Study of Food Safety

Deliverable 2: Final Study

Contract Number: GS10F0155P
Order Number: D14PD01117

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Due Date: January 30, 2015

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SECTION I. EXECUTIVE SUMMARY

This report addresses crop insurance coverage for losses of specialty food crops resulting from food safety and contamination issues (food safety issues). The Contractor prepared the report under Order Number: D14PD01117 issued on behalf of the United States Department of Agriculture (USDA) Risk Management Agency (RMA). The report is responsive to legislative language in 7 U.S.C. 1522 (c) (22). The Contract defines a food safety and contamination issue as an "issue when a specialty crop food has been contaminated or tainted making it unfit for consumption which results in a recall and causes an inability of producers to market their specialty crop from the field and the specialty crop is lost in the field due to physical deterioration by natural causes."

There were four objectives stated in the Statement of Work (SOW). Each is listed separately followed by a summary of findings.

a) To "determine if providing food safety and contamination coverage would benefit agricultural producers of specialty crops."

Sufficient information to quantify the direct and indirect costs of historical recall events, especially for a "specialty crop lost in the field due to physical deterioration by natural causes," could not be developed. Hence, the monetary amount of potential benefit to agricultural producers of specialty crops could not be quantified. Direct costs are those incurred by a producer whose product has been recalled. Indirect costs are those incurred by producers who are unable to sell product, or who must sell at a substantially reduced price.

In general, while the incidence of specific recalls can be obtained from reliable sources, the amount of any costs of those recalls is not included in the announcements. Neither direct nor indirect costs are documented in recall announcements. Further queries with agencies tied to administration of these recalls did not result in receipt of usable information.

In spite of efforts to encourage participation, input from stakeholders was limited. While several stakeholders indicated producers are very interested in recall insurance coverage, the Contractor received no direct verification of that from a producer. One stakeholder with legal training indicated that producer interest was higher for recall liability insurance (i.e., responsibility for damages incurred by other parties) than for recall crop (yield or revenue) insurance. Such coverage is outside the scope of this study and appears to exceed the requirements of the coverage described in 7 U.S.C. 1522 (c) (22).

The financial consequences of a recall can be devastating for persons who are affected directly or indirectly. The worst outcomes have included bankruptcy for both classes of affected individual. Theoretically, there are benefits to be derived from an insurance product that alleviates those consequences. It is not clear that a sufficient number of producers will purchase a stand-alone product for the additional coverage for what appears to be an infrequent event.

b) To "help specialty crop producers and Congress understand how these risks are already being, or could be addressed by the crop insurance system."

The extent to which these risks are being addressed by the crop insurance system is limited. Most crop insurance policies contain specific limitations that bar payment of indemnities for failure to harvest a marketable crop, i.e., a crop that is not damaged by an insurable cause. Many policies, especially those that cover fresh market or processing specialty crops, extend this prohibition by specifically excluding quarantine (a condition conceptually similar to a recall) as an insurable cause of loss. The Contractor notes that a quarantine endorsement to the Crop Provisions for two crops is available in certain counties in California for payment of additional premium. This endorsement supersedes the restriction on paying indemnities for a crop lost in the field during a quarantine. As discussed below, the applicability of this model to recalls is a matter of legal review and interpretation.

c) To "find and evaluate any existing policies or plans of insurance on specialty crops that provide coverage for food safety concerns (i.e. government, retail, or national consumer group announcements of health advisory, product removal, or product recall related to a contamination concern) to help make this determination."

The Contractor was able to identify the quarantine endorsement reinsured by FCIC as an existing policy or plan of insurance that provides coverage for food safety concerns. As discussed in d) below, its applicability is a legal question. Many crop insurance policies, most of which do not cover specialty crops, do include quality provisions that reduce the production to count in the event mycotoxins or other substances injurious to human health are present. The Food and Drug Administration (FDA) and USDA announce the existence of a recall action that falls within the purview of the respective Agency; however, the recall action itself must be initiated by a producer, a handler, a retailer, or similar entity that handles the commodity.

