initiative. Data are not now available on use in California of many pesticides that are likely to be affected by the Initiative. Studies that have assessed cost and yield changes expected under the Initiative generally do not account for unusual infestations. Some pesticides presumed available as alternatives under the Initiative may become unavailable, Gianessi states, or alternatives that are not accounted for in the study may be developed. Because of the number of chemicals affected and the number of crops on which each pesticide is used, many individual assessments will be required when examining economic effects of the Initiative.

John Urbanchuk of GRC Economics of Washington, DC, in testimony and a brief, reports on his study of the potential effects of the Initiative on production and prices of the major agricultural commodities produced in California. The Initiative will result in a sharp increase in the cost of production and reduction in profitability for California

farmers, according to the GRC study. GRC expects output of fruits, vegetables, and field crops to decline by 40 percent. Other States would not likely be able to make up the production shortfall in the 5-year timeframe for pesticide phaseout under the Initiative, Urbanchuk states. U.S. exports of fruits and vegetables are expected to fall by as much as 20 percent, according to the GRC study. Imports would increase, as several foreign producers are in position to service the U.S. market.

Professor Sandra Archibald of the Food Research Institute, Stanford University, in testimony and a brief, provides estimates of the economic effects of the Initiative. Archibald concludes that, although there is great uncertainty about which chemicals would be affected, within 2 to 8 years, the Initiative could ban up to two-thirds of the pesticides currently used in California agriculture. Archibald, who spoke under auspices of the California Coordinating Council, states that the effect on trade in agricultural products could be significant, since in 1988 one-fifth of fresh fruit and vegetable imports to California tested positive for residues. Archibald reports that economic effects of banning pesticides would be higher world consumer prices and gains to producers outside of California.

Spectrum Economics, Inc., of San Francisco, California, in a series of reports prepared for the California Coordinating Council dated July 1990, submitted analysis of anticipated economic effects for a number of provisions in the Initiative. In a report on Impacts on California Agriculture of the Food Safety and Pesticide Section of the Initiative, the effects include: higher consumer prices and government spending; lower crop yields and food quality; limitations on Californians' consumption of fresh fruits and vegetables; and reduced agricultural income. The study examined grapes, lettuce, almonds, oranges, and strawberries in detail.

Professor David Pimentel of Cornell University, in testimony and a brief, states that farming can be productive and economical with much lower use of pesticides. The Initiative is necessary given the government's failure to protect consumers, Pimentel maintains. Pimentel, who spoke under auspices of the Natural Resources Defense Council, reports that it is technologically feasible to reduce pesticide use in the United States 35 to 50 percent without reducing yield. Farmers spend about \$4 billion annually on pesticides, not including indirect costs from public health and environmental problems. Dollar returns on investment in pesticides are calculated on the basis of current agricultural practices, some of which increase pest problems, in Pimentel's view. Pimentel's research estimates environmental and social costs of pesticide use at about \$2 billion annually. It might be possible to reduce pesticide use by one-half, at a cost of \$1 billion and a 0.6-percent increase in food prices, according to Pimentel. In California specifically, Pimentel concludes that substitutes are readily available for pesticides banned under the Initiative, so that there would be no appreciable economic effects.

Professor Otto Doering of Purdue University, in testimony and a chart, states that the Initiative is not trade neutral. Those exporting to the United States will face two sets of standards, Doering maintains, and California producers may not be able to meet high quality standards in export markets without pesticides. Some portion of U.S. and overseas markets formerly supplied by California will now be supplied by non-U.S. sources, in Doering's analysis. Doering explains how pesticide restrictions and another portion of the Initiative that restricts carbon dioxide emissions will give an incentive to food processors to relocate outside the United States. Analysis of the Initiative's effects is especially difficult because a broad spectrum of plant-protection chemicals is being withdrawn at once. There are several factors that will determine the Initiative's effects, including weather, pest environments, increases and decreases in imports and exports, and the introduction of additional land. Doering explains how the Initiative will lead to a lower yield. Without the aid of pesticides, farmers will need to control weeds mechanically. To allow room for the machinery to move through the field, the rows will have to be planted further apart, leading to fewer plants per acre. In addition to this, Doering describes how the appearance of produce will be affected without the use of certain pesticides. Using lettuce as an example, he describes how an insect can damage the outer leaves of a head of lettuce, forcing the producers to cut the damaged leaves off in order to make the lettuce palatable to the consumer. The leaves that would need to be cut away because of the insect are the same leaves that would harbor chemical residues. Doering also points out that suppliers of feed to California's livestock may need to be concerned about the Initiative.

APPENDIX E
ENVIRONMENTAL PROTECTION ACT ON 1990, TITLES 1, 2, AND 3;
AMENDMENT NO. 3, OF NOVEMBER 17, 1989; AND BALLOT TITLE AND
SUMMARY OF PROPOSITION 128

SA89RF0024
Amendment #3

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FINAL TEXT

**ENVIRONMENTAL PROTECTION ACT
OF 1990**

INITIATIVE MEASURE TO BE SUBMITTED DIRECTLY TO THE VOTERS

The Attorney General of California has prepared the following title and summary of the chief purposes and points of the proposed measure:

(Here set forth the title and summary prepared by the Attorney General. This title and summary must also be printed across the top of each page of the petition whereon signatures are to appear.)

TO THE HONORABLE SECRETARY OF STATE OF CALIFORNIA

We, the undersigned, registered, qualified voters of California, residents of _____ County (or City and County), hereby propose amendments to the Fish and Game, Food and Agricultural, Government, Health and Safety, Labor, Public Contract, Public Resources, and Water Codes relating to health and the environment, and petition the Secretary of State to submit the same to the voters of California for their adoption or rejection at the next succeeding general election or at any special statewide election held prior to the general election or otherwise provided by law. The proposed statutory amendments read as follows:

TITLE ONE

SECTION 1. Short Title

This Act shall be known as the Environmental Protection Act of 1990.

TITLE TWO

SECTION 2. Findings and Declarations

We, the People of the State of California, do find and declare:

A. Our health, natural environment and quality of life are threatened by chemical pollution of the food which nourishes us, the air we breathe and our ocean waters.

B. These environmental problems arise from a common cause, our production of and dependence on toxic chemicals in all aspects of the economy.

C. These problems are urgent issues requiring solutions, now. Our State and federal governments have failed to resolve them, and have not adequately protected our health and environment. The public's trust has been compromised by special interests, and public confidence has been weakened by government's failure to act. It is therefore necessary to act by way of initiative to make the necessary changes in law.

We hereby further find and declare:

1) Each year, millions of pounds of pesticides are used in California, and eventually contaminate the food chain, drinking water supply, ocean, air, soil and ecosystem. Many of these pesticides pose clear hazards to human life and health.

2) Our children are more vulnerable than adults to the toxic effects of pesticides because of their immature physiological systems and special susceptibility to cancer-causing substances.

3) Neither the state nor federal government has adequately protected the People of the State of California from hazardous pesticides, in the food chain, in the fields, and elsewhere in the environment, placing adults and especially children in serious jeopardy. As a result of this governmental failure, consumers and agricultural workers are exposed daily through work and food to hazardous pesticides.

4) The public health and environment will be best protected by the regulatory measures set forth in this Act, by conferring responsibility on the California Department of Health Services to control the use of pesticides, and by providing State funds for the development of safe alternatives while phasing out cancer causing and other hazardous pesticides.

We also further find and declare:

1) As a result of California's rapid economic and population growth, the People of the State consume vast amounts of fossil fuels and other chemical substances through transportation, heating and cooling, manufacturing, and in the production of electricity. That consumption creates tens of millions of tons of waste gases and pollutants every year, including carbon dioxide from combustion of fossil fuels, chlorofluorocarbons and halons from industry, and nitrous oxides from motor vehicles.

2) There is increasing and substantial scientific evidence that global temperatures are gradually being raised by the cumulative effect of the emissions of these gases released into the atmosphere by human and industrial activity.

3) In addition to the emissions of these gases, global warming is increased by the depletion of our forests and urban trees. Between 1977 and 1986 alone, California lost over 700,000 acres of its forests to agricultural use and urban expansion.

4) California's old growth redwoods are an irreplaceable national and international resource, but exist only as a fragment of an ancient temperate rain forest ecosystem which once comprised approximately 2 million acres. Their continued destruction contributes to the loss of our forests and to global warming, and their cutting and harvesting, especially through clear cutting, contributes to erosion, pollution of water courses, and destruction of fishery and animal resources. Because of their extremely high biomass per acre, preservation of ancient redwood stands is significant in counteracting global warming, and provides an example of the actions that should be taken on a global scale.

5) There is also increasing and substantial scientific evidence that chemical substances are contributing to the destruction of the stratospheric ozone layer which shields the earth's surface from dangerous solar radiation. The continued destruction of the ozone layer could result in enormous increases in skin cancer cases, decreased yields of food crops, and adversely affect the health and welfare of the People of the State of California.

6) If these emissions continue unabated, and if the loss of trees in the State continues, global warming could have substantial adverse impacts on the State, including a reduction in water deliveries from the State Water Project to agricultural and urban areas, an expansion of San Francisco Bay caused by rising ocean levels, decreased crop yields due to higher temperatures and lower precipitation, increased temperatures, and increased energy usage to cool residences and workplaces.

7) As a result, the People of the State of California declare that the State must take the steps described in this Act to reduce toxic contamination of our air, to reduce its emission of waste gases which warm the atmosphere, to reduce and eliminate its use of chemicals which destroy the stratospheric ozone layer, and to protect and restore trees in the state.

Finally, We find and declare:

1) Over one million barrels of oil are imported into California each day by oil tankers and from offshore oil platforms. In addition, current law permits oil development in state waters within three miles of the State's beaches and shores.

2) The transportation and unloading of this oil from oil tankers to shore facilities, and from offshore oil production platforms in both state and federal waters, seriously threatens the State's fishery resources, the marine food chain, coastline and beaches with oil pollution in the event of an oil spill.

3) The recent oil spill in Alaska demonstrates that current oil spill prevention practices and cleanup techniques are completely incapable of protecting the State's fishery resources, marine food chain, coastline and beaches in the event of a major oil spill. With current practices, the transportation of, and exploration and development for, oil cannot be conducted in a manner which adequately protects marine and coastal resources.

4) In addition, past municipal, industrial and agricultural discharges into the State's bay, estuarine and ocean waters, discharges into waters that flow into those waters, urban storm runoff, dredging activities, and past legal and illegal dumping of toxic wastes, have all had a serious adverse effect on the marine environment, ocean resources and water quality and therefore on public health and safety.

5) Toxic substances continue to pollute the ocean environment, fishery resources, and the marine food chain.

6) Therefore, the People of the State of California declare that the State must take the actions included in this Act, in order to protect the quality of our marine bay, estuarine and ocean waters.

Accordingly, We, the People of the State of California, do hereby enact the Environmental Protection Act of 1990, to safeguard the People from toxic contamination by chemical poisons in the food supply, to reduce chemical pollution which contributes to global warming and depletion of the ozone layer, to protect and increase the number of trees in the State thereby decreasing the production of chemicals and waste gases which contribute to global warming and depletion of the ozone layer, and to protect California's marine resources and coastline from oil spills and pollution by toxic chemicals.

TITLE THREE

SECTION 3. Chapter 9 is added to Division 21 of the Health and Safety Code, to read:

Chapter 9. Food Safety and Pesticides

Article 1

26901. (a) The registration of any pesticide containing an active ingredient known to cause cancer or reproductive harm, which is registered for use on food or for which a tolerance exists as of the effective date of this Chapter, shall be cancelled and applicable tolerances revoked by January 1, 1996.

(b) The registration of any pesticide containing an active ingredient, registered for use on food, or for which a tolerance exists, which is determined after the effective date of this Chapter to cause cancer or reproductive harm, shall be cancelled and applicable tolerances revoked on or before five years from the date of the determination.

(c) No pesticide containing an active ingredient known to cause cancer or reproductive harm may be registered, or any tolerance adopted, for any new use on food after the effective date of this Chapter.

(d) No pesticide for which the health effects studies required by Section 13123(c) of the Food and Agricultural Code are missing or inadequate shall be registered for any new use on food.

26902. (a) Notwithstanding Section 26901(a) and (b), the Director of Health Services may, by regulation, extend the registration and tolerance of a pesticide subject thereto for a period not to exceed three years, if the registrant demonstrates for each use of the pesticide for which an extension is sought:

(1) Cancellation of the pesticide will cause severe economic hardship to the state's agricultural industry; and

(2) No known alternative pest control or management practice can be used effectively; and

(3) The tolerance adopted meets the requirements of this Chapter, including Sections 26905 and 26906; and

(4) The quantity of the pesticide used in this state has been reduced

by at least an average of 10% per year over the five year period from base period use in this State.

