NATIONAL ORGANIC STANDARDS BOARD

NOSB Issue Paper and Proposed Recommendations

October 27, 1998

INTERNATIONAL COMMITTEE
PROPOSED RECOMMENDATIONS ON FUMIGATION

Recommendations

1. The National Organic Standards Board should rescind the July, 1998 recommendation entitled "Chemical Fumigation of Imported Certified Organic Product."

2 The Secretary should incorporate provisions in the forthcoming Proposed Rules for organic standards to require certified handling operations to maintain records documenting that the certified commodities which they import are not treated with prohibited materials upon entry into the United States. The appropriate records for this purpose are the commodity invoices which importers present to the Animal and Plant Health Inspection Service (APHIS) at the port of entry. To satisfy the record-keeping requirement, these invoices must include APHIS' official documentation of what, if any, quarantine treatment or action was taken. Certified handling operations shall make these records available upon the request of their certifying agent.

3. The Secretary should enter into cooperative agreements with APHIS and the Agricultural Research Service (ARS) to identify approved quarantine practices for inclusion in national organic standards. Upon approval by the appropriate regulatory authorities, these quarantine practices shall be applicable to organic commodities imported into the United States and domestic product exported to international markets.

OVERVIEW

Concern that pest organisms including insects, nematodes, and fungi may be transported across national borders through agricultural trade has prompted many countries to enact and enforce stringent quarantine practices. These practices protect against the introduction of recognized agricultural pests, such as fruit flies, as well as the possibility that previously insignificant organisms may prove destructive in a new environment. International distributers of organic food and fiber products must comply with the agricultural pest control requirements of the countries in which they trade. These requirements may entail the use of synthetic pesticides, such as methyl bromide, which are prohibited under all organic standards currently used in the United States. Quarantine treatments for commodities entering the United States must be conducted in a facility approved by the USDA. These facilities may be located in the country of production, in another country along the shipping

route, or within the United States. The USDA operates numerous quarantine treatment facilities in addition to the private operations it approves. Without economical and effective quarantine treatments which are compatible with certification, international trade in organic commodities would be severely curtailed.

There are three scenarios for imported agricultural commodities entering the United States. First, certain commodities originating from specific countries must receive an approved quarantine treatment as a condition of entry. For example, all grapes imported into the United States from Chile must be treated with a specified concentration of methyl bromide with additional requirements for the temperature and duration of the treatment. Second, agricultural trade which does not require mandatory treatment is inspected by quarantine officials at the time of entry. Officials may authorize entry of the product or, upon finding an actionable pest, require the treatment, destruction or re-export of the infested commodity. A third possibility exists for exporters who want expedited access to markets in the United States. In coordination with the International Services division of APHIS, exporters can fund and operate a pre-clearance program. These programs require that commodities on the discretionary quarantine list be inspected in their country of origin. Infested commodities must be treated before export while non-infested product is released immediately. All commodities are then sealed and shipped to the United States and granted immediate entry. Exporters must fund the APHIS-managed programs but they avoid delays when their commodities arrive in American ports. Pre-clearance programs are prevalent in countries, such as Chile and the Netherlands, which export large quantities of perishable fruits, vegetables, and flowers to the United States and are used for both organic and conventional products.

The USDA conducts its agricultural pest management activities through APHIS.[1] APHIS's responsibilities pertain to plant and animal pests which could jeopardize agricultural production within the United States or abroad or whose entry into the country could result in other forms of ecological damage (e.g., spread of the gypsy moth into new territory). Within APHIS, the Plant Protection and Quarantine program (PPQ) is responsible for the eradication of recognized plant pests found in, on, or with commodities offered for entry into or export from the United States. The Veterinary Services program (VS) protects the health of domestic livestock and poultry by regulating the importation and exportation of animals and animal products. Because the USDA has prevented animal products from being labeled as organically produced, the requirements of the VS program have not created the conflicts with domestic certification standards which the PPQ program has for fruits, vegetables and other plant products. However, once the USDA implements organic standards for animal products, the potential for VS pest control practices to create similar conflicts will emerge.