There appears to be no system in place to compensate producers for a "specialty crop … lost in field due to physical deterioration by natural causes" that results from a recall of the production of another producer or that results from contamination introduced in the marketing chain. Information on contracts at the first point of sale is sparse. Contracts for purchase are considered proprietary, and the terms of the contracts for each producer were described as "unique." One producer indicated the purchaser placed all the risk (including both in field and post-harvest risks prior to delivery) for deterioration by natural causes resulting from events such as recall and quarantine on his operation without recourse or compensation. The Contractor found no evidence this situation is different for any other specialty crop. The Contractor found no evidence that the contractual language is standardized or that buyers are willing to assume the financial burden for a recalled commodity for which ownership has yet been transferred to the buyer. Producers who are not directly affected perhaps could pursue tort actions in civil courts as an alternative; such actions typically are expensive and lengthy.

d) To "determine what practical challenges are present that need to be overcome in order to create actuarially sound products related to these food safety risks."

An actuarially sound product requires sufficient evidence to provide a reliable estimate of the appropriate rate and an absence of adverse selection. Sufficient evidence typically is data-driven, i.e., there exists either a sufficient history that enables direct estimation of the frequency and the severity of loss or that enables approximation of an appropriate probability distribution. In the absence of sufficient data, non-quantitative techniques must be employed.

The Contractor found that the historical frequency of food safety and contamination recall events can be established; however, this experience may present challenges for developing a reliable quantitative estimate of the frequency of future events that result in a loss in the field due to physical deterioration by natural causes. The Contractor found only anecdotal reports on the impact of recalls on crop yields or on the ability of individual producers to harvest and market a crop or upon the price received. However, historic recalls of unprocessed or minimally processed produce (dried fruits, fruits, nuts, and vegetables) and the good documentation of the entity recalling the produce could be used during a development effort to direct research into the severity of losses. With extraordinary effort, likely including survey instruments, it should be possible to determine the extent of the financial damage to producers for each of the historic recall events. Consequently, while such research would be costly, it does not represent a completely insurmountable barrier to development of a crop insurance product for food safety and recall issues. However, it should be noted, collection of data to determine the extent of the financial damage to producers for each of the historic recall events is a project that would likely take many years before enough data were collected to provide a traditional quantitative actuarial basis to determine rates. This is the most significant practical challenge, aside from legal considerations, that must be overcome.

An alternative to quantitative assessments of rate requirements is use of judgment to determine appropriate premium rates. A disciplined approach for applying judgment is the Delphi method, a method that has been used for a variety of situations when the issue or problem is too complex to be modeled. A multi-round (at least two rounds; the number depends on the rapidity at which estimates made by the panel of experts converge) series of estimates is made, with the results of each round being shared with the experts that constitute the panel to provide the input for next round of estimates. The resulting rates could then be updated experientially over the course of program experience. Hence, if these methods can be considered acceptable, inability to develop reliable statistical estimates is not an insurmountable problem for rating.

As noted previously, a pilot quarantine endorsement is reinsured by the FCIC. It is offered as a pilot program, a classification that offers more flexibility than a codified crop insurance program. Although conceptually similar, there are significant differences between a quarantine and a recall. A quarantine is imposed by a public authority in accordance with legally constituted parameters, sometimes to protect agricultural resources such as fruit-bearing trees from designated pests and sometimes to protect a growing crop from damage. A recall is initiated by a private entity, not a public entity (although they are often monitored by public entities), for a variety of reasons that are not codified. Determining whether the quarantine model can be

extended beyond its present limits is a question that must be answered by the Office of General Counsel.

The Contractor did identify six categories of potential impediments to the implementation of Specialty Crop Food Safety and Contamination Issues Insurance. These include legislative, policy language, procedural, actuarial, and logistic impediments, as well as impediments resulting from lack of currently available FCIC crop-specific coverage. While none of these impediments introduces a completely insurmountable barrier to the offer of insurance for food safety issues, many require a substantial change from the paradigm upon which the current FCIC insurance offers are based.

The final practical challenge is to overcome the inertia among producers regarding purchase of a product that covers an event that occurs with a very low frequency. The lack of producer participation in the listening sessions may be indicative of a low level of current interest in the subject. The low level of acceptance of the quarantine endorsement may be another indicator of limited producer interest in purchased risk management for infrequent events. Perhaps the current national Flood program offers a useful analogous experience. The rates tend to be very low and participation, except where mandated by law, appears to be highly influenced by the proximity (both temporally and spatially) of a flood event for which indemnities were paid. If insurance coverage for specialty crops lost in the field due to physical deterioration by natural causes as a result of a recall is deemed to be an important public policy goal, it may prove necessary to make it a standard feature of policy coverage and charge an additional load on the premium rate (much the same as prevented planting coverage).