(b) A statement as to the basis upon which the proposed regulation is then predicated, and the record then available to the Director shall be made available when notice is issued pursuant to Government Code Section 11346.5.

(c) During any extension authorized pursuant to subdivision (a):

(1) The pesticide shall be a restricted material, subject to Section 14006.5 of the Food and Agricultural Code; and

(2) The Director shall restrict uses and revoke tolerances of the pesticide as necessary in order to reduce the quantity of the pesticide used each year by an average of an additional 10% per year over the extension period from the base period use in this state.

Article 2

26903. (a) The registrant of any high hazard pesticide registered for use on food, or any person on whose behalf a tolerance has been established, may, before November 7, 1994, petition the Director pursuant to Government Code Section 11347 for a determination that the pesticide does not cause cancer. The registrant of any pesticide registered for use on food which is identified after the effective date of this Chapter as a high hazard pesticide, or any person on whose behalf a tolerance for such pesticide has been established, may petition the Director within four years after the identification for a determination that the pesticide does not cause cancer.

(b) Upon the filing of any such petition, the Director shall determine, in accordance with the standards of this Chapter and based on complete and adequate scientific data, whether it has been demonstrated that the pesticide is not known to cause cancer. The criteria for this determination shall be those utilized for classification of a pesticide known to cause cancer as specified in Section 26914(1)(1).

(c) If the Director does not adopt a regulation granting a petition filed pursuant to subdivision (a) within one year after filing, or a petition has not been filed regarding a high hazard pesticide pursuant to subdivision (a), the pesticide shall be known to cause cancer within the meaning of this Chapter, and shall be subject to Section 26901(b) if the pesticide is highly hazardous due to its active ingredient, or shall be subject to Section 26904(a) if the pesticide is highly hazardous because of its inert ingredient.

(d) The Council on Environmental Quality, established by Government Code Section 12260, shall give priority to developing alternatives to the pesticides subject to Sections 26901 and this Section.

26904. (a) No pesticide containing an inert ingredient known to cause cancer or reproductive harm may be registered, nor may a tolerance be established, for a new use on food. Existing registrations for use on food of a pesticide containing an inert ingredient known to cause cancer or reproductive harm shall be cancelled and applicable tolerances revoked within two years of the effective date of this Chapter, or for those subsequently

determined to cause cancer or reproductive harm, within two years of such subsequent determination.

(b) The Director shall not permit the use of any inert ingredient in the formulation of a pesticide registered for use on food unless the inert ingredient presents no significant risk.

Article 3

26905. (a) For any pesticide registered for use on food, the Director shall evaluate the tolerance prescribed or exemption from tolerance, or any other standard permitting pesticide residues of the active ingredient in food, to determine whether the tolerance, exemption or standard complies with the standards specified by this Chapter, including the standard specified by Section 26906. Such evaluations shall be completed: (1) for pesticides subject to Section 26901, by January 1, 1993; (2) for high hazard pesticides, by January 1, 1995; and (3) for all other pesticides, by January 1, 1997. If the data are insufficient for this determination, the Director shall require the registrant to submit additional data as deemed necessary by the Director, but in no case shall the dates herein be extended.

(b) If, pursuant to the evaluation, the Director determines that the pesticide residue fails to meet the requirements of Section 26906, the Director shall, within one year thereafter, revoke or revise the applicable tolerance, exemption, or standard, by regulation, to meet such requirements. If the requirements of Section 26906 cannot be met within the time allowed in this Section, the Director shall establish a zero tolerance.

(c) No pesticide shall be registered for a new use on food without the establishment of a tolerance in accordance with this Section or Section 26906.

(d) Tolerances shall be established based on the total risk of the active ingredient contained in the pesticide, including its metabolites, contaminants and degradation products, but excluding inert ingredients.

26906. (a) A pesticide residue may be permitted in food only if it is demonstrated that the pesticide residue presents no significant risk to human health, including the health of identifiable population groups (particularly infants and children) with special food consumption patterns. The Director shall adopt appropriate tolerances for all pesticides used on food that meet this requirement. In setting tolerances, the Director shall give appropriate consideration to the other ways in which the consumer may be affected by the same pesticide or by related substances that are poisonous or deleterious.

(b) For purposes of this Chapter, the term "no significant risk" means: (1) for pesticides that are known carcinogens or highly hazardous, the level at which the residue will not cause or contribute to a risk of human cancer in the exposed population which exceeds a rate of one in a million, utilizing the most conservative risk assessment model that is generally accepted to be scientifically valid, and which complies with the criteria of Section 12703(a) of Title 22 of the California Code of Regulations. The standard specified in this subparagraph shall also apply to other adverse human health effects of any pesticide as to which there is no generally accepted scientifically valid threshold below which exposure is safe; and (2)

for all pesticides not subject to subparagraph (1), the level at which the pesticide residue will not cause or contribute to any known or potential adverse human health effects, including an ample margin of safety. A margin of safety is not ample unless human exposure per unit of body measurement is at least 1000 times less than the no observable effect level in animals or humans on which the pesticide residue was tested, except that the Director may determine that a lower margin of safety is ample, but in no event lower than 100 times the no observable-effect level, and only if there is complete and reliable exposure and toxicity data.

26907. No later than 30 days after the Director issues a proposed regulation revising a tolerance for a food use pesticide, the registrant or any person on whose behalf a tolerance has been established shall submit data to the Director and the Director of Food and Agriculture demonstrating the appropriate maximum application rates and preharvest intervals necessary to assure that no tolerance is exceeded, and that no worker will suffer impairment of health or functional capacity within the meaning of Section 26950.

26908. The Director shall not grant any new tolerance, and shall not continue, revise or renew an existing tolerance beyond January 1, 1997, unless the registrant, or a person on whose behalf a tolerance has been established, demonstrates that there are practical analytical methods available to monitor the residues of pesticide in food, which methods can reliably, routinely, and efficiently quantify the level of the residue with sensitivity sufficient to enforce all applicable tolerances.

26909. The burden of proof shall, at all times, be on the registrant or the person on whose behalf a tolerance has been established to demonstrate that use of a pesticide conforms to the requirements of Title Three of the Environmental Protection Act of 1990.

26910. In order to protect the health of the People of the State of California, food produced outside of this state, foreign or domestic, which contains a residue of a pesticide which has been cancelled or cannot be registered in this state because of Sections 26901 or 26903, or which is in excess of the amount permitted by Sections 26905 and 26906, is adulterated and unsafe.

Article 4

26911. (a) Notwithstanding any other provision of law, effective July 1, 1991, all of the following functions, authority, and responsibilities are transferred from the Department of Food and Agriculture to the Department of Health Services:

(1) Evaluation of the health risks of pesticide exposure in food, air, water, the workplace and the environment;

(2) Establishment and implementation of specific criteria to evaluate the health risks of pesticides and environmental contaminants and of programs to require that tests be conducted by registrants of pesticides to determine health risks;

(3) Review and evaluation of the validity, adequacy, and completeness

of pesticide test data;

(4) Development and setting of pesticide residue tolerances and permissible amounts of environmental contaminants;

(5) Development and setting of workplace health standards; and

(6) Any other authority necessary to protect public health and the environment from the hazards of pesticides.

(b) The Governor shall take all steps necessary to effectuate the transfer of authority required by subdivision (a), including the transfer of all records, equipment, supplies, personnel positions and funding related to such functions, and if necessary, the submission of a reorganization plan pursuant to Government Code Section 12080.2.

26912. (a) If the Director determines that a pesticide poses a threat of adverse human health effects, the Director may, by regulation, prohibit or restrict the distribution, sale, or use of the pesticide as necessary.

(b) Notwithstanding any other provision of law, the Director of Food and Agriculture may not register, reregister, or otherwise permit the use of any pesticide inconsistent with a regulation adopted by the Director of Health Services pursuant to this Chapter, and no person may distribute, sell or use a pesticide in this state in violation of a regulation adopted by the Director of Health Services pursuant to this Chapter.

26913. (a) Notwithstanding Sections 26901 and 26903, a pesticide may be used in an eradication effort undertaken during a state of emergency declared pursuant to Section 8558 of the Government Code and subject to Chapter 1.5 of Division 4 of the Food and Agricultural Code, if there is no other alternative means of eradication, if the Director concurs in the necessity and safety of the use of the pesticide, and if the use complies with any restrictions deemed necessary by the Director.

(b) Notwithstanding Sections 26901 and 26903, a pesticide may be used to control Africanized bees, mosquitoes, or other human or animal disease vectors pursuant to Chapter 5 of Division 3 or Section 402.

Article 5

26914. The definitions in this section govern the construction of Title 3 of the Environmental Protection Act of 1990, and Chapter 1 of Division 7 of the Food and Agricultural Code:

(a) "Active ingredient" means a pesticide, excluding its inert ingredients, but including its metabolites, contaminants, and degradation product.

(b) "Adverse human health effect" means illness resulting in premature death or severe debilitation.

(c) "Base period use" means the lesser amount reported sold in 1989 or used in 1990.

(d) "Cause or contribute" means the extent to which the pesticide adversely affects human health.

(e) "Classification" by the United States Environmental Protection Agency means inclusion on a list, report, or memorandum, or identified in a final document, which is used as a basis for regulatory action, and including, but not limited to, publication in the Federal Register or otherwise made known to the public by any means.

(f) "Contaminant" means a constituent of a registered² pesticide which is unavoidably produced during the manufacture of the active ingredient.

(g) "Degradation product" means the result of the biotransformation or breakdown of the parent compound by food processing or environmental factors including but not limited to air, sunlight or water.

(h) "Demonstrate" means to meet the burden of proof or establish by clear and convincing evidence.

(i) "Food" is defined by Section 26012.

(j) "High hazard pesticide" means any pesticide containing an active or inert ingredient which is (1) classified by the United States Environmental Protection Agency as a Group C carcinogen pursuant to the guidelines for carcinogen risk assessment published in 51 Federal Register 33992, or a comparable classification based on equivalent criteria under any successor guidelines, including, at a minimum, each pesticide identified as a Group C carcinogen listed in 53 Federal Register 41118; or (2) determined by the Director to create such risk, utilizing the same or similar criteria.

(k) "Inert ingredient" means an ingredient that is not active, as defined in Section 2(m) of the Federal Insecticide, Fungicide and Rodenticide Act and including any contaminant therein or any substance which is the result of metabolism or other degradation of the inert ingredient.

(l) "Known to cause cancer" means (1) classification by the United States Environmental Protection Agency as a Group A or Group B carcinogen pursuant to the guidelines for carcinogen risk assessment published in 51 Federal Register 33992, or a comparable classification based on equivalent criteria under any successor guidelines, and including at a minimum each pesticide identified as a Group A or Group B carcinogen and listed in 53 Federal Register 41118; or (2) listing of a chemical by the Governor as known to the state to cause cancer pursuant to Section 25249.8; or (3) a determination by the Director utilizing the same or similar criteria as used in subparagraphs (1) and (2).

(m) "Known to cause reproductive harm" means a listing of a chemical by the Governor as known to cause reproductive toxicity pursuant to Section 25249.8.

(n) "Metabolite" means the result of biotransformation or breakdown of the parent compound by a living organism.

(o) "No observable effect level" is the level of exposure which reliable experimental data derived from exposing humans or animals shows

that a pesticide induces no adverse effect.

(p) "Pesticide" or "pesticide chemical" means any substance which alone, in chemical combination, or in formulation with one or more substances, is an "economic poison" as defined by Section 12753 of the Food and Agricultural Code or a pesticide as defined in Section 2(u) of the Federal Insecticide, Fungicide and Rodenticide Act, but including the active ingredient, metabolites, contaminants, degradation product, or inert ingredient, and which is used in the production, storage, or transportation of any food.

(q) "Processed food" means any food other than a raw agricultural commodity, and includes any raw agricultural commodity which has been subject to processing, including canning, cooking, freezing, dehydration, or milling.

(r) "Produce" means any food in its raw or natural state which is in such form as to indicate that it is intended for consumer use with or without any or further processing.

(s) "Raw agricultural commodity" is defined by Section 26029.

(t) "Residue" means a residue of any pesticide in any food or any other substance that is present in, or results from, metabolism or other degradation process of the pesticide.

(u) "Toxicity category" means a category established pursuant to Part 162.10(h)(1) of Title 40 of the Code of Federal Regulations.

26915. Nothing in Title Three of the Environmental Protection Act of 1990 shall be construed to remove or diminish the obligations of any person under Chapter 6.6 of Division 20 with regard to any substance to which Title Three applies.