Applicants for organic certification are required to establish that mechanisms are in place to protect the organic integrity of their product from the point of production to the point of sale. When

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[1]This memo addresses USDA procedures to control imported pest organisms which threaten agricultural production. The primary federal agencies for enforcing *human* health safety standards for imported foods are the Food and Drug Administration (for plant products) and the USDA Food Safety Inspection Service (for animal products.)

reviewing an application from a handling operation, certifying agents are responsible for taking into account how quarantine requirements will affect the status of exported product. Agricultural products which require a *mandatory* quarantine treatment with a prohibited material are precluded from organic certification once they cross the border.[2] By checking the mandatory, prohibited quarantine requirements of an importing country, certifying agents can determine which commodities cannot be imported as organic. For example, under current quarantine conditions, Chilean grapes imported to the United States cannot be organic because they must be treated with methyl bromide.

However, all certified organic commodities are potentially subject to *discretionary* quarantine treatment which may involve application of a prohibited material. The determination of whether to treat an imported organic commodity on the discretionary list is made at the time of the border crossing and is triggered by the detection of an actionable pest. Discretionary quarantine treatments create the potential for misrepresentation in cases where organic commodities exposed to prohibited materials as a condition of entry are not diverted to conventional markets. Such misrepresentation constitutes a violation of the Organic Food Protection Act as it would constitute a misuse of the organic label.

APPROVED CHEMICAL FUMIGATION PRACTICES

The PPQ has approved a variety of chemical and nonchemical quarantine practices for the treatment of imported fruits, vegetables, plant products and other agricultural commodities. Chemical treatments, including fumigation, aerosols, dips, dusts, and sprays, are generally not allowed in organic systems because they rely on synthetic products for pest control. With nonchemical treatments, extremes of temperature such as immersion in hot water, application of steam, forced hot air, or sustained cold are used to kill pests. These treatments are generally within the boundaries of the physical pest control activities allowable under organic standards. The only other treatment option approved by PPQ is ionizing radiation (irradiation) which is performed on certain tropical fruits brought from Hawaii to the United States mainland.

Due to the low cost of treatment, acute toxicity to pest populations, suitability to a wide range of commodities and relative ease of use, fumigation is the preferred quarantine treatment option for agricultural commodities shipped in international trade. Fumigation is the act of releasing and dispersing a toxic chemical so it reaches the target organism in a gaseous state. The only products which PPQ authorizes for fumigation purposes are the “restricted use” pesticides methyl bromide, sulfuryl flouride and phosphine. All three fumigants are categorized by EPA as Class 1 - highly toxic compounds and can only be applied by licensed applicators under label conditions. Because fumigants are used in a gaseous state, humans are most likely to be exposed through inhalation. Chronic exposure to all methyl bromide, sulfuryl flouride and phosphine can result in depression of the central nervous system, neurological dysfunction, kidney and liver damage and respiratory failure.

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[2]For this reason, the NOSB has reviewed the APHIS mandatory and discretionary treatment tables at past meetings. Sudden changes in quarantine requirements have made it difficult for the NOSB to stay current with APHIS policy.

Acute exposure to all three compounds can result in death. Once applied, methyl bromide naturally degrades to bromine which is highly destructive to the Earth's ozone layer. Ozone depletion results in significant increases in the levels of carcinogenic and mutagenic ultraviolet-B radiation reaching the Earth's surface. The fumigant concentration and length of exposure are determined by the temperature of the treatment environment. Methyl bromide is registered for use on a wide variety of perishable fruits and vegetables and treatments can be completed in between thirty minutes and two hours. By comparison, PPQ approved heat treatments take hours and cold treatments require weeks or months to achieve the same measure of pest control. Due to its enhanced ability to penetrate dense materials, phosphine is registered for a variety of grain, seed and milled flour products. Sulfuryl flouride is used against insects that attack wood and is used primarily for structural purposes and pallets and is not registered for use on any food products.

Methyl bromide is the most commonly used of the three approved quarantine fumigants. In the United States during 1996, more than five million pounds were used for quarantine treatments. This accounted for approximately 11% of the methyl bromide used in the United States that year. Tropical fruits are one commodity group for which methyl bromide has proven excessively injurious to food quality (taste and appearance) and alternative options including irradiation have been approved for those products. In almost all cases where methyl bromide is an *viable* treatment option, its low cost and ease of application make it the *preferred* option. International commerce depends heavily on methyl bromide for quarantine treatment and more than thirty million pounds were used for those purposes in 1996. Recognizing that methyl bromide has few equals as a low cost, highly effective and widely tolerated fumigant, the international community exempted quarantine treatments from the Montreal Protocol which phases out other applications of the product.[3] Methyl bromide's ozone depleting properties are well established, but despite protests by environmentalist groups, have been deemed an acceptable risk by the treaty signatories due to its pivotal role in international trade. Under the 1990 Clean Air Act, the United States was committed to an accelerated phase out of all methyl bromide applications by 2001. However, the agricultural appropriations bill passed by Congress last week will substitute the Clean Air Act regulations with the more gradual and flexible phase out provisions of the Montreal Protocol (including the exemption for quarantine treatments). Methyl bromide will likely continue to be the most widely used fumigant for international trade in perishable agricultural products.