SECTION II. INTRODUCTION

The Statement of Work (SOW) for Contract Number GS10F0155P, Order Number D14PD01117, identifies the objectives of the work as to

a) *"determine if providing food safety and contamination coverage would benefit agricultural producers of specialty crops.*
b) *To help specialty crop producers and Congress understand how these risks are already being, or could be addressed by the crop insurance system.*
c) *To find and evaluate any existing policies or plans of insurance on specialty crops that provide coverage for food safety concerns (i.e. government, retail, or national consumer group announcements of health advisory, product removal, or product recall related to a contamination concern) to help make this determination.*
d) *To determine what practical challenges are present that need to be overcome in order to create actuarially sound products related to these food safety risks."*[1]

This document is the final study required by that SOW.

The report addresses questions regarding the offer of crop insurance for specialty crops covering losses resulting directly or indirectly from food safety issues. The Contractor prepared the report under a contract issued on behalf of RMA by the Department of the Interior, Acquisition Services Directorate. The Contractor delivered the report to RMA in the Agency's role as the administrator of FCIC programs.

The Agricultural Adjustment Act of 1938 & Federal Crop Insurance Act [7 U.S.C. 1501 *et seq.*, as amended by Public Law 113–79[2]] provided for the study that is documented in this report. The legislative mandate for the study in Public Law 113–79 states:

> *"STUDY OF FOOD SAFETY INSURANCE.—*
>
> *(A) IN GENERAL.—The* [Federal Crop Insurance] *Corporation shall offer to enter into a contract with 1* [one] *or more qualified entities to conduct a study to determine whether offering policies that provide coverage for specialty crops from food safety and contamination issues would benefit agricultural producers.*
>
> *(B) SUBJECT.—The study described in subparagraph (A) shall evaluate policies and plans of insurance coverage that provide protection for production or revenue impacted by food safety concerns including, at a minimum, government, retail, or national consumer group announcements of a health advisory, removal, or recall related to a contamination concern."*

[1] USDA, RMA, 2014, SOW, Contract Number: GS10F0155P, page 21 of 26.
[2] Public Law 113–79 enacted February 7, 2014, has the official short title "'Agricultural Act of 2014'' but is also commonly known as the 2014 Farm Bill.

Specialty Crops

The report focuses on specialty crops as defined in the solicitation and the contract. These documents both draw attention to the legal definition of specialty crops as "fruits and vegetables, tree nuts, dried fruits and horticulture and nursery crops, including floriculture."[3] A comprehensive description and definition of specialty crops can be found on the website of the Agricultural Marketing Service (AMS).[4] The full USDA Definition of Specialty Crops and a list of specialty crops as compiled to date is incorporated into the report as Appendix A.

Food

The contract is silent concerning the definitions of food and of specialty crop food. The term "food" is generally used to categorize any substance consumed by a human to obtain nutrition. "Specialty crop food" will be defined for this study as a fruit, vegetable, tree nut, or dried fruit or a substance derived therefrom consumed by humans as a source of nutrition. The significance of the nutrition is not an issue as long as the specialty crop food provides some nutritional value to the consumer. Thousands of species of specialty crops are insurable under the FCIC Nursery Crop Provisions (08-073 (Rev. 10-06)) but are not insurable if they are to be used for food rather than as plants made available for sale.[5] This report will not ignore immature plants used as a food, but will instead consider them among the crops currently insured or uninsured under FCIC plans of insurance.

In conducting the study, the Contractor distinguished between three categories of specialty crop foods:

- Unprocessed specialty crop foods;
- Minimally processed specialty crop foods; and
- Substantially processed specialty crop foods.

These distinctions become important in considering the impediments to insuring losses to producers from "government, retail, or national consumer group announcements of a health advisory, removal, or recall related to a contamination concern." Generally the harvest processes for specialty crops, which establish the end of the insurance period for most crops and the amount of crop harvested or harvestable, require the crop to be unprocessed. However, the new FCIC Whole Farm Revenue Protection Pilot Policy (15-0076 WFRP- Pilot) provisions allow insured liability to include the expected value of "market readiness operations."[6] Therefore, these provisions allow a specialty crop food to be minimally processed. Generally, value added to a crop after its removal from the field or the environment in which it is grown is not insurable under any FCIC crop or policy provisions. Any effect of a recall of a substantially processed specialty crop food on the market and/or price of crops "in the field" will be indirect, which is to say the crop in the field will not itself be the recalled or contaminated food. Differences between direct and indirect food safety issues are discussed later in this report.