Article 6

26916. (a) No person shall advertise, make any representation or sell any raw agricultural commodity with a representation that the commodity is certified as having "no detected pesticide residue" or any other similar claim, unless all of the following requirements are met:

(1) Documentation providing full disclosure of all pesticides used during any phase of production is submitted to the Department of Health Services and provided with the product to retail sellers;

(2) Laboratory tests for all pesticides used, and commonly used, on the commodity have been conducted for each field lot by a laboratory accredited for such tests by the Department of Health Services, with results of such tests submitted to the Department prior to retail sale;

(3) No pesticide known to cause cancer or reproductive harm, no high hazard pesticide, and no pesticide for which there is no practical analytical method of detection, has been used during any phase of production of the commodity; and

(4) Any residue does not exceed practical detection limits as

determined by the Department or exceed 50 parts per billion, whichever is lower.

(b) The requirements of this Section apply only to raw agricultural commodities advertised, represented, or sold with a representation that the commodity is certified as having "no detected pesticide residue" or other similar claim, and shall not apply to organic and other agricultural commodities defined by Section 26569.11.

(c) This Section shall be effective only until November 7, 1998.

SECTION 4. Sections 13127.1 and 13150.1 are added to the Food and Agricultural Code, to read:

13127.1. "As soon as possible," as used in Section 13127(d)(1) means no later than February 15, 1991.

13150.1. The director may allow the continued registration, sale, and use of an economic poison which meets any one of the conditions specified in Section 13149, only if the Director of Health Services concurs with the findings of the subcommittee and the director pursuant to Section 13150 (c) and (d).

SECTION 5. Section 21080.6 of the Public Resources Code is added, to read:

21080.6 Except as to pesticide use permits, the certification of the pesticide regulatory program pursuant to Section 21080.5 shall expire on July 1, 1992. The Secretary shall not recertify the program unless, in determining whether the program meets the criteria for certification under Section 21080.5, the Secretary determines that the public reports issued by the Departments of Food and Agriculture and Health Services to implement the program satisfy the criteria of Section 21080.5. Public reports issued in making pesticide registration, renewal, and reevaluation decisions shall contain a sufficient explanation and analysis of any significant adverse environmental effects, why any effects are determined not to be significant, and mitigation measures and alternatives, in order to provide sufficient information to the public and department to make an informed decision. Adverse environmental effects discussed shall include the impact on health of humans, plants and animals, and contamination of air, soil, and water.

SECTION 6. Chapter 10 is added to Division 21 of the Health and Safety Code, to read:

Chapter 10. Agricultural Worker Safety

26950. The Director shall develop and implement a worker protection program to prevent or reduce exposure to pesticides to the lowest achievable levels necessary to ensure that no exposed worker will suffer impairment of health or functional capacity, assuming lifetime occupational exposure at such levels. Any standard of general applicability shall be adopted by regulation.

26951. The Director shall require registrants to submit all data necessary to perform his or her duties, including California use condition data, and shall have access to all applicable data, including pesticide use records maintained by the Department of Food and Agriculture or county agricultural commissioners.

26952. No pesticide may be registered, or reregistered, by the Director of Food and Agriculture, unless the Director of Health Services has determined that the pesticide complies with Title Three of the Environmental Protection Act of 1990.

26953. (a) Article 1 (commencing with Section 6700) of Group 3 of Subchapter 3 of Chapter 6 of Title 3 of the California Code of Regulations shall be deemed adopted as standards by the Occupational Safety and Health Standards Board. The Board shall revise such standards by January 1, 1992, to conform to the requirements of this Chapter.

(b) The Standards Board, based on recommendations from the Director, shall adopt regulations which, supported by clear and convincing evidence, shall:

(1) For each crop in this State, prescribe quarantine periods, after pesticide applications to a worksite, during which the entry of workers is prohibited, which periods will prevent the impairment of health or functional capacity of workers;

(2) Require posting of written notices that warn persons to avoid entering pesticide treated areas during such periods, which warnings shall be in addition to any other warnings required by law;

(3) Require county agricultural commissioners to retain all pesticide use records for a period of time sufficient to evaluate chronic health effects of exposure; and

(4) Protect the health and functional capacity of workers and prevent or reduce exposure, as provided in Section 26950.

(c) After January 1, 1992, unless a registrant demonstrates that a shorter quarantine period is safe, the minimum period for Toxicity Category I is 72 hours; for Category II, 48 hours; for Category III, 24 hours; and for pesticides subject to Sections 26901 or 26903, 7 days, or other generic quarantine periods that the Board, by regulation, determines, based on clear and convincing evidence and the recommendations of the Director, will fulfill the purposes of Section 26950.

26954. The Department shall, as lead agency, and with the assistance of the Departments of Industrial Relations and Food and Agriculture, develop a program to ensure the investigation and abatement of any condition where a health hazard from pesticides exists. Investigation and abatement of individual incidents shall be directly supervised by the Department when the Director determines that such supervision is warranted.

SECTION 7. Sections 50.8, 144.7, 144.8, 6393.1 and 6382.1 are added to the Labor Code, to read:

50.8. Chapter 6.6 of Division 20 of the Health and Safety Code, is a provision of state law governing occupational safety and health within the meaning of Section 50.7(a), and the pertinent parts of such Chapter, including Sections 25192 and 25249.7, shall be promptly incorporated into the State Plan.

144.7. The Board shall, by January 1, 1992, adopt regulations providing agricultural workers with rights at least as protective as the rights provided to other workers pursuant to Chapter 2.5, of Part 1 of Division 5. Such regulations shall include all registered pesticides as hazardous substances within the meaning of Section 6382 and shall permit workers, their physicians and representatives appropriate access to material safety data sheets prepared pursuant to Section 6390, and to pesticide use records.

144.8. Nothing in this Code, in the Health and Safety Code, or in the Food and Agricultural Code, shall be construed to limit the authority of the Board to adopt, and the Division to enforce, pesticide safety standards in agricultural employment in this state.

6382.1 "Substances" as used in Section 6382(b)(4) includes all pesticides registered in this state.

6393.1 The term "if the product is labeled pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act, as amended," as used in Sections 6393 and 6397(c), shall not be interpreted to relieve any person, otherwise subject thereto, from the duty to provide an MSDS to a specific purchaser of a pesticide registered in this state.

SECTION 8. Health and Safety Code Sections 26205, 26206, 26801, and 26802 are repealed.

SECTION 9. Labor Code Section 6399.1 is repealed.

SECTION 10. Food and Agricultural Code Sections 12501, 12502, 12503, 12504, 12505, 12561, 12562, 12563, 12565, 12582, 12608.5, 12671, 12980, 12981, 12982, 12985, 12986, 12998, and 13000 are repealed.

SECTION 11. Sections 25249.71, 25249.81, 26205 and 26801 are added to the Health and Safety Code, to read:

25249.71. Any person who has given notice in accordance with Section 25249.7(d) shall be permitted to intervene in any action brought pursuant to Section 25249.7 by the Attorney General, a district attorney, or a city attorney, on such terms as the court finds appropriate.

25249.81. The state's qualified experts identified and consulted pursuant to Section 25249.8(b) and (d) shall be subject to Chapter 7 of Title 9 of the Government Code.

26205. All pesticide and food additive regulations and any amendments adopted thereto pursuant to the federal act, the Health and Safety Code or the

Food and Agricultural Code, which are in effect on November 7, 1990, are the pesticide and food additive regulations in this state unless they are established, revised or revoked pursuant to Sections 26901, 26905 or 26906. The Department may, by regulation, prescribe conditions under which a food additive may be used in this state, whether or not such conditions are in accordance with the regulations adopted pursuant to the federal act.

26801. Any person who violates any provision of this Division or any regulation adopted pursuant to this Division shall be subject to the terms of imprisonment and fines provided by Section 12996 of the Food and Agricultural Code, or to a civil penalty in the amount and subject to the procedures set forth in Section 12998 of the Food and Agricultural Code.

SECTION 12. Sections 12535.5, 12536, 12616, and 12998 are added to the Food and Agricultural Code, to read:

12535.5. The director shall maintain programs to monitor raw agricultural commodities for pesticide residues and other contaminants, using pesticide use and other data, and shall enforce tolerances and other standards for raw agricultural commodities. Monitoring shall emphasize pesticides which pose the greatest health risks, including those which are subject to Sections 26901 and 26903 of the Health and Safety Code, and which pose greater risks to children and infants and other sensitive population subgroups. The director shall also give emphasis to monitoring food imported into California and shall, at least annually, report the results of the programs to the Legislature.

12536. The director shall establish and implement a collection program under which, upon request of an agricultural pesticide user and without cost to the user, the Department shall collect and safely dispose, or arrange for collection and safe disposal, of any pesticide subject to Section 26901 of the Health and Safety Code.

12616. The provisions of this Chapter that apply to produce found to contain pesticide residues or other deleterious ingredients in excess of any maximum quantity or permissible tolerance established pursuant to this Chapter shall also apply to any processed food found to contain pesticide residues or other deleterious ingredients in excess of any maximum quantity or permissible tolerance, and shall also apply to any pesticide residue or other deleterious ingredient in excess of any maximum quantity or tolerances established pursuant to the Health and Safety Code, including Sections 26905 and 26906. However, Section 26901 shall not apply to food that was processed prior to November 7, 1990, or to food which bears a residue of any pesticides subsequently determined to be subject to Section 26901, by operation of Section 26903, that was processed before that subsequent determination. In addition, food processed prior to the revision of any tolerance pursuant to Section 26905 shall not be deemed adulterated.

12998. (a) Any person who violates any provision of this Division, or any regulation adopted pursuant to this Division relating to pesticides, shall be liable for a civil penalty, without regard to intent or negligence, not to exceed ten thousand dollars (\$10,000), or for intentional, negligent or repeated violations, not to exceed twenty-five thousand dollars (\$25,000), for each separate violation, or, for continuing violations, for each day that

the violation continues.

(b) Liability under this Section may be imposed in a civil action or in an administrative proceeding governed by the procedures set forth in Health and Safety Code section 25189.3 or any other provision of law.

(c) Any action brought pursuant to this Division relating to pesticides shall be commenced within three years of the occurrence of the violation or discovery of the facts constituting the grounds for commencing the action.

SECTION 13. Sections 26052 and 26504 of the Health and Safety Code are amended, to read:

26052. The provisions of this division shall be so construed as to not be in conflict with: (1) the provisions of Title 3 of the Environmental Protection Act of 1990 or the Food and Agricultural Code of this state, and the rules and regulations adopted pursuant thereto, but if there is an actual or apparent conflict, Title 3 of the Environmental Protection Act of 1990 shall prevail; or (2) with the provisions of the Alcoholic Beverage Control Act, Division 9 (commencing with Section 23000) of the Business and Professions Code, and the rules and regulations adopted pursuant thereto.

26504. Any added poisonous or deleterious substance, or any food additive, pesticide chemical, active ingredient as defined in Section 26914(a), preservative, or color additive, shall be considered unsafe for use with respect to any food, as defined in Section 26914(i), and such food is therefore adulterated, unless there is in effect a regulation adopted pursuant to Sections 26205, ~~26206, or 26207~~, 26905 or 26906 which limits the quantity and the use, or intended use, of such substance to the terms prescribed by such regulation, and the quantity of residue is within the limits of that regulation.

TITLE FOUR

SECTION 14. Part 7 is added to Division 26 of the Health & Safety Code, to read:

PART 7. GREENHOUSE GAS REDUCTION PLAN

44390. By January 1, 1993, the Energy Resources Conservation and Development Commission shall adopt and implement a plan to reduce annual emissions of any gases which may contribute, directly or indirectly, to global warming. The plan shall provide for the maximum feasible net effective reduction in the global warming potential of these gases. The plan shall also require a net reduction in carbon dioxide emissions of twenty percent (20%) by January 1, 2000, measured from 1988 levels, and forty percent (40%) by January 1, 2010. These percentages shall be adjusted, if necessary, by a correction factor which reflects any difference between the projected rate of population growth in California, and the projected rate for the United States.

For purposes of this Part, "net effective reduction in global warming potential" means a reduction, based on the best evidence available, of

SA89RF0024
Amendment #3

November 17, 1989

Ms. Mary Whitcomb
Initiative Coordinator
Office of the Attorney General
1515 K Street, Suite 511
Sacramento, CA 95814

RECEIVED

NOV 27 1989

INITIATIVE COORDINATOR
ATTORNEY GENERAL'S OFFICE

Re: Environmental Protection Act of 1990

Dear Ms. Whitcomb:

The proponents of the above initiative request that the initiative as submitted be amended, as set forth below.