NONCHEMICAL QUARANTINE TREATMENTS

Many quarantine pest management practices based on environmental control predate the modern era of synthetic fumigants. These practices typically regulate the thermal environment of the commodity being treated at temperatures above or below the threshold at which the targeted pest can survive.

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[3]Under provisions of the Montreal Protocol, industrialized countries must incrementally reduce their use of methyl bromide leading up to a phase-out in 2005. Developing countries have a more gradual reduction schedule culminating in a phase out in 2015. Post phase-out exceptions are permitted for critical agricultural production uses for both industrialized and developing countries.

Other management practices utilize a systems approach analogous to integrated pest management in which environmental conditions during production and in the process of storage and handling are modified to exclude pest organisms. To maximize efficiency, most contemporary quarantine practices incorporate elements of the synthetic fumigant, environmental control and pest exclusion approaches. Important factors for determining which quarantine practice to employ include lethality to pests, toxicity to non-target organisms, the cost of treatment, and ease of application under field conditions. The affect of the treatment on the durability, appearance and taste of the protected commodity is also of central importance. Some degree of degradation is inevitable after an agricultural commodity has been harvested and quarantine treatments can, at best, slow down this natural tendency. In other cases, the treatment may actually accelerate degradation, engender undesirable physical properties in the treated product or simply be too expensive or time consuming to be practical. The post-process condition of the protected commodity is critical to the commercial viability of any quarantine treatment.

While few nonchemical quarantine treatments have received APHIS approval, they do exist. Six nonchemical treatments are currently approved for a variety of commodities and two more show strong potential. None of these alternatives have received research resources comparable to the commitment made to fumigation. As with other dimensions of agricultural research, many physically- and biologically-based treatment systems were neglected after the advent of chemically-based alternatives. The introduction of the fumigants methyl bromide in the 1940's and ethylene dibromide in the 1950's provided producers much faster treatment than the existing thermal regulation and pest exclusion approaches. Research in non-chemical systems was largely sidetracked until ethylene dibromide was banned in 1984 and methyl bromide was scheduled for elimination. Non-chemical treatment options are viable and are being used for many applications. The extent to which these options could resolve the dilemma surrounding international trade in organic commodities can only be ascertained through an enhanced research and development commitment.

1. Hot Water Immersion Treatment

Hot water immersion treatment (also called hydrothermal treatment) uses heated water to raise the temperature of the commodity to the required temperature for a specified period of time. This treatment is used primarily for fruits that are hosts to fruit flies, but may also be used for nursery stock for a variety of pests. Currently, PPQ approves hot water immersion as a quarantine treatment for limes imported from Chile, all mangos and several less economically important tropical fruits. The Mediterranean fruit fly, which is potentially devastating to domestic citrus production, is the principal target pest. Treatment entails raising the pulp temperature of the treated fruit to between 115° and 118° F for an hour or more. While cooling of the fruit after hot water treatment is not an APHIS requirement, many facilities do so to maintain fruit quality.

Treatments are performed outside the United States at one of approximately seventy-five privately owned facilities approved by APHIS and maintained in an insect-free environment during shipment. There is one commercial, APHIS approved hot water immersion treatment facility in Puerto Rico. PPQ operates 13 facilities across the United States though they are too small to accommodate

commercial size shipments. APHIS estimates the material and installation cost of a modern hot water immersion treatment facility at between $140,000 and $250,000 exclusive of land, building, and the fruit packing and storage equipment.

2. Vapor Heat Treatment

Vapor heat treatment uses heated air which is saturated with water vapor to raise the temperature of a commodity to between 110° and 112° F for a period of between four and six hours. The latent heat released by the condensation of the vapor on the commodity raises the pulp temperature quickly and evenly and minimizes damage. Vapor heat treatment is used primarily for fruits and vegetables that are hosts to the Mediterranean and Oriental fruit flies. It is approved for use on citrus from Mexico, mangos, papayas, pineapples, bell peppers and eggplants.