[3] Solicitation, page 43; Contract, page 21.
[4] USDA, Agricultural Marketing Service, 2014, USDA Definition of Specialty Crops, http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5082113, accessed November, 2014.
[5] See the Nursery Crop Provision 8. Insurable Crop and Plants.
[6] **Market readiness operations –** The on-farm activities that are the minimum required to remove the commodity from the field and make the commodity market ready, such as washing, packing etc.

Food Safety and Contamination Issues

The Contract defines "*food safety and contamination issue*" as follows:

> *An issue when a specialty crop food has been contaminated or tainted making it unfit for consumption which results in a recall and causes an inability of producers to market their specialty crop from the field and the specialty crop is lost in field due to physical deterioration by natural causes.*[7]

The Contractor considered two alternatives regarding *contamination* in the analysis of "coverage that provides protection for production or revenue impacted by food safety concerns." The first is when the insured's production is contaminated and the second is when the insured's production is not contaminated but a specialty crop food made from the crop (but not from the insured's production) has been recalled. When the insured's production is not contaminated, the Contractor's analysis considered three situations related to the timing of harvest as defined in the crop provisions. The first is when the production can be timely sold, but is sold at a reduced price. The second is when the production cannot be timely sold and the quality is reduced by the delay in the sale. The last is when the production cannot be timely sold and the production is lost because of the delay.

The processing of the specialty crop food, the contamination, and the disruption to sales of the harvested crop combine to create numerous alternate food safety and contamination scenarios. Other scenarios can be imagined. For example, an insured may experience losses when a crop other than the species insured has been recalled. However, these other scenarios generally involve such indirect effects of specialty food safety issues on an insured's revenue that it is not possible to imagine an insurance construct that would tie appropriately the ostensible cause of the revenue loss to the loss itself. The more indirect the effects, the more insurmountable are the barriers that arise to the insurance of losses from those effects. Consequently, the analysis in the report will focus on the scenarios involving contamination of the insured species, although not necessarily of the insured's production.

The remainder of this report is presented in six sections. In order, these include sections addressing:

- Existing coverage offered for specialty crops under FCIC policies;
- Specialty crops not insured under crop-specific FCIC policies;
- Stakeholder input regarding food safety and recall insurance;
- Available quantitative data regarding recalls;
- Impediments to implementation of specialty crop food recall insurance; and
- A summary of the study findings.

The contract does not require development of insurance for food safety issues. Considering the impediments to development of specialty crop food recall insurance, such development efforts are far beyond the scope of the contract. However, the Contractor provides an overview of actions required to overcome the identified impediments to implementation in Attachment I.

[7] The Agricultural Adjustment Act of 1938 & Federal Crop Insurance Act [7 U.S.C. 1501 et seq. as amended through Public Law 113–79, enacted February 7, 2014] (22)(B).

II.A. Agricultural Risk

Generally, sources of risk in agriculture include production, price (market), financial, institutional, and human (personal) risk. Production and price risks are the risks heretofore covered under FCIC plans of insurance.

Production Risk

Insurable crop production risks include adverse weather, disease and insect damage if control mechanisms either are not available or fail, earthquake, wildfire, volcano, and failure of irrigation supply if caused by any of the above named causes of loss. These are, in fact, precisely the natural risks that affect production of the insured crop. Risks resulting from human actions (e.g., fires caused by human activities, pollution, agricultural chemical spills, etc.) are not insurable perils under the Federal Crop Insurance Act (Act).

Production risk can be systemic or idiosyncratic. Systemic risks, such as wide temperature excursions, affect all operations in a region. Weather-related production risk in production agriculture is caused by events such as high and low temperatures, excess precipitation, lack of precipitation, and wind either singly or in combination. Weather affects the production of a relatively large number of individual producers every year.

Crop diseases are caused by bacteria, fungi, protozoa, nematodes, and viruses that result in chronic disease losses and catastrophic diseases. Chronic diseases slowly erode production and consequently affect profits. Catastrophic losses can lead to the ruin of entire industry sectors. Decreased resistance to disease may result from physical stress characterizing high density mono-culture. Consequently, good management practices are essential to limiting disease in agricultural crops, and producers typically use appropriate practices to manage these risks.