With regard to the first amendment, we believe that the change will not affect "the revenues or expenditures of the state or local government" within the meaning of Elections Code section 3504, and that no review of the amendment is therefore required by either the Legislative Analyst or the Department of Finance. The other amendments are corrections of typographical errors and are nonsubstantive.

1. At page 18 of the October 25, 1989, text, amend proposed Health and Safety Code section 44453 by amending subdivision (d), and by adding a new subdivision (e). The entire text of section 44453, with these amendments will read:

"44453. (a) Sections 44451 and 44452 shall not be construed to prohibit the continued use or resale of an individual article which contains a Group I or Group II chemical if such product was manufactured, sold or offered for sale or use before any applicable deadline therein.

(b) Section 44451 shall not be construed to prohibit the maintenance or service of any product with a Group I chemical, provided that after January 1, 1997, only recovered and recycled Group I chemicals are used for such purposes.

(c) The Air Resources Board shall adopt regulations as necessary to implement the requirements of this Part, including any additional measures, such as intermediate deadlines, necessary to achieve the purposes of Section 44452(c).

(d) The Board shall adopt regulations under which any person may petition, no later than one year prior to the applicable deadline, for an extension of a deadline established

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November 17, 1989
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under Sections 44451 or 44452. The Board may grant, by regulation, up to three extensions of not more than two years each, provided the petitioner has demonstrated by clear and convincing evidence that:

(1) The petitioner has thoroughly and fairly considered all alternative chemicals, products, or processes that potentially would achieve compliance with the applicable deadline, or which would result in a lower level of ozone depletion;

(2) No such alternative is available for the petitioner's particular application;

(3) If the deadline is extended, the petitioner will implement all commercially available means to prevent the emission of Group I or Group II chemicals to the atmosphere; and

(4) The extension is necessary to avoid substantial and widespread economic and social hardships to the general public.

(e) Notwithstanding the provisions of subdivision (d), the Board may grant an extension or extensions of an applicable deadline as necessary for basic research purposes or for medical purposes."

The intent of these changes is to increase the time for which extensions may be granted, to provide the Air Resources Board with authority to grant multiple extensions of otherwise applicable deadlines as necessary for medical or basic research purposes, and to indicate that the criteria of subdivision (d) (1)-(4) are not applicable to petitions for those latter extensions.

2. At page 12 of the October 25, 1989, text, amend proposed Health and Safety Code section 26952, by correcting the word "reregister" to "registered". The first line of section 26952 will therefore read:

"No pesticide may be registered, or reregistered, by the"

3. At page 15 of the October 25, 1989, text, amend proposed Health and Safety Code section 26052, by correcting the word

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Page Three

"provision" in the sixth line to "provisions". The sixth line of section 26052 will therefore read:

"1990 shall prevail; or (2) with the provisions of the Alcoholic Beverage"

4. At page 15 of the October 25, 1989, text, amend proposed Health and Safety Code section 26504 to underline the period at the end of the section. The last line of that section will accordingly read:

"limits of that regulation."

5. At page 16 of the October 25, 1989, text, amend proposed Health and Safety Code section 44450(b) to correct the name of the designated agency. The second line of section 44450(b) will accordingly read:

"any other chemical determined by the Air Resources Board to have"

6. At page 17 of the October 25, 1989, text, amend proposed Health and Safety Code section 44451(c)(1) by deleting the word "Section" in line 3. Line 3 of section 44451(c)(1) will therefore read:

"43156, whether passenger or commercial, if such vehicle contains a"

7. At page 20 of the October 25, 1989, text, amend proposed Public Resources Code section 4803, by deleting the word "to" in line 5 of subdivision (a). Line 5 of subdivision (a) will accordingly read:

"grants to itself and to other public agencies, public land trusts or"

8. At page 21 of the October 25, 1989, text, amend proposed Public Resources Code section 4806, by adding a comma at the end of line 1. Line 1 of section 4806 will therefore read:

"The bonds authorized by this Chapter shall be prepared,"

9. At page 33 of the October 25, 1989, text, amend proposed Water Code section 13398(f) by striking the word "any" from the

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November 17, 1989
Page Four

first line. The first line now erroneously contains the word "any" twice. Line 1 of section 13398(f) will therefore read:

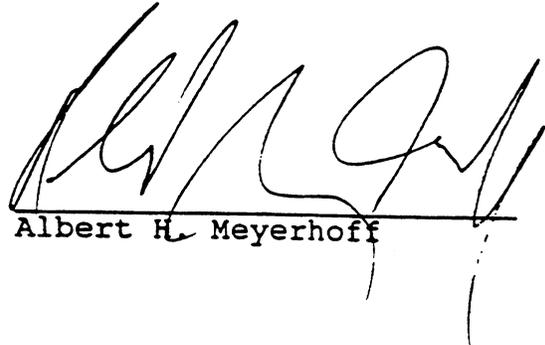
"The regional board and any other agency reviewing"

We have enclosed a revised copy of the initiative which is the final text and incorporates each of these changes.

Yours very truly,



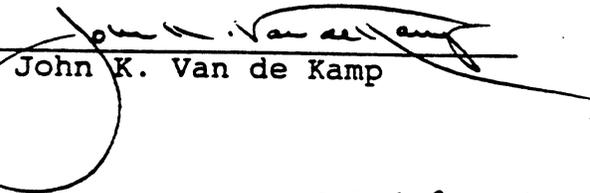
Tom Hayden



Albert H. Meyerhoff



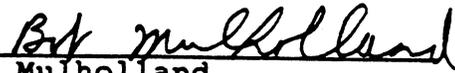
Carl Pope



John K. Van de Kamp



Lloyd Connelly



Bob Mulholland



Michael Picker

Proposition 128
Initiative Statute
Proponents:

August 14, 1990

Tom Hayden
Lloyd Connelly
Albert M. Meyerhoff
Bob Mulholland
Michael Picker
Carl Pope
John K. Van de Kamp

BALLOT TITLE AND SUMMARY

ENVIRONMENT. PUBLIC HEALTH. BONDS. INITIATIVE STATUTE. Requires regulation of pesticide use to protect food and agricultural worker safety. Phases out use on food of pesticides known to cause cancer or reproductive harm, chemicals that potentially deplete ozone layer. Requires reduced emissions of gases contributing to global warming. Limits oil, gas extraction within bay, estuarine and ocean waters. Requires oil spill prevention, contingency plans. Creates prevention, response fund from fees on oil deliveries. Establishes water quality criteria, monitoring plans. Creates elective office of Environmental Advocate. Appropriates \$40,000,000 for environmental research. Authorizes \$300,000,000 general obligation bonds for ancient redwoods acquisition, forestry projects. Summary of Legislative Analyst's estimate of net state and local government fiscal impact: Annual state administrative and program costs of approximately \$90 million, decreasing in future years; partially offset by \$10 million increased annual fee revenue. Local governments would incur \$8 million one-time cost; \$5 million to \$10 million annually, decreasing in future years. State General Fund to incur one-time \$750,000 appropriation in 1992-93 for Office of Environmental Advocate, future office administrative costs unknown; \$40 million for environmental research grants. If all bonds authorized for ancient redwood acquisition, forestry projects were sold at 7.5 percent interest and paid over the typical 20-year period, General Fund would incur approximately \$535 million in costs to pay off principal (\$300 million) and interest (\$235 million). Estimated average annual costs of bond principal and interest would be \$22 million. Per-barrel fee on oil would increase revenues by \$500 million by 1996-97, used to pay oil spill prevention/clean-up costs. Indefinite deferral of potentially \$2 billion in future state oil and gas revenues resulting from limits on oil and gas leases in marine waters. Indirect fiscal impact could increase or decrease state and local government program costs and revenues from general and special taxes in an unknown amount. The overall impact is unknown.

BALLOT LABEL

ENVIRONMENT. PUBLIC HEALTH. BONDS. INITIATIVE STATUTE.

Regulates pesticides, air, water. Authorizes bonds to acquire ancient redwoods. Establishes elected Environmental Advocate. Fiscal impact: Annual state administrative and program costs of approximately \$90 million, decreasing in future years; partially offset by \$10 million increased annual fee revenue. Local governments would incur \$8 million one-time cost, \$5 million to \$10 million annually, decreasing in future years. State General Fund to incur one-time \$750,000 appropriation in 1992-93 for Office of Environmental Advocate; \$40 million for environmental research grants. Future administrative costs of office unknown. If all bonds authorized for ancient redwood acquisition, forestry projects were sold at 7.5 percent interest and paid over the typical 20-year period, General Fund would incur approximately \$535 million in costs to pay off principal (\$300 million) and interest (\$235 million). Estimated average annual costs of bond principal and interest would be \$22 million. Per-barrel fee on oil would increase revenues by \$500 million by 1996-97, used to pay oil spill prevention/clean-up costs. Indefinite deferral of potentially \$2 billion in future state oil and gas revenues resulting from limits on oil and gas leases in marine waters. Indirect fiscal impact could increase or decrease state and local government program costs and revenues from general and special taxes in an unknown amount. The overall impact is unknown.



APPENDIX F
LIST OF RESTRICTED MATERIALS, FOOD AND
AGRICULTURE CODE OF THE STATE OF CALIFORNIA

Article 1. Restricted Materials

6400. Restricted Materials.

The director designates and establishes as necessary to carry out the provisions of Divisions 6 and 7 of the Food and Agricultural Code the pesticides stated in this section as restricted materials.

(a) Pesticides other than those named in this section registered for use in the form of a dust except those products containing only exempt materials specified in Section 6402.

(b) Any pesticide labeled as a restricted use pesticide by the United States Environmental Protection Agency.

(c) Pesticides containing inorganic arsenic.

(d) Pesticides containing cadmium.

(e) Pesticides containing mercury.

(f) Certain carbamate compounds.

(1) Aldicarb (Temik)

(2) Carbaryl (Sevin)

(3) Carbofuran (Furadan) (Except granular formulations containing not more than 10% carbofuran)

(4) Methomyl (Lannate) (Nudrin) (except fly baits containing not more than one percent methomyl)

(g) Certain fumigants

(1) Chloropicrin

(2) Methyl bromide

(3) Aluminum phosphide (Phostoxin)

(4) Carbon bisulfide

(5) Calcium cyanide

(6) Carbon tetrachloride

(7) 1,3-dichloropropene

(8) Ethylene dibromide

(9) Ethylene dichloride

(h) Certain pesticide treated seeds

(1) Seeds treated with mercury compounds

(2) Conifer seeds treated with endrin

(i) Certain avicides

(1) 4-aminopyridine (Avitrol)

(2) 3-chloro-p-toluidine hydrochloride (Starlicide)

(3) Strychnine

(j) Certain rodenticides

(1) Sodium fluoroacetate (Compound 1080)

(2) Strychnine

(3) Zinc phosphide

(k) Certain organic phosphorus pesticides

(1) Azinphosmethyl (Guthion)

(2) Carbophenothion (Trithion)

(3) Dimethyl phosphate of 3-Hydroxy N,N-dimethyl-cisrotonamide (Middrin)

(4) Dimethyl phosphate of 3-Hydroxy-N-methyl-cisrotonamide (Azulrin)

(5) O,S-dimethyl phosphoramidothioate (Monitor)

(6) O,O Dimethyl phosphorodithioate, S-ester with 4-(mercaptomethyl)-2-methoxy-O²-1,3,4-thiadiazolin-S-one (Supracide)

- (7) Demeton (Systox)
- (8) Disulfoton (Di-Syston)
- (9) EPN
- (10) Ethion
- (11) Ethyl 3-methyl-4-(Methylthio) Phenyl (1-Methyl Ethyl) Phosphoramidate (Nemacur)
- (12) Methyl Parathion
- (13) Mevinphos (Phosdrin)
- (14) Parathion
- (15) Phorate (Thimet)
- (16) Phosphamidon
- (17) Schradan (OMPA)
- (18) Sulfotepp
- (19) TEPP
- (20) Dialifor (Torak)
- (21) O,O-Diethyl O-[4-(Methylsulfinyl) Phenyl] Phosphorothioate (Dassanit)
- (22) O-Ethyl S,S-Dipropyl Phosphorodithioate (Mocap)
- (23) S,S,S-Tributyl phosphorotrithioate (DEF)
- (24) Tributyl phosphorotrithioate (Folex)
- (25) Oxydemeton-methyl (Metasystox-R)
- (l) Certain chlorinated organic pesticides
 - (1) Aldrin
 - (2) Benzene Hexachloride (BHC)
 - (3) Chlordane
 - (4) DDD (TDE)
 - (5) DDT
 - (6) Dieldrin
 - (7) Endosulfan (Thiodan)
 - (8) Endrin
 - (9) Heptachlor
 - (10) Lindane
 - (11) Toxaphene
- (m) Certain herbicides
 - (1) 2,4-D (2,4-dichlorophenoxyacetic acid)
 - (2) 2,4-DB (2,4-dichlorophenoxybutyric acid)
 - (3) 2,4-DP (2,4-dichlorophenoxypropionic acid)
 - (4) MCPA (2-methyl-4-chlorophenoxyacetic acid)
 - (5) 2,4,5-T (2,4,5-trichlorophenoxyacetic acid)
 - (6) Silvex (2,4,5-trichlorophenoxypropionic acid)
 - (7) Dicamba (3,6-dichloro-o-anisic acid) (Banvel)
 - (8) Picloram (4-amino-3,5,6-trichloropicolinic acid) (Tordon)
 - (9) Propanil (3,4-dichloropropionanilide)
- (n) Certain other pesticides
 - (1) Paraquat
 - (2) Sodium cyanide
 - (3) Chlordimeform (Fundal) (Calcron)
 - (4) Dinoseb