3. Forced Hot Air Treatment

The use of forced hot air is similar to vapor heat except that the treatment environment is not saturated with water vapor. Commodities are treated at temperatures of at least 117° F for between four and eight hours. PPQ has approved forced hot air treatments for citrus from Hawaii and Mexico and papaya from Hawaii and Chile. Like vapor heat and hot water immersion treatments, it is designed to eliminate fruit flies. Vapor heat and forced hot air treatments are often preferable to hot water immersion because they result in less damage to the fruits and vegetables. The capital costs for establishing a commercial size vapor heat or forced hot air treatment facility are range between $120,000 and $250,000. In addition to the treatment operations which PPQ oversees in exporting countries, private interests operate three vapor heat and four forced hot air treatment facilities in Hawaii.

4. Steam Treatment

Steam at a temperature of 212° F will destroy most pathogenic microorganisms although temperatures approaching 250° F are needed for the most virulent varieties. Food grade agricultural commodities cannot withstand exposure to these temperatures and uses for steam treatment are restricted to non-edible commodities including soil, hay and packing materials. There are three approved commercial steam treatment facilities in the United States in addition to nine domestic PPQ operations.

5. Cold Treatment

Cold storage is the oldest and most widely used quarantine treatments. It is effective against a variety of pest organisms and can be tolerated by many fruits and vegetables. The PPQ has approved cold storage treatments for a variety of commodities including apples, pears, grapes, citrus, kiwis, plums and avocados originating from more than fifty countries. The treatment is compatible with current commodity distribution systems because almost all perishable commodities are shipped at low temperature to delay ripening. Cold temperature treatment entails chilling the pulp of the commodity

at close to or below freezing for an extended period of time. However, the duration of the various treatments (between 10 and 22 days) make this option problematic for highly perishable commodities where quick turnover is desirable. The PPQ licenses qualified refrigerated containers and vessels so commodities traveling long distances by train, truck or ship can complete some or all of their quarantine treatment on their way to market. In addition to the refrigerated containers and vessels licensed for cold treatment, there are twelve approved commercial facilities located in ports of entry across the United States. These facilities range between several hundred thousand and a million square feet in capacity.

6. Irradiation

The PPQ has approved the use of irradiation to control fruit flies on papayas, carambolas (starfruit), lychee and other fruit grown in Hawaii. Research has determined that fruit flies on these commodities are killed or sterilized at treatment levels which the Food and Drug Administration has authorized. While approved for quarantine purposes, irradiation is not currently used on Hawaiian fruit due to the lack of treatment capacity. The extremely high capital costs of establishing a commercial irradiation facility and the uncertainty of consumers' acceptance of the practice leaves future applications of the treatment in doubt. The USDA has stated that irradiation will not be considered for approval under organic standards at this time.

7. Controlled Atmosphere

Controlled atmosphere technology using elevated carbon dioxide and/or reduced oxygen concentrations has significant potential as a quarantine treatment. It is effective against insect pests and pathogens, is less damaging to most fruits and vegetables than either fumigant or heat treatments, and can preserve commodity quality by suppressing respiration rates. Use of a controlled atmosphere environment requires special enclosed facilities which add approximately 20% to the expense of a refrigerated container. Research has demonstrated that treatment with controlled atmosphere is well suited to table grades, which are a high value export and import commodity. The Department of Defense experimented with controlled atmosphere to help preserve the large quantities of perishable products it ships overseas. The Department found that controlled atmosphere treatments are generally less damaging to perishable commodities than methyl bromide and that the expense of changing systems was offset because they could switch from air to sea freight. However, the Department made the conversion to controlled atmosphere for quality control rather than quarantine purposes. Currently, there are no PPQ-approved controlled atmosphere treatments for agricultural imports. Many researchers believe that the protracted treatment periods needed to make controlled atmosphere system sufficiently lethal to pest populations will also make them commercially unattractive. Most research is focused on using controlled atmosphere environments to make existing fumigant and temperature based treatments more effective and economical.