Other elements of production risk are idiosyncratic, affecting individual growers. Examples of idiosyncratic production risk include an isolated disease outbreak, localized predation, or a wind-driven drying of a crop at a particular production location. Contamination of specialty food crop production in the field is generally idiosyncratic.

Price Risk

While the contracted study addresses losses of production "in [the] field due to physical deterioration by natural causes," many losses due to recall result from price drops as demand for a crop decreases and/or collapse of markets as consumers shun the recalled specialty crop food. Consequently, agricultural producers face price risks as the prices of most crops are subject to farm-gate market forces.

The Contractor notes there are limited published farm-gate specialty food crop price series data established by consistent methods. The USDA Economic Research Service (ERS) publishes farm-gate prices for a number of fruits and vegetables.[8] NASS publishes average prices for

[8] USDA, ERS, 2014, Price Spreads from Farm to Consumer, http://www.ers.usda.gov/data-products/price-spreads-from-farm-to-consumer.aspx#25657, accessed November, 2014, lists price series for apples, broccoli, grapefruits, grapes, lemons, lettuce (iceberg), oranges, peaches, pears, potatoes, strawberries, and tomatoes (field-grown). USDA, ERS, 2014, Yearbook Tables, http://www.ers.usda.gov/data-products/vegetables-and-pulses-data/yearbook-tables.aspx, accessed November, 2014, lists annual prices for almonds, apples, apricots, asparagus, avocadoes, bananas, blackberries, black raspberries, blueberries,

selected states for principal fresh market vegetables in its Vegetable Annual Summary; for noncitrus fruits and nuts in the Noncitrus Fruits and Nuts Annual Summary; and for citrus fruits in the Citrus Fruit Annual Summary. RMA uses these values and other data to establish annual price elections for the crop-specific insurance products.

Production costs are an alternative measure of the economic damage suffered by producers when a recall affects marketability of a product or its price. However, there are no independent third party sources of costs of production for individual producers. Even average costs of production are difficult to obtain for specialty crops. RMA funded an attempt to develop an individually-based cost of production program for a major crop, but abandoned the effort in 2003.[9] RMA published the results of this effort to allow interested parties to build on what had been developed. This has not happened.

Inputs for production agriculture, including fertilizers, fuel, and chemicals (e.g., pesticides), are costly. Substantial increases in input costs may significantly affect the producer's margins and thus the producer's net revenues. To date, input price risks have not been insured under insurance programs, except to the extent they were an element of the Adjusted Gross Revenue (AGR) and Adjusted Gross Revenue – Lite (AGR-Lite) calculations or were the specific inputs defined for Livestock Gross Margin. The new WFRP plan offers more protection for revenue than that offered under AGR and AGR-Lite.

boysenberries, broccoli, carrots, cauliflower, celery, cherries, cranberries, cucumbers, dry onions, figs, grapes, grapefruit, guavas, hazelnuts, iceberg lettuce, kiwifruit, lemons, macadamia nuts, nectarines, olives, oranges, papayas, peaches, pears, pecans, pineapples, pistachio nuts, plums, prunes, potatoes, red raspberries, snap beans, strawberries, sweet corn, sweet potatoes, tomatoes, and walnuts.

[9] Minutes of the Meeting of the Board of Directors of the Federal Crop Insurance Corporation, October 9, 2003.

SECTION III. EXISTING COVERAGE

USDA recognizes more than 310 named specialty crops.[10] The SOW specifically requires the Contractor to "find and evaluate any existing policies or plans of insurance on specialty crops that provide coverage for food safety concerns…"[11] In this evaluation, the Contractor considers only those specialty crops produced for food. Yet even after these non-food crops are excluded, more than 200 specialty food crops remain on the AMS specialty crop list.

Of the specialty crops grown for food in the United States, 75 currently have crop-specific, multi-peril crop insurance coverage offered by the FCIC.[12] In 2013, these 75 crops accounted for just under $11 billion in crop insurance liability,[13] about 8 percent of the total FCIC crop insurance liability for that year. According to the USDA ERS, "the U.S. fruit and tree nuts industry (excluding melons) generates…around $18 billion in farm cash receipts annually."[14] Additionally, the U.S. vegetable and pulse sector generates, on average, $17.4 billion in farm cash receipts annually.[15] Consequently, approximately half the value of U.S. specialty food crops is insured under FCIC crop-specific, multi-peril insurance.