- (5) 2,4-dinitrophenol
- (6) 4,6-dinitro-o-cresol
- (7) Ethylene dichloride (EDC)
- (8) 2,4-dichlorophenyl p-nitrophenyl ether (TOK)
- (9) Acrolein for use as an aquatic herbicide
- (10) Bentazon (Basagran) for use as a rice herbicide
- (11) Molinate (Ordram)
- (12) Thiobencarb (Bolero)
- (13) Antifouling Paints or Coatings Containing Tributyltin. Paints, coatings, treatments or compounds that contain tributyltin, an organotin, or a tri-organotin compound applied as a substitute for tributyltin, and that is intended to control fouling organisms in a freshwater or marine environment.
- (14) Propargite (Ornite, Cornite).
- (15) Solpet, except:
 - (A) Paints, coatings or caulking compounds containing solpet, or products containing solpet labeled only for adding to paints, coatings or caulking compounds; and
 - (B) Products containing solpet labeled only for home use, with no more than 7.5% solpet.
- (16) Bromoxynil
 - (a) Any pesticide used under an emergency exemption pursuant to Section 18 of the Federal Insecticide, Fungicide, and Rodenticide Act.
 - (j) (Reserved)
 - (q) Pesticides containing active ingredients which have the potential to pollute groundwater, listed in Section 6000(a), when labeled for agricultural, outdoor institutional or outdoor industrial use.
 - (r) No permit shall be required for the restricted materials specified in this subsection when possessed or used by or under the supervision of a certified commercial applicator; nor shall a permit be required for their possession or use by or under the supervision of a private applicator unless the pesticide is included in subsection (b) (federally restricted use).
- (1) Pesticides containing inorganic arsenic as specified in subsection (c) when sold as ready-to-use syrups or pastes registered and labeled for the control of ants.
- (2) Pesticides included only in subsection (a) (dusts) and packaged in containers holding 25 pounds or less, or for such pesticides packaged in containers holding more than 25 pounds registered for and used in enclosed areas such as greenhouses.
- (3) Pesticides used on livestock or poultry in accordance with the registered labeling.
- (4) Pesticides containing paraquat registered and packaged only for home use.
- (5) Pesticides containing O-Ethyl S,S-Dipropyl Phosphorodithioate (Mocap) for other than turf use.
- (6) Pesticides containing a liquid formulation of herbicide included in subsection (m) delivered in a quantity of one pint or less, or such herbicide when delivered as a diluted ready-to-use solution in a quantity of one gallon or less in any 24-hour period.
- (7) Pesticides containing a dry formulation of herbicide included in subsection (m) delivered in a quantity of one pound or less, or containing less than 10 percent of such herbicide prepared for use without further dilution delivered in a quantity of 50 pounds or less in any 24-hour period.
- (8) Pesticides containing a herbicide included in subsection (m) impregnated in wax.

APPENDIX G
COMPILATION OF VARIOUS LISTS OF PESTICIDES THAT COULD BE
CANCELED BY THE ENVIRONMENTAL PROTECTION ACT OF 1990

2

**Environmental Protection Agency List of Food Use Pesticides Which Have Been
Evaluated for Carcinogenicity**

FOOD USE PESTICIDES WHICH HAVE BEEN EVALUATED FOR CARCINOGENICITY

<u>ACTIVE INGREDIENT</u>	<u>GROUP¹</u>
1,3-dichloropropene ³ (Telone II).....	B
acephate	C
acifluorfen.....	B2
alachlor.....	B2
Aliette (fosetyl al).....	C
Amdro.....	B2
amitraz.....	C
Apollo (clofentezine).....	C
arsenic acid (orthoarsenic acid).....	A
asulam.....	C
atrazine.....	C
benomyl ²	C
bifenthrin.....	C
bromoxynil.....	C
captan.....	B2
chlorothalonil.....	B2
cypermethrin.....	C
dichlobenil.....	C
dichlorvos (DDVP).....	C
diclofop methyl.....	C
dicofol.....	B2/C
dimethipin (Harvade).....	C
ethylene oxide.....	B1 for inhalation route, not dietary
ETU (ethylene thiourea).....	B2 (metabolite of the EBDCs, included in their tolerances)
Express	C (Methyl-2 (((N-4 methoxy-6- methyl-1,3,5, triazin-2-yl) N methylamino) carbonyl) amino) sufonyl) benzoate)
folpet.....	B2
fomesafen.....	C
HCB (hexachlorobenzene).....	B2 (contaminant of PCNB)
lactofen.....	B2
lindane.....	B2/C
linuron.....	C
mancozeb ^{2,4} (EBDC).....	treated as B2 (coordination product of zinc ion and manganese ethylene bisdithiocarbamate)
maneb ^{2,4} (EBDC)	treated as B2
MCB.....	C (methyl-2-benzimidazole- carbamate, a metabolite of benomyl and thiophanate methyl)
methidathion.....	C
metiram ^{2,4} (EBDC).....	treated as B2
metolachlor	C
oryzalin	C
oxadiazon	C
oxyflurofen.....	C

parathion.....	C
permethrin	C
phosmet (Imidan).....	C
phosphamidon.....	C
pronamide (Kerb).....	C
propiconazole (Tilt).....	C (dichlorophenyl-4- propyl-1,3-dioxolan-2-yl)methyl-1H-1,2,4-triazole)
Propoxur (Baygon) ³	B2 (food additive petition pending)
p-dichlorobenzene ³	C (para-Dichlorobenzene)
savey (hexathiazox).....	C (trans-5-(4- chlorophenyl))-n-cyclohexyl-4-methyl-2-oxothiazolidine-3- carboxamide)
simazine.....	C
terbutryn	C
tetrachlorvinphos (Gardona).....	C
thiadimenol (Baytan).....	C
thiophanate methyl ²	C
toxaphene	B2
tridiphane	C
trifluralin	C

Pesticides classified D or E, or not yet classified

2,4-D	D
acetamide (metabolite of methomyl)...	pending review
azinphos-methyl (Guthion).....	D
bromacil.....	classification deferred
chloramben.....	pending review
cyromazine ² (Larvadex)	
diallate.....	
dimethyl nitrosamine.....	not classified
(contaminant of dicamba, which is not a carcinogen)	
ethalfluralin.....	
glyphosate.....	D
metalaxyl.....	E
methanearsonic acid	
methomyl ²	(acetamide is metabolite)
PCNB (pentachloronitrobenzene).....	D
thiodicarb ²	(acetamide and methomyl are metabolites)
o-phenylphenol	
paraquat	E

Pesticides with all food uses cancelled

calcium arsenate.....	A
captafol.....	B2
chlordimeform & hydrochloride	B2
chlorobenzilate.....	
copper arsenate.....	A (all tolerances revoked)
lead arsenate.....	A (all food uses cancelled)

June 1988, except use on grapefruit which was voluntarily withdrawn July 1987 and existing stocks were sold)

dinoseb.....	C
DBCP (organic) (dibromochloropropane)	B2
EDB.....	B2
daminozide.....	B2
magnesium arsenate.....	A (all tolerances revoked)
propazine.....	C (registrant cancelled,
EPA checking for any remaining formulators	
sodium arsenate	A (all tolerances revoked)
sodium arsenite	A
potassium arsenite.....	A (all tolerances revoked)
zineb ^{2,4} (EBDC).....	treated as B2 (all food
uses suspended and are proposed for cancellation)	

NOTES:

¹ Classification in accordance with EPA's Cancer Assessment Guidelines those chemicals for which a weight-of-the-evidence determination been made.

- Group A - Human Carcinogen (sufficient evidence of cancer causality from human epidemiologic studies)
- Group B - Probable Human Carcinogen -- B1 (limited evidence of carcinogenicity from human epidemiologic studies); B2 (sufficient evidence of carcinogenicity from animal studies)
- Group C - Possible Human Carcinogen (limited evidence of carcinogenicity in animals in the absence of human data, including malignant tumor response in a single well-conducted experiment not meeting conditions for sufficient evidence, tumor responses of marginal statistical significance in studies having inadequate design or reporting, benign tumors where short-term mutagenicity tests are negative, and responses of marginal statistical significance in a tissue with high background rate)
- Group D - Not Classifiable as to Human Carcinogenicity (either inadequate evidence of carcinogenicity or absence of data)
- Group E - Evidence of Non-Carcinogenicity for Humans (no evidence of carcinogenicity in at least two adequate animal tests in different species or in both adequate epidemiologic and animal studies)

² Included due to potentially oncogenic metabolite or contaminant.

³ Registered uses (formerly not considered to be food uses) which are now defined as food uses. Currently there are no tolerances for these uses.

⁴ Forty-five food uses, not all, proposed for cancellation.

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**Natural Resources Defense Council List of Pesticides
Affected by the California Initiative**



ATTACHMENT B

*Natural Resources
Defense Council*

30 New Montgomery
San Francisco, CA 94105
415 777-0220
Fax 415 498-5220

MEMORANDUM

TO: Interested Parties

FROM: Lawrie Mott and Jennifer Curtis

RE: List of Pesticides Affected by the California Initiative

DATE: May 7, 1990

Here are some comments about the attached lists:

Pesticides To Be Phased Out (Table I)

Thirty food use pesticides are known carcinogens or reproductive toxins. Of these chemicals subject to the phase out, eleven (shaded chemicals) have been cancelled but tolerances are still in effect. Therefore only 19 pesticides now in use are affected by the Initiative.

Pesticides Subject to the Rebuttable Presumption Provision (Table II)

A total of 36 food use pesticides are considered possible carcinogens.

TABLE I

Pesticides to be Phased Out

<u>Chemical</u>	<u>Sources of EPA Classification as A or B¹</u>	<u>Prop. 65²</u>	<u>Pounds Applied in California in 1988³</u>
acifluorfen	FR, RFD, LST	C	NA
alachlor	FR, RFD, LST	C	43,351
arsenic acid	FR	C	NA
captafol ⁴	FR, RFD, LST	C	
captan	FR, RFD, LST	C	199,216
chlordaneform ⁵	FR, RFD, LST	C	NA
chlorothalonil	FR, RFD, LST	C	204,906
cycloheximide		RT	
cyhexatin ⁶		RT	4,245
daminozide ⁷	FR, RFD, LST	C	
1,3-dichloropropene (Telone LB) ⁸	FR, RFD, LST	C	16,120,424

1 Sources for EPA classification as Category A or B carcinogen include: "FR" or Food Additive Regulations Concerning Pesticide Residues: Procedural Regulations, Environmental Protection Agency, 53 Fed. Reg. 41126 (October 19, 1988); "RFD" or "Reference Dose (RfD) Tracking Report," Environmental Protection Agency, March 3, 1990; and "LST" or "List of Chemicals Evaluated for Carcinogenic Potential," Memorandum from Reto Engler, Science Analysis Coordination Branch, to Health Effects Division Branch Chiefs, Environmental Protection Agency, March 9, 1990.

2 These pesticides would be subject to the Initiative because they have been identified as known carcinogens or reproductive toxins under Proposition 65. "C" indicates carcinogen and "RT" indicates reproductive toxin.

3 Pounds reported in California Department of Food and Agriculture, Pesticide Use Report: Annual 1988. These figures may not reflect total usage in California because only applications of "restricted" materials and pesticides applied by licensed pest control operators must be reported. "NA" indicates either poundage figures were not available or the pesticide was not used on a food crop.

4 Shaded chemicals are those pesticides which are cancelled but tolerances are still in effect.

5 Remaining tolerances for residues of chlordaneform on raw agricultural commodities were revoked on October 25, 1989. Tolerances for residues in meat, fat and meat byproducts are still in effect.