8. Systems Approaches

Systems approaches to quarantine treatment involve the integration of pre-harvest and post-harvest

practices used in the production, harvest, packing, and distribution of agricultural commodities which cumulatively meet the requirements for quarantine security. They are holistic approaches which minimize the presence of pests throughout production and use intensive quality control measures to remove any that reach the processing and shipping stages of distribution. The most thoroughly developed systems approach for quarantine purposes is the effort to exclude coddling moth from apples and cherries exported from Washington and Oregon. By using IPM systems in the field, post-harvest removal of insect-infested or damaged fruit and surveillance during shipment, producers have achieved control levels comparable to fumigation systems. However, importing countries may decide that systems approach treatments are insufficient to satisfy their quarantine requirements. Even after more than a decade of well documented success, Japan and the Republic of Korea have not approved the systems methods used for apples and cherries from Washington and Oregon and require that all incoming product be fumigated with methyl bromide. The United States has itself proven reluctant to approve biologically based treatment systems when chemical alternatives are known to be effective.

ECONOMIC FEASIBILITY OF ALTERNATIVE QUARANTINE TREATMENTS

Economic comparisons between chemical and non-chemical treatment options are complicated because cost is only one of several factors which influence quarantine decision-making. The selection among approved options reflects considerations beyond cost including the commodity's post-process quality, availability of treatment facilities, and the benefits of treatment, such as extended shelf life, other than pest control. Especially with high value commodities, including exotic or out of season fruits and vegetables, post-process quality is integral to market value and can offset significant differences in the cost of treatment options. For example, tropical fruits deteriorate rapidly after fumigation with methyl bromide and lose market value. Most importers pay the higher per unit cost associated with hot water immersion, vapor heat and forced hot air treatments to minimize damage to the fruit and bring a higher quality product to market.

Importers prefer some treatments which are not be the low cost option because of the non-pest control benefits they offer. In addition to destroying or sterilizing targeted pests, irradiation inhibits cell division in treated product which can delay ripening and extend shelf life. While not yet an approved treatment, controlled atmosphere slows the respiration rate of perishable products and reduces spoilage. Despite higher up-front costs, treatment of certain types of hardwood logs with steam, hot water or dry heat have proven an economical alternative to the use of methyl bromide. The heat treatments serve the dual purpose of pest control and curing the wood while logs treated with methyl bromide must be cured in a second procedure at added expense.

The cost-effectiveness of quarantine treatment systems are a function of their capital and operational expenses. Typically, non-chemical treatment systems such as thermal regulation have slightly higher capital costs and significantly higher operational costs than conventional fumigation systems. Irradiation facilities have enormous capital costs of between $1 million and $3 million yet have secured a small share of the quarantine treatment market. Methyl bromide has advantages for treating large volumes of product where the energy costs associated with thermal regulation are significant. However, it is likely that operational costs for thermal regulation, and possibly irradiation,

will decrease in the future as the number of treatment facilities increases. Additionally, methyl bromide will likely increase in price once production is forced to taper off after 1999 and pre- and post-harvest users compete for the available supply. Per unit cost will remain an important consideration in the selection of quarantine treatment options but it cannot be viewed independently of commodity tolerance and other quality control concerns. Additionally, the per unit cost is often a relatively small percentage of the total handling expense (including sorting, grading, processing and shipping) and more expensive options may make sense within larger, integrated treatment and distribution systems.

USDA QUARANTINE DECISION MAKING

The proposal for a quarantine treatment typically originates from an exporting country wishing to use a system which is more economical or less injurious to the treated commodity than existing practices. Approved quarantine practices must be treatment and commodity specific; that is, a detailed set of conditions applied to a particular fruit, vegetable, grain, or other plant product. The decision to approve a quarantine treatment option is the joint responsibility of the PPQ and the ARS. The ARS conducts research in alternative quarantine technologies and reviews data which exporting countries submit in support of applications for approval of new treatments. Research in new quarantine treatments is supervised by the ARS Methyl Bromide Alternative National Program. One of the objectives of the National Program is "to develop alternatives to post-harvest (commodity, quarantine, and structural) uses of methyl bromide including heat, cold, radiation, controlled atmosphere and systems approaches using new risk-based strategies."[4] Currently, staff at eight ARS Agricultural Research Laboratories are working on one or more post-harvest treatment technologies. Once ARS validates the efficacy of a treatment in the laboratory, PPQ must determine if it can be practically applied in the field. PPQ staff at the Oxford, North Carolina Plant Protection Center are responsible for establishing specifications and drafting procedures for all approved treatments. Approved treatments are published in the PPQ treatment manual which governs all agricultural trade - import, export, and domestic - of the United States.[5]