The crop insurance covering the 75 specialty crops includes Actual Production History (APH) – 53 crops; Actual Revenue History (ARH) – 4 crops; Dollar Amount of Insurance (DOL) – 15 crops; Pecan Revenue (PRV) – 1 crop; and Revenue Protection (RP), Revenue Protection with Harvest Price Exclusion (RPHPE), and Yield Protection (YP) – 2 crops. Additionally, until Crop Year 2014, many specialty crops were provided coverage under the AGR and AGR-Lite programs. These plans of insurance were discontinued for the 2015 Crop Year when Whole Farm Revenue Protection (WFRP) was implemented.

Crop-specific FCIC insurance programs have the Common Crop Insurance Policy Basic Provisions as the base from which coverage and parameters for risk management are derived. Each individual crop provisions supplements or refines the provisions found in the Basic Provisions. A key section of the Basic Provisions addresses the causes of loss not covered by crop insurance. For food safety, one key component is specifically addressed in Section 12 of the Basic Provisions as follows:

> ***"Causes of Loss.***
>
> *Insurance is provided only to protect against unavoidable, naturally occurring events. A list of the covered naturally occurring events is contained in the applicable Crop Provisions. All other causes of loss, including but not limited to the following, are NOT covered:*

[10] The Contractor has included a copy of the list of specialty crops published by USDA on the Agricultural Marketing Service (AMS) website in Appendix A.
[11] Solicitation, Statement of Work Section 2.2, page 21 of 26.
[12] The Contractor notes that the AMS sometimes uses generic categorizations of crop (e.g., citrus) in their specialty crop list, while FCIC may insure the specialty food crops based on more precise agronomic categorizations (addressing Florida, Texas, and Arizona-California citrus separately and within each geographic region addressing different types (e.g., oranges, grapefruits, lemons and limes) separately).
[13] USDA, RMA, 2014, RMA Summary of Business, accessed November 2014.
[14] USDA, ERS, 2013, Fruit and Tree Nuts, http://www.ers.usda.gov/topics/crops/fruit-tree-nuts.aspx, accessed November 2014.
[15] USDA, ERS, 2013, Vegetables & Pulses, http://www.ers.usda.gov/topics/crops/vegetables-pulses.aspx, accessed November 2014.

(a) Any act by any person that affects the yield, quality or price of the insured crop (e.g., chemical drift, fire, terrorism, etc.);"

For food safety issues, a producer who chooses to delay harvest until any adverse effects of a recall have been alleviated would find that the damage incurred as a result of this delay is not covered. Delay is an "act… that affects the yield, quality or price of the insured crop."[16] Thirteen of the 75 crop-specific crop provisions contain specific statements that identify failure to harvest in a timely manner as an non-insured cause of loss. Furthermore, most of the crop provisions also contain a version of a general marketing exclusion statement associated with the inability to market the crop:

"*In addition to the causes of loss excluded in section 12 (Causes of Loss) of the Basic Provisions, we will not insure against damage or loss of production due to the inability to market the (*covered crop*) for any reason other than actual physical damage to the (*covered crop*) from an insurable cause specified in this section. For example, we will not pay you an indemnity if you are unable to market due to quarantine, boycott, or refusal of any person to accept production.*"

While this statement does not specifically identify recalls as a reason the producer may experience an inability to market their product – yet recalls appear to be in the same category of obstacle to marketing as quarantine, boycott, and refusal to accept production – recalls are also a man-made obstruction to the marketing of the crop. This restriction applies whether the recall action is traceable to the individual insured's production or whether the producer is impacted by the actions of someone else.

The contract for this study requires attention to losses of production "in [the] field due to physical deterioration by natural causes." A third of the specialty crop provisions contain language which allow the producer to claim losses specifically associated with the harvested crop not meeting specifically defined quality standards. There may be an opportunity to include language under existing plans of insurance to adjust production to count for quality losses associated with market restrictions caused by a food safety recall that directly or indirectly affects the particular person who is insured. The primary obstacles that limit inclusion of quality provisions in many crop policies are the lack of third-party standards of quality and an independent inspection system for a commodity.

The list of covered causes of loss is relatively similar across the specific crop provisions which contain such a list:

"***Causes of Loss***

(a) In accordance with the provisions of section 12 of the Basic Provisions, insurance is provided only against the following causes of loss that occur during the insurance period:

(1) Adverse weather conditions;
(2) Fire;
(3) Wildlife;
(4) Insects or plant disease, but not damage due to insufficient or improper application of control measures;

[16] Section 12 of the Basic Provisions (11-BR).