6 Cyhexatin was voluntarily cancelled by the registrant on December 31, 1987.

TABLE I (continued)

Chemical	Sources of EPA Classification as A or B ¹	Prop. 65 ²	Pounds Applied in, California in 1988 ³
dicofol ⁹	FR, RFD, LST	C	388,914
dichlorvos (DDVP) ¹⁰	FR, RFD, LST	RT	344
dinoseb			
ethylens dibromide ¹¹	FR, RFD, LST	C	NA
ethylene oxide		C	NA
folpet	FR, RFD, LST	C	36,791
formaldehyde ¹²		C	NA
heptachlor	RFD, LST	C	
hydrmethylnon (Amdro)	FR, RFD, LST		NA
lactofen	FR, RFD, LST	C	NA
lindane ¹³	LST	C	
lead arsenate ¹⁴		C	
mancozeb ¹⁵	FR	C	349,105
maneb ¹⁶	FR	C	585,677
metiram ¹⁷	FR	C	41
PCNB ¹⁸	LST		53,983
sodium arsenite		C	87,090
toxaphene	RFD	C	728
zineb	FR	C	468

7 B2 classification due to carcinogenic metabolite.

8 Use in California of 1,3-D was temporarily suspended on April 13, 1990 by the California Department of Food and Agriculture.

9 Dicofol has been classified by EPA as a C/B2 carcinogen.

10 Dichlorvos has been classified by the EPA as C carcinogen.

11 Tolerances are still in effect for prior use in soybeans.

12 The EPA has concluded that formaldehyde should be categorized as an active ingredient in all products in which it is used, including those in which it is currently intentionally added as an inert ingredient.

13 Lindane has been classified by the EPA as a B2/C carcinogen.

14 Lead arsenate (an inorganic arsenical) was voluntarily cancelled in 1987. However tolerances for its use on citrus have not yet been revoked.

15 See footnote 7.

16 See footnote 7.

17 See footnote 7.

18 See footnote 7.

TABLE II

Pesticides subject to the five year rebuttal period

<u>Chemical</u>	<u>Sources of EPA Classification as C¹</u>	<u>Pounds Applied in California in 1988²</u>
acephate	FR, RFD, LST	461,065
amitraz	FR, RFD, LST	2,942
asulam	FR, RFD, LST	NA
atrazine	FR, RFD, LST	13,900
benomyl	FR, RFD, LST	35,000
bifenthrin	FR, RFD, LST	NA
bromoxynil	RFD, LST	102,370
cypermethrin	RFD, LST	80,289
dichlobenil	LST	457
p-dichlorobenzene	FR, RFD, LST	NA
diclofop-methyl	RFD, LST	42,014
dimethipin (Harvade)	FR, RFD	NA
Express	RFD, LST	NA
fomesafen	RFD, LST	NA
fosetyl-al (Aliette)	FR, RFD, LST	433
hexythiazox (Savey)	RFD, LST	NA
linuron	FR, RFD, LST	25,142
methidathion	FR, RFD, LST	334,662
methomyl ³	LST	1,062,625
metolachlor	FR, RFD	14,130

¹ Sources for EPA classification as Category C carcinogen include: "FR" or Food Additive Regulations Concerning Pesticide Residues: Procedural

TABLE II (continued)

<u>Chemical</u>	<u>Sources of EPA Classification as C¹</u>	<u>Pounds Applied in California in 1988²</u>
oryzalin	FR, RFD, LST	100,321
oxadiazon	FR, RFD, LST	NA
oxyfluorfen	LST	94,824
parathion	FR, RFD, LST	1,098,540
permethrin	RFD, LST	123,656
phosmet	FR, RFD, LST	120,902
phosphamidon	LST	11,909
pronamide	FR, RFD	NA
propazine	FR, RFD	NA
propioconazole	FR, RFD, LST	NA
simazine	LST	135,311
terbutryn	FR, RFD, LST	NA
tetrachlorvinphos	FR, RFD	NA
triadimenol (Baytan)	FR	NA
tridiphane	FR, RFD, LST	NA
trifluralin	FR, RFD	559,071

Regulations, Environmental Protection Agency, 53 Fed. Reg. 41126 (October 19, 1988); and "RFD" or "Reference Dose (RfD) Tracking Report," Environmental Protection Agency, March 3, 1990; and "LST" or "List of Chemicals Evaluated for Carcinogenic Potential," Memorandum from Reto Engler, Science Analysis Coordination Branch, to Health Effects Division Branch Chiefs, Environmental Protection Agency, March 9, 1990.

² Pounds reported in California Department of Food and Agriculture, Pesticide Use Report: Annual 1988. These figures may not reflect total usage in California because only applications of "restricted" materials and pesticides applied by licensed pest control operators must be reported. "NA" indicates either poundage figures were not available or the pesticide was not applied to a food crop.

³ C classification due to oncogenic metabolite.

**National Agricultural Chemical Association List of Active Ingredients Subject to
Phase Out Under the Initiative**

**Active Ingredients Subject to
Phase Out Under the Hayden Initiative**

Table I

No.	Common Name	Trade Name(s)	EPA Carcinogen Classification	Tolerances Established Under 40CFR
1	Captan	Orthocide	B2	180.103
2	Acephate	Orthene	C	180.108
3	Parathion	Parathion	C	180.121
4	Lindane	Isotox, BHC	B2/C	180.133
5	EBDC's	Various	B2	180.110 180.115 180.176
6	Dicofol	Kelthane	B2/C	180.163
7	Linuron	Lorox	C	180.184
8	Folpet	Phaltan	B2	180.191
9	Trifluralin	Treflan	C	180.207
10	Simazine	Princep	C	180.213
11	Atrazine	Aatrex	C	180.220
12	Phosphamidon	Swat	C	180.239
13	Tetrachlorvinphos	Gardona, Rabon	C	180.252
14	Phosmet	Imidan	C	180.261
15	Chlorothalonil	Bravo	B2	180.275
16	Amitraz	Mitac, Ovasyn	C	180.294
17	Benomyl	Benlate	C	180.294
18	Methidathion	Supracide	C	180.298
19	Pronamide	Kerb	C	180.217
20	Bromoxynil	Buctril	C	180.324
21	Oxadiazon	Ronstar	C	180.346
22	Asulam	Asulox	C	180.360
23	Metolachlor	Dual	C	180.368

**Active Ingredients Subject to
Phase Out Under the Hayden Initiative**

Table I

<u>No.</u>	<u>Common Name</u>	<u>Trade Name(s)</u>	<u>EPA Carcinogen Classification</u>	<u>Tolerances Established Under 40CFR</u>
24	Thiophanate-methyl	Topsin-M	C	180.371
25	Permethrin	Ambush, Pounce	C	180.378
26	Oxyfluorfen	Goal	C	180.381
27	Dimethipin	Harvade	C	180.406
28	Triadimenol	Baytan	C	180.410
29	Cypermethrine	Ammo, Cymbush	C	180.418
30	Tridiphane	Tandem	C	180.424
31	Lactofen	Cobra	B2	180.432
32	Propiconazole	Tilt	C	180.434
33	Tribunuron-methyl	Express	C	180.439
34	Hexathiazox	Savey	C	180.448
35	Diclobenil	Casoron	C	180.231
36	Alachlor	Lasso	B2	180.249
37	Oryzalin	Surflan	C	180.304
38	Acifluorfen	Goal	B2	180.383
39	Diclofop-methyl	Hoelon	C	180.385
40	Bifenthrin	Brigade	C	180.442
41	Clofentazine	Apollo	C	180.446
42	Fosetyl-Al	Aliette	C	180.415
43	Fomesafen	Reflex	C	180.433
44	Terbutryn	Igran	C	180.265

**University of California Davis List of Potential Pesticides That Would be Canceled
for Food Use by the Initiative**

TABLE 1. Potential pesticide registration actions under Proposition 65

IMPACT: Does not cancel pesticide use; focuses on providing information to consumers at the marketplace. Some pesticides are not used on food crops in the U.S.

CRITERIA FOR INCLUSION ON THIS LIST: Identified by the California Scientific Advisory Panel or by a recognized authoritative body as being known to cause cancer or reproductive toxicity.

LIST: 20 registered active ingredients

Fungicides:	<i>(continued)</i>
cadmium & its compounds	amitrole
captan	oxadiazon
chlorothalonil	Insecticides:
folpet	dichlorvos
formaldehyde	lindane
mancozeb	paradichlorobenzene
maneb	Nematicides:
metiram	1,3-dichloropropene
zineb	Others:
Herbicides:	ethylene oxide
acifluorfen	propylene oxide
alachlor	warfarin

TABLE 2. Potential pesticide registration actions under FIFRA 1988

IMPACT: More than 4,000 pesticide uses on food crops are subject to reregistration under this federal law. Approximately 1,000 high-priority minor uses will not be supported by the registrants and could be lost.* One or more uses of each chemical on the list could be canceled.

CRITERIA FOR INCLUSION ON THIS LIST: Registrant not willing to provide data required by EPA for continued use on one or more crops.

LIST: 80 registered active ingredients

Fungicides:	<i>(continued)</i>
anilazine	thidiazuron
benomyl	vernolate
calcium hypochlorite	Insecticides:
captan	allethrin
chlorothalonil	aluminum phosphide
copper compounds	azinphosmethyl
dicloran	chlorpyrifos-methyl
dinocap	cryolite
folpet	diazinon
mancozeb	dichlorvos
maneb	dicofol
methyl bromide	dicrotophos
metiram	dimethoate
nitrapyrin	endosulfan
PCNB	ethion
propionic acid	lindane
sodium arsenite	metaldehyde
sodium hypochlorite	methidathion
streptomycin	methiocarb
sulfur	methomyl
thiabendazole	mevinphos
triadimefon	naled
zineb	nicotine
ziram	oxydemeton-methyl
Herbicides:	parathion
2,4-D	petroleum oils
2,4-DB	phorate
atrazine	phosalone
bifenox	phosmet
chloramben	phosphamidon
chloroprotham	resmethrin
DCPA	rotenone
dichlobenil	ryanodine
diclofop-methyl	sulfur
fluaazifop-P-butyl	trichlorfon
mefluidide	Nematicides:
metolachlor	fenamiphos
norflurazon	Plant Growth Regulators:
oryzalin	4-CPA
prometryn	ethephon
simazine	gibberellic acid
sodium chlorate	maleic hydrazide
terbacil	

The active ingredients formulated into hundreds of pesticide products may be canceled if EPA 1990 is adopted by California's voters. Additional withdrawals are possible over time as the laws are interpreted and as pesticide registrants decide to withdraw registrations. Combined, these three laws would result in major modifications of current pesticide use.

Tables 1, 2, and 3 respectively present our estimate of the chemicals affected by Proposition 65, FIFRA 1988, and EPA 1990, as well as the criteria for inclusion on those lists. The tables summarize potential use cancellations that may result from each of the three laws. Twenty registered active ingredients are covered by Proposition 65. FIFRA 1988 affects 80 registered pesticide ingredients and EPA 1990 could force cancellation of at least 40 active ingredients. No major pesticide classification is exempt; fungicides, herbicides, insecticides, and nematicides all are affected. The total number of registrations, the total number of formulations, and the total number of uses for the active ingredients that may be canceled by FIFRA 1988 and EPA 1990 (tables 2 and 3) have not been determined at this time.

Two existing laws

Proposition 65, the Safe Drinking Water and Toxic Enforcement Act, does not cancel pesticide registrations. The law provides information to consumers at the marketplace and restricts the discharge of certain chemicals into the waterways. The law establishes a sci-

TABLE 3. Potential pesticide registration actions under EPA 1990

IMPACT: The Environmental Protection Act of 1990 is an initiative that, if approved by California's voters, would result in the cancellation of all food crop uses of the listed pesticides over a period of approximately 5 to 13 years.

CRITERIA FOR INCLUSION ON THIS LIST: Chemical metabolite or contaminant designated as B or C carcinogen by EPA or as a carcinogen or terratogen under Proposition 65.

LIST: 40 registered active ingredients

Fungicides:	<i>(continued)</i>
benomyl*	oxyfluorfen*
captan	simazine*
chlorothalonil	trifluralin*
folpet	Insecticides:
formaldehyde	acephate*
fosetyl-al*	amitraz*
mancozeb	cypermethrin*
maneb	dichlorvos
metiram	dicofol
sodium arsenite	lindane
thiophanate methyl*	methidathion*
zineb	paradichlorobenzene
Herbicides:	parathion*
acifluorfen	permethrin*
alachlor	phosmet*
atrazine*	phosphamidon*
bromoxynil*	Nematicides:
diclofop methyl*	1,3-dichloropropene
linuron*	Others:
metolachlor*	ethylene oxide
oryzalin*	propylene oxide
oxadiazon	warfarin

*C-list compound, will retain registration only if evaluated as being non-carcinogenic within 10 to 13 years.