The United States Custom Service and PPQ are the federal agencies responsible for documenting the arrival and disposition of every agricultural shipment entering the country. To bring plants or plant products into the United States, importers must first submit PPQ form 587 which identifies the name and quantity of the commodities being imported, the country of origin, and the intended port of entry. Typically, importers provide Customs and PPQ a computerized manifest of the commodities they are carrying approximately one week prior to arrival of the shipment. This enables quarantine officials to determine which portions of the overall shipment need to be placed on hold. PPQ staff place an automatic hold on all agricultural commodities on the manifest as well as some non-

[4]Information on the ARS Methyl Bromide Alternatives National Program is available at http://www.nps.ars.usda.gov/programs/308s2.htm .

[5]Copies of the Treatment Manual are available from the PPQ Professional Development Center, 4700 River Road, Riverdale, MD, 20737. Their phone number is (301) 734-5523.

agricultural goods to determine if a potential pest infestation has spread. Upon arrival of the shipment, the importer provides PPQ with a bill of laden (for ground and sea shipments) or an airway bill (for air freight) which lists the commodities being held. Attached to the bill of laden or airway bill are invoices correlated to the individual commodities - ten cases of tomatoes, for example, or fifteen cases of cut flowers. After review and inspection, PPQ staff determine whether individual commodities can be released, require a quarantine treatment as a condition of entry, or must be refused entry and destroyed or re-exported. Once all holds have been addressed and all required treatments completed and documented, PPQ clears the shipment and the importer reclaims the commodities from the Custom Service.

The actions ordered by PPQ for each commodity are recorded on the invoices which are returned to the importer. These invoices are not official PPQ forms but are correlated to every commodity being imported. An official PPQ stamp will designate whether the commodity was inspected and release or whether quarantine treatment was required. If treatment was required, the importer must demonstrate compliance before the commodity is released. The PPQ processed invoices are the key documentation which importers can use to establish that imported organic commodities were not exposed to prohibited materials upon entry into the United States.

ORGANIC CERTIFICATION AND TREATMENT FACILITY APPROVAL

While the value of the organic market is growing, in most cases it has been insufficient to justify and sustain a dedicated processing sector. More typically, organic handlers have had to share processing, storage and transportation facilities with non-organic commodities and implement quality control measures to avoid cross-contamination. In the dairy industry, for example, certifying agents will approve handling plans which allow organic producers to have their milk processed and packaged at a plant handling non-organic milk if appropriate safeguards are in place to isolate and distinguish between batches. Similar arrangements characterize the organic industry's dependence on approved treatment facilities for allowable quarantine practices. Organic handlers and importers must rely upon the same cold storage and heat regulation facilities which serve the non-organic market. For example, mangos entering the mainland United States (including those from Hawaii and Puerto Rico) must receive either the hot water immersion, high temperature forced air, or vapor heat treatment. Because both organic and non-organic commodities require identical treatments and the number of approved facilities is limited, individual plants will process both types of fruit. Some certifying agents require separate production runs for organic commodities to insure that water left over from treatments of non-organic produce is not re-used. Importers of organic commodities may not have sufficient volume to fill a segregated shipping container and therefore have to share space with non-certified goods. Certifying agents may impose additional handling restrictions to preserve the identity of certified product.

The current arrangement to allow dual handling operations enables organic handlers to utilize a variety of treatment facilities in lieu of ones which exclusively accommodate certified commodities. Under proper supervision from the certifying agent, this is a reasonable and enforceable provision which protects the integrity of the certified commodity while allowing the importer flexibility in

finding an economical and convenient way to fulfill quarantine requirements. Since the existing markets for conventionally produced commodities are likely to exceed the growing organic markets for some time, importers of organic products can take advantage of the large treatment capacity for allowable practices already in place. For example, the conventional Hawaiian papaya industry developed excess capacity to meet its quarantine requirements which the organic industry has come to utilize.