TABLE 4. Inert ingredients causing potential pesticide product cancellations as a result of the Environmental Protection Act of 1990

acetaldehyde	<i>(continued)</i>
benzene	methylene chloride
ethyl alcohol	methylene oxide
ethylene oxide	mineral oils
formaldehyde	silica (respirable, crystalline)
heavy metals	soots
lead	tars

Pesticide products containing the above-listed inert ingredients will be canceled under EPA 1990. To retain registration, registrants will have to reformulate using other inert ingredients or will have to remove the contaminants in the intentionally added inert ingredients.

SOURCE: CDFA 1990.

*SOURCE: IR-4 reregistration database, 1990.

**California Department of Food and Agriculture List of Pesticides That Would be
Canceled for Food Use by the Initiative**

California Registered Pesticides with Established Tolerances on the
EPA or Proposition 65 Lists

PESTICIDES SCHEDULED TO BE BANNED BY 1/1/96:

List	Common Name
EPA Group B2	Aciflourfen
Carcinogen	Alachlor
Per FR 41118	Captan
	Chlorothalonil
	1,3-dichloropropene
	Dichlorovos (DDVP)
	Dicofol
	Hydramethylnon
	Lindane (per EPA HED/OPP 12/5/88 document only)
	Mancozeb
	Maneb
	Metiram
	Oxadiazon (per EPA HED/OPP 12/5/88 doc. only)
	Zineb

Proposition 65	(Alachlor)
Active Ingredients	(Chlorothalonil)
List July 1, 1989	(1,3-dichloropropene)
	(DDVP)
	Ethylene Oxide
	Propylene Oxide

Proposition 65	Acetaldehyde
Inerts as provided	Benzene
by WACA	Ethylene Thiourea (ETU)
	Formaldehyde (Gas)
	Silica (crystalline of respirable size)
	Lead
	Dichloromethane
	Methylene chloride
	Methylene oxide
	Ethylene oxide
	Heavy metals
	Ethyl Alcohol
	Soots, Tars, Mineral Oils

CA Registered Pesticides

HIGH HAZARD PESTICIDES -- PETITIONS MUST BE SUBMITTED BY 11/7/94

<u>List</u>	<u>Common Name</u>
EPA Group C	Acephate
Carcinogen	Alliete
Per FR 41118	Amitraz
	Atrazine
	Benomyl
	Bromoxynil (per EPA HED/OPP 12/5/88 doc. only)
	Bifenthrin
	Bromoxynil
	Cypermethren
	Dimithipin
	Glyphosate (per EPA HED/OPP 12/5/88 doc. only)
	Linuron
	Methidathion
	Metolachlor
	Oryzalin
	Oxadiazon (per EPA HED/OPP 12/5/88 doc. only)
	Paraquat
	Parathion
	Permethrin
	Phosmet (Imidan)
	Pronamide (Kerb)
	Tetrachlorvinphos
	Trifluralin

List prepared 1/10/90 and is subject to revision.

JB.1

Food Use Active Ingredients with Data Gaps* under SB 950
(The first 200 - Reference Food and Agricultural Code Section 13127)

CHEMICAL NAME

ALACHLOR
ALLETHRIN
CAPTAN
CARBOFURAN
CHLORFLURENOL, METHYL ESTER
CHLORONEB
CHLOROPICRIN
CHLOROTHALONIL
CHLORSULFURON
2,4-D
2,4-D, BUTOXYETHANOL ESTER
2,4-D, DIETHANOLAMINE SALT
2,4-D, DIMETHYLAMINE SALT
2,4-D, N,N-DIMETHYLOLEYL-LINOLEYLAMINE SALT
2,4-D, DODECYLAMINE SALT
2,4-D, ETHYLHEXYL ESTER
2,4-D, ISOOCTYL ESTER
2,4-D, ISOPROPYL ESTER
2,4-D, N-OLEYL-1,3-PROPYLENEDIAMINE SALT
2,4-D, PROPYL ESTER
2,4-D, TETRADECYLAMINE SALT
2,4-D, TRIETHYLAMINE SALT
DCPA (CHLORTHAL DIMETHYL)
DICAMBA, DIMETHYLAMINE SALT
DICHLOBENIL
DICHLORVOS (DDVP)
DICLOFOP-METHYL
DIETHATYL-ETHYL
DIPHENAMID
DIURON
ENDOTHALL
EPTC
ETHALFLURALIN
ETHYLENE OXIDE
FENTHION
FERBAM
FLUORINE COMPOUNDS (CRYOLITE)
FORMALDEHYDE
MALEIC HYDRAZIDE
MALEIC HYDRAZIDE, POTASSIUM SALT
MANEB
MEFLUIDIDE, DIETHANOLAMINE SALT
METALDEHYDE
METAM-SODIUM
METHYL PARATHION
MSMA

*No data pending review or committment to generate data on file

Data Gaps

CHEMICAL NAME

NAPTALAM, SODIUM SALT
PARAQUAT DICHLORIDE
PARATHION (ETHYL PARATHION)
PEBULATE
PETROLEUM DISTILLATES
PETROLEUM DISTILLATES, AROMATIC
PETROLEUM DISTILLATES, REFINED
PETROLEUM HYDROCARBONS
PETROLEUM OIL, UNCLASSIFIED
ORTHO-PHENYLPHENOL
ORTHO-PHENYLPHENOL, SODIUM SALT
PHOSALONE
PIPERONYL BUTOXIDE
PRONAMIDE (PROPYZAMIDE)
ROTENONE
SODIUM ARSENITE
TERRAZOLE
THIABENDAZOLE
THIABENDAZOLE, HYPOPHOSPHITE SALT
THIOPHANATE-METHYL
TRIADIMEFON
TRIFLURALIN
VERNOLATE
ZIRAM

List prepared 1/10/90 and is subject to revision.

APPENDIX H
LIST OF FOUR-DIGIT LEVEL HARMONIZED TARIFF SCHEDULE NUMBERS
COVERED BY THE INVESTIGATION

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
		Animal Protein Complex
		Chapter 2: Meat and Edible Meat Offal
0201	Fresh beef	Meat of bovine animals, fresh or chilled
0202	Frozen beef	Meat of bovine animals, frozen
0203	Pork	Meat of swine, fresh, chilled, or frozen
0204	Lamb meat	Meat of sheep or goats, fresh, chilled or frozen
0205	Horse meat	Meat of horses, asses, mules or hinnies, fresh, chilled or frozen
0206	Edible offal	Edible offal of bovine animals, swine, sheep, goats, horses, asses, mules or hinnies, fresh, chilled or frozen
0207	Poultry	Meat and edible offal, of the poultry of heading 0105, fresh, chilled or frozen
0208	Other meat	Other meat and edible meat offal, fresh, chilled or frozen
0209	Pig fat	Pig fat free of lean meat and poultry fat (not rendered), fresh, chilled, frozen, salted, in brine, dried or smoked
0210	Salt meat	Meat and edible meat offal, salted, in brine, dried or smoked; edible flours and meals of meat or meat offal
		Chapter 3: Fish and Crustaceans, Molluscs and Other Aquatic Invertebrates
0302	Fresh fish	Fish, fresh or chilled, excluding fish fillets and other fish meat of heading 0304

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
0303	Frozen fish	Fish, frozen, excluding fish fillets and other fish meat of heading 0304
0304	Fish fillets	Fish fillets and other fish meat (whether or not minced), fresh, chilled or frozen
0305	Preserved fish	Fish, dried, salted or in brine; smoked fish, whether or not cooked before or during the smoking process, fish meal fit for human consumption
0306	Crustaceans	Crustaceans, whether in shell or not, live, fresh, chilled, frozen, dried, salted, or in brine; crustaceans, in shell, cooked by steaming or by boiling in water, whether or not chilled, frozen, dried, salted or in brine
0307	Molluscs	Molluscs, whether in shell or not, live, fresh, chilled, frozen, dried, salted or in brine; aquatic invertebrates other than crustaceans and molluscs, live, fresh, chilled, frozen, dried, salted or in brine
Chapter 4: Dairy Produce; Birds' Eggs; Natural Honey; Edible Products of Animal Origin, Not Elsewhere Specified or Included		
0401	Milk, cream	Milk and cream, not concentrated nor containing added sugar or other sweetening matter
0402	Condensed milk	Milk and cream, concentrated or containing added sugar or other sweetening matter
0403	Buttermilk	Buttermilk, curdled milk and cream, yogurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavored or containing added fruit, nuts or cocoa
0404	Whey	Whey, whether or not concentrated or containing added sugar or other sweetening matter; products consisting of natural milk constituents, whether or not containing added sugar or other sweetening matter, not elsewhere specified or included

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
0405	Butter	Butter and other fats and oils derived from milk
0406	Cheese	Cheese and curd
0407	Eggs, inshell	Birds' eggs, in shell, fresh, preserved or cooked
0408	Egg, shelled	Birds' eggs, not in shell, and egg yolks, fresh, dried, cooked by steaming or by boiling in water, molded, frozen or otherwise preserved, whether or not containing added sugar or other sweetening matter
0409	Honey	Natural honey
0410	Other canned	Edible products of animal origin, not elsewhere specified or included

Chapter 15: Animal or Vegetable Fats and Oils and Their Cleavage Products; Prepared Edible Fats; Animal or Vegetable Waxes

1501	Lard	Lard; other pig fat and poultry fat, rendered, whether or not pressed or solvent-extracted
1502	Tallow	Fats of bovine animals, sheep or goats, raw or rendered, whether or not pressed or solvent-extracted
1503	Stearin oils	Lard stearin, lard oil, oleostearin, oleo-oil and tallow oil, not emulsified or mixed or otherwise prepared
1504	Fish oil	Fats and oils and their fractions, of fish or marine mammals, whether or not refined, but not chemically modified
1506	Other fats	Other animal fats and oils and their fractions, whether or not refined, but not chemically modified

Chapter 16: Preparations of Meat, of Fish or of Crustaceans, Molluscs or Other Aquatic Invertebrates

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
1601	Sausages	Sausages and similar products, of meat, meat offal or blood; food preparations based on these products
1602	Other prep meat	Other prepared or preserved meat, meat offal or blood
1603	Meat, fish extr	Extracts and juices of meat, fish or crustaceans, molluscs or other aquatic invertebrates
1604	Prepared fish	Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs
1605	Prep crustaceans	Crustaceans, molluscs and other aquatic invertebrates, prepared or preserved
Chapter 21: Miscellaneous Edible Preparations		
2105	Ice cream	Ice cream and other edible ice, whether or not containing cocoa
Chapter 35: Albuminoidal Substances; Modified Starches; Glues; Enzymes		
3501	Casein	Casein, caseinates and other casein derivatives; casein glues
3502	Albumins	Albumins, albuminates and other albumin derivatives
Raw Agricultural Crops		
Chapter 7: Edible Vegetables and Certain Roots and Tubers		
0701	Potatoes	Potatoes, fresh or chilled
0702	Tomatoes	Tomatoes, fresh or chilled
0703	Onions	Onions, shallots, garlic, leeks and other alliaceous vegetables, fresh or chilled

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
0704	Cabbage, broccoli	Cabbages, cauliflower, kohlrabi, kale and similar edible brassicas, fresh or chilled
0705	Lettuce	Lettuce (<u>Lactuca sativa</u>) and chicory (<u>Cichorium spp.</u>), fresh or chilled
0706	Carrots	Carrots, turnips, salad beets (salad beetroot), salsify, celeriac, radishes and similar edible roots, fresh or chilled
0707	Cucumbers	Cucumbers, including gherkins, fresh or chilled
0708	Beans and peas	Leguminous vegetables, shelled or unshelled, fresh or chilled
0709	Vegetables, nes	Other vegetables, fresh or chilled
0713	Dried beans/peas	Dried leguminous vegetables, shelled whether or not skinned or split
0714	Cassava, roots	Cassava (manioc), arrowroot, salep, Jerusalem artichokes, sweet potatoes and similar roots and tubers with high starch or inulin content, fresh or dried, whether or not sliced or in the form of pellets; sago pith
Chapter 8: Edible Fruit and Nuts; Peel of Citrus or Melons		
0801	Coconuts	Coconuts, Brazil nuts and cashew nuts, fresh or dried, whether or not shelled or peeled
0802	Nuts, nesoi	Other nuts, fresh or dried, whether or not shelled or peeled
0803	Bananas	Bananas and plantains, fresh or dried
0804	Dates	Dates, figs, pineapples, avocados, guavas, mangoes and mangosteens, fresh or dried
0805	Citrus	Citrus fruit, fresh or dried
0806	Grapes, raisins	Grapes, fresh or dried

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
0807	Melons	Melons (including watermelons) and papayas (papaws), fresh
0808	Apples, pears	Apples, pears and quinces, fresh
0809	Stone fruit	Apricots, cherries, peaches (including nectarines), plums (including prune plums) and sloes, fresh
0810	Fruits, nesoi	Other fruit, fresh
0814	Citrus peel	Peel of citrus fruit or melons (including watermelons), fresh, frozen, dried or provisionally preserved in brine, in sulfur water or in other preservative solutions
Chapter 9: Coffee, Tea, Mate and Spices		
0901	Coffee	Coffee, whether or not roasted or decaffeinated; coffee husks and skins; coffee substitutes containing coffee in any proportion
0902	Tea	Tea
0903	Mate	Mate
0904	Pepper	Pepper or the genus <u>Piper</u> ; dried or crushed or ground fruits of the genus <u>Capsicum</u> (peppers) or of the genus <u>Pimenta</u> (e.g., allspice)
0905	Vanilla beans	Vanilla beans
0906	Cinnamon	Cinnamon and cinnamon-tree flowers
0907	Cloves	Cloves (whole fruit, cloves and stems)
0908	Nutmeg	Nutmeg, mace and cardamoms
0909	Seeds of anise	Seeds of anise, badian, fennel, coriander, cumin, caraway or juniper
0910	Spices, nesoi	Ginger, saffron, turmeric (curcuma), thyme, bay leaves, curry and other spices

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
		Chapter 10: Cereals
1001	Wheat	Wheat and meslin
1002	Rye	Rye
1003	Barley	Barley
1004	Oats	Oats
1005	Corn	Corn (maize)
1006	Rice	Rice
1007	Sorghum	Grain sorghum
1008	Buckwheat	Buckwheat, millet and canary seed; other cereals (including wild rice)
		Chapter 12: Oil Seeds and Oleaginous Fruits; Miscellaneous Grains, Seeds and Fruit; Industrial or Medicinal Plants; Straw and Fodder
1201	Soybean	Soybeans, whether or not broken
1202	Peanuts	Peanuts (ground-nuts), not roasted or otherwise cooked, whether or not shelled or broken
1203	Copra	Copra
1204	Flaxseed	Flaxseed (linseed), whether or not broken
1205	Rapeseed	Rape or colza seeds, whether or not broken
1206	Sunflower	Sunflower seeds, whether or not broken
1207	Misc. oilseeds	Other oil seeds and oleaginous fruits, whether or not broken
1210	Hops	Hop cones, fresh or dried, whether or not ground, powdered or in the form of pellets; lupulin

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
1214	Rutabagas	Rutabagas (swedes), mangolds, fodder roots, hay, alfalfa (lucerne), clover, sainfoin, forage kale, lupines, vetches and similar forage products, whether or not in the form of pellets
		Chapter 18: Cocoa and Cocoa Preparations
1801	Cocoa beans	Cocoa beans, whole or broken, raw or roasted
		Chapter 23: Residues and Waste From the Food Industries; Prepared Animal Feed
2301	Flours of meat	Flours, meals and pellets, of meat or meat offal, of fish or of crustaceans, molluscs or other aquatic invertebrates, unfit for human consumption; greaves (cracklings)
2302	Bran, sharps	Bran, sharps (middlings) and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals or of leguminous plants
2303	Residues, starch	Residues of starch manufacture and similar residues, beet-pulp, bagasse and other waste of sugar manufacture, brewing or distilling dregs and waste, whether or not in the form of pellets
2304	Oilcake, soy	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of soybean oil
2305	Oilcake, peanut	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of peanut (ground-nut) oil

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
2306	Oilcake, vegetable	Oilcake and other solid residues, whether or not ground or in the form of pellets, resulting from the extraction of vegetable fats or oils, other than those of heading 2304 or 2305
2307	Wine lees	Wine lees; argol
2308	Vegetable residues	Vegetable materials and vegetable waste, vegetable residues and byproducts, whether or not in the form of pellets, of a kind used in animal feeding, not elsewhere specified or included
2309	Animal feed	Preparations of a kind used in animal feeding

Processed Agricultural Crops

Chapter 7: Edible Vegetables and Certain Roots and Tubers

0710	Froz. vegetables	Vegetables (uncooked or cooked by steaming or boiling in water), frozen
0711	Preserved vegetables	Vegetables provisionally preserved (for example, by sulfur dioxide gas, in brine, in sulfur water or in other preservative solutions), but unsuitable in that state for immediate consumption
0712	Dried vegetables	Dried vegetables (except leguminous vegetables), whole, cut, sliced, broken or in powder, but not further prepared

Chapter 8: Edible Fruit and Nuts; Peel of Citrus Fruit or Melons

0811	Frozen fruit	Fruit and nuts, uncooked or cooked by steaming or boiling in water, frozen, whether or not containing added sugar or other sweetening matter
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<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
0812	Preserved fruit	Fruit and nuts, provisionally preserved (for example, by sulfur dioxide gas, in brine, in sulfur water or in other preservative solutions), but unsuitable in that state for immediate consumption
0813	Dried fruit	Fruit, dried, other than that of headings 0801 to 0806; mixtures of nuts or dried fruits of this chapter
Chapter 11: Products of the Milling Industry; Malt; Starches; Inulin; Wheat Gluten		
1101	Wheat flour	Wheat or meslin flour
1102	Cereal flours	Cereal flours other than of wheat or meslin
1103	Cereal groats	Cereal groats, meal and pellets
1104	Cereal grains	Cereal grains otherwise worked (for example, hulled, rolled, flaked, pearled, sliced or kibbled), except rice of heading 1006; germ of cereals, whole, rolled, flaked or ground
1105	Potato flour	Flour, meal and flakes of potatoes
1106	Vegetable/fruit flour	Flour and meal or the dried leguminous vegetables of heading 0713, of sago or of roots or tubers of heading 0714; flour, meal and powder of the products of chapter 8
1107	Malt	Malt, whether or not roasted
1108	Starches	Starches; inulin
1109	Wheat gluten	Wheat gluten, whether or not dried

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
		Chapter 12: Oil Seeds and Oleaginous Fruits; Miscellaneous Grains, Seeds and Fruit; Industrial or Medicinal Plants; Straw and Fodder
1208	Oilseed flour	Flours and meals of oil seeds or oleaginous fruits, other than those of mustard
		Chapter 15: Animal or Vegetable Fats and Oils and Their Cleavage Products; Prepared Edible Fats; Animal or Vegetable Waxes
1507	Soybean oil	Soybean oil and its fractions, whether or not refined, but not chemically modified
1508	Peanut oil	Peanut (ground-nut) oil and its fractions, whether or not refined, but not chemically modified
1509	Olive oil	Olive oil and its fractions, whether or not refined, but not chemically modified
1510	Olive oil blends	Other oils and their fractions, obtained solely from olives, whether or not refined, but not chemically modified, including blends of these oils and fractions with oils or fractions of heading 1509
1511	Palm oil	Palm oil and its fractions, whether or not refined, but not chemically modified
1512	Sunfl/cott	Sunflower-seed, safflower or cottonseed oil, and fractions thereof, whether or not refined, but not chemically modified
1513	Coconut/palm oil	Coconut (copra), palm kernel or babassu oil, and fractions thereof, whether or not refined, but not chemically modified
1514	Rapeseed oil	Rapeseed, colza or mustard oil, and fractions thereof, whether or not refined, but not chemically modified

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
1515	Vegetable oils	Other fixed vegetable fats and oils (including jojoba oil) and their fractions, whether or not refined, but not chemically modified
1516	Fats/oils, hydro	Animal or vegetable fats and oils and their fractions, partly or wholly hydrogenated, interesterified, reesterified or elaidinized, whether or not refined, but not further prepared
1517	Margarine	Margarine; edible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this chapter, other than edible fats or oils or their fractions of heading 1516
1518	Misc. oils	Animal or vegetable fats and oils and their fractions, boiled, oxidized, dehydrated, sulfurized, blown, polymerized by heat in vacuum or in inert gas or otherwise chemically modified, excluding those of heading 1516; inedible mixtures or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this chapter, not elsewhere specified or included

Chapter 17: Sugars and Sugar Confectionery

1701	Cane/beet sugar	Cane or beet sugar and chemically pure sucrose, in solid form
1702	Sugars, nesoi	Other sugars, including chemically pure lactose, maltose, glucose and fructose, in solid forms; sugar syrups not containing added flavoring or coloring matter; artificial honey, whether or not mixed with natural honey; caramel
1703	Molasses	Molasses resulting from the extraction or refining of sugar

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
1704	Confectionery	Sugar confectionery (including white chocolate), not containing cocoa
Chapter 18: Cocoa and Cocoa Preparations		
1803	Cocoa paste	Cocoa paste, whether or not defatted
1804	Cocoa butter	Cocoa butter, fat and oil
1805	Cocoa powder	Cocoa powder, not containing added sugar or other sweetening matter
1806	Chocolate	Chocolate and other food preparations containing cocoa
Chapter 19: Preparations of Cereals, Flour, Starch or Milk; Bakers' Wares		
1901	Malt extract	Malt extract; food preparations of flour, meal, starch or malt extract, not containing cocoa powder or containing cocoa powder in a proportion by weight of less than 50 percent, not elsewhere specified or included; food preparations of goods of headings 0401 to 0404, not containing cocoa powder or containing cocoa powder in a proportion by weight of less than 10 percent, not elsewhere specified or included
1902	Pasta	Pasta, whether or not cooked or stuffed (with meat or other substances) or otherwise prepared, such as spaghetti, macaroni, noodles, lasagna, gnocchi, ravioli, cannelloni; couscous, whether or not prepared
1903	Tapioca	Tapioca and substitutes therefor prepared from starch, in the form of flakes, grains, pearls, siftings or in similar forms
1904	Breakfast cereals	Prepared foods obtained by the swelling or roasting of cereals or cereal products (for example, cornflakes); cereals, other than corn (maize), in grain form, pre-cooked or otherwise prepared

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
1905	Bread, pastry	Bread, pastry, cakes, biscuits and other bakers' wares, whether or not containing cocoa; communion wafers, empty capsules of a kind suitable for pharmaceutical use, sealing wafers, rice paper and similar products
Chapter 20: Preparations of Vegetables, Fruit, Nuts or Other Parts of Plants		
2001	Vegetables/fr, vinegar	Vegetables, fruit, nuts and other edible parts of plants, prepared or preserved by vinegar or acetic acid
2002	Tomatoes	Tomatoes prepared or preserved otherwise than by vinegar or acetic acid
2003	Canned mushrooms	Mushrooms and truffles, prepared or preserved otherwise than by vinegar or acetic acid
2004	Frozen vegetables	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, frozen
2005	Canned vegetables	Other vegetables prepared or preserved otherwise than by vinegar or acetic acid, not frozen
2006	Fruit in sugar	Fruit, nuts, fruit-peel and other parts of plants, preserved by sugar (drained, glaze or crystallized)
2007	Jams, jellies	Jams, fruit jellies, marmalades, fruit or nut puree and fruit or nut pastes, being cooked preparations, whether or not containing added sugar or other sweetening matter

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
2008	Fruit, nuts, neso	Fruit, nuts and other edible parts of plants, otherwise prepared or preserved, whether or not containing added sugar or other sweetening matter or spirit, not elsewhere specified or included
2009	Fruit juices	Fruit juices (including grape must) and vegetable juices, unfermented and not containing added spirit, whether or not containing added sugar or other sweetening matter
Chapter 21: Miscellaneous Edible Preparations		
2101	Coffee/tea	Extracts, essences and concentrates, of coffee, tea or mate and preparations with a basis of these products or with a basis of coffee, tea or mate; roasted chicory and other roasted coffee substitutes, and extracts, essences and concentrates thereof
2102	Yeast	Yeasts (active or inactive); other single-cell microorganisms, dead (but not including vaccines of heading 3002); prepared baking powders
2103	Sauces, condimen	Sauces and preparations therefor; mixed condiments and mixed seasonings; mustard flour and meal and prepared mustard
2104	Soups, prep	Soups and broths and preparations therefor; homogenized composite food preparations
2106	Food prep neso	Food preparations not elsewhere specified or included
Chapter 22: Beverages, Spirits and Vinegar		
2203	Beer	Beer made from malt
2204	Wine	Wine of fresh grapes, including fortified wines; grape must other than that of heading 2009

<u>HTS</u>	<u>Short description</u>	<u>HTS description</u>
2205	Vermouth	Vermouth and other wine of fresh grapes flavored with plants or aromatic substances
2206	Fermented bev.	Other fermented beverages (for example, cider, perry, mead)