To facilitate the dual handling option, the NOP needs to incorporate the NOSB's guidance on the distinction between *handlers* and *handling operations.* The NOSB noted that the OFPA's definition of handler as "any person engaged in the business of handling agricultural products, except such term shall not include final retailers that do not process agricultural product" was broad enough to include virtually anyone who helped move food from the field to the shelf. However, the OFPA only requires handling operations, not handlers, to be certified. It defines handling operations as those operations (again, exclusive of retailers of agricultural products who do not process them) that "(A) receive or otherwise acquire agricultural products and (B) process, package or store such products." In 1994, the NOSB interpreted to "receive or otherwise acquire" as synonymous with taking legal title to the product.[6] This interpretation created a distinct, verifiable threshold which clearly identified those operations which needed to be certified and others which could be monitored under an Organic Handling Plan. The NOP needs to incorporate this interpretation of *handler* and *handling operation* to insure that importers (who are legitimate handling operations) retain access to the full range of approved, allowable treatment facilities available to them.

DISCLOSURE AND VERIFICATION OF TREATMENT STATUS

USDA regulations governing the importation of agricultural commodities were not designed with separate standards for organic and conventional commodities. However, organic trade could be strengthened through quarantine requirements which provide transparency for determining how commodities are treated. There are also benefits for facilitating the use of materials and practices which are approved under organic standards. The existing procedures for regulating the importation of agricultural commodities can be used to provide the transparency to strengthen consumer confidence in the integrity of organic certification. In addition, the NOP can collaborate with APHIS and ARS to identify and certify quarantine treatments which conform with the forthcoming federal organic standards.

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[6]The NOSB stated "The activity of individuals or businesses who do not take legal title to organic products but act as agents, licensees, employees, contractors, or subcontractors and who process, package, or store organic agricultural products for a certified handling operation will be covered by the certification of that organic handling operation. Such activity must be described in the Organic Handling Plan and inspected and scrutinized with the same rigor and to the same standards as certified entities as part of the certification requirement of the certified organic handling operation for which they act as agent, licensee, employee, contractor, or subcontractor." NOSB Final Recommendation, Requirement for Handler Certification, Attachment 1, adopted June 4, 1994.

The paperwork needed to provide an audit trail for imported organic commodities already exists in the APHIS documentation which importers receive at the point of entry. For every commodity, the importer's invoices are stamped with the APHIS mandated enforcement action such as inspected and released or inspected and treated. When quarantine treatment is required, the importer must provide verification it was completed before the Customs Service will release the commodity. Verification that an importer used an approved treatment practice such as cold storage or heat treatment could establish that certified commodities were not exposed to prohibited materials. The considerable volume of international trade in agricultural commodities and the rapidity with which product is turned over have complicated efforts by wholesalers and retailers to receive adequate assurances that importers are in compliance with certification standards. Some private certification agents require that handlers submit a letter or affidavit that all products they import will remain in compliance with standards. However, this is a self-policing approach and cannot eliminate the potential for misrepresentation. By requiring certified handlers to provide upon request the APHIS documentation regarding imported product, the NOP could establish a time- and cost-effective mechanism to document the integrity of organic product.

TRADE IMPLICATIONS OF QUARANTINE TREATMENTS

The identification of quarantine treatments which are approved for organic systems could foster new markets for organic commodities domestically and abroad. For example, the availability of hot water and vapor treatment systems has created a market in the United States for organic mangos and papayas. The USDA estimates that the United States currently exports approximately $500,000,000 of agricultural commodities annually which importing countries require to be treated with methyl bromide. Some of these markets, such as the trade in cherries to Japan which exceeded $90,000,000 in 1996, could become available to organic producers if organically compatible treatments were approved by the importing country. The NOP should collaborate with ARS and APHIS to develop and achieve approval for alternative treatments. However, many countries have proven reluctant to approve non-conventional quarantine treatments when existing chemical systems are in place. The United States is currently engaged in litigation with Japan before the World Trade Organization regarding the slow pace with which the Japanese approve new quarantine treatments. Hopefully, as free trade and global markets accelerate international agricultural commerce, new opportunities will emerge for countries to satisfy their legitimate quarantine requirements while becoming more receptive to imported commodities. This accelerated trade increases the possibility that quarantine practices allowed in organic systems could be approved.

REVIEW OF JULY NOSB RECOMMENDATION

At its July, 1998 meeting, the NOSB recommended that the NOP consult with APHIS with a goal of developing a field certificate for all certified organic product entering the United States. Further review of existing regulations indicates that the documentation provisions currently in place are sufficient to establish an adequate audit trail for organic integrity.