(5) Earthquake;
(6) Volcanic eruption; or
(7) Failure of the irrigation water supply, if caused by a cause of loss specified in sections 10(a)(1) through (6) that occurs during the insurance period."

Damage from wildlife is a generally covered loss under all FCIC plans. Consequently, the need to reduce yield because of abandonment of crops due to wildlife contamination should result in a covered loss for the insured whose crop was actually contaminated by wildlife. However, on farms not experiencing contamination but affected by a wildlife-contamination-based recall, the proximal cause of the loss is the recall (a man-made event), while the cause of the recall was the contamination, and the cause of the contamination was the wildlife. The disconnect between the natural event (wildlife contamination) and the proximal cause of the loss (the recall) creates a circumstance where claims for damages are logically rejected. Furthermore, much contamination of specialty crop foods cannot be traced to wildlife (see the discussion on Impediments to Implementation). Consequently, the coverage for food safety issues currently offered under the FCIC plans is extremely limited.

The following discussion focuses on the coverage available to specialty crops under the plans of insurance previously identified. Each discussion conveys key aspects of the coverage currently offered and whether that coverage provides relief from the risks associated with food safety issues.

Actual Production History

Actual Production History (APH) policies insure producers against yield losses due to natural causes such as drought, excessive moisture, hail, wind, frost, insects, and disease.[17] Combined, the 2013 specialty crop liability associated with the APH plan was just over $8 billion. Currently the APH plan does not provide recall-specific coverage. If a specialty crop insurance policy contains quality adjustment provisions or language providing an option to claim losses associated with failure to meet quality standards, the plan could provide some level of relief from the financial losses associated with a recall. This would only be true in those instances where the policy does not specifically state that the failure to harvest or market in a timely manner is an excluded cause of loss. APH-based insurance policy language could be modified to provide coverage once statutory language and other impediments to coverage are addressed.

Some APH-based crop provisions (generally not specialty crops) specifically allow quality adjustment of a crop whenever "Substances or conditions are present, including mycotoxins, that are identified by the Food and Drug Administration or other public health organizations of the United States as being injurious to human or animal health."[18] Such substances typically are discovered only after the crop is harvested and therefore would not result in a loss in the field due to physical deterioration by natural causes. Such quality adjustment affects only the production determined to have been contaminated; the production of other producers is not

[17] USDA, RMA, 2014, Policies, http://www.rma.usda.gov/policies/ accessed November 2014
[18] e.g., USDA, RMA, 2010, Small Grains Crop Provisions (11-0011), page 8 of 9, http://www.rma.usda.gov/policies/2011/11-0011.pdf, accessed February 2015.

affected. Hence, in the present form, these provisions do not meet the standard established by the legislation. Extending these provisions to other crops requires only the addition of the terms to the crop provisions. Specialty crops insured under the APH plan are listed in Table 1. Extending the provisions to production that is affected only indirectly requires a change in the crop insurance paradigm.

Table 1. Specialty Food Crops with Insurance Coverage: APH Plan

Almonds	Onions
Apples	Oranges, Navel
Apricots (Fresh)	Oranges, Valencia
Apricots (Processing)	Papaya
Avocados	Peaches
Banana	Peaches (Cling Processing)
Beans (Dry)	Peaches (Freestone Fresh)
Beans (Fresh Market)	Peaches (Freestone Processing)
Beans (Processing)	Pears
Blueberries	Peas (Dry)
Cabbage	Peas (Green)
Citrus (TX) - All Other Grapefruit	Pistachios
Citrus (TX) - Early & Midseason Oranges	Plums
Citrus (TX) - Late Oranges	Potato
Citrus (TX) - Ruby Red Grapefruit	Prunes
Coffee	Pumpkins
Cranberries	Sweet Corn (Processing)
Figs	Sweet Oranges
Grapefruit	Sweet Potatoes
Grapes	Table Grapes
Lemons	Tangelos, Minneola/Honeybell
Macadamia Nuts	Tangelos, Orlando
Mandarins	Tangerines
Mint	Tomatoes (Fresh Market)
Mustard	Tomatoes (Processing)
Nectarines (Fresh)	Walnuts
Olives	

Source: The Contractor's Underwriting Department after FCIC Policies.

Actual Revenue History

The Actual Revenue History (ARH) "pilot program protects growers against losses from low yields, low prices, low quality, or any combination of these events."[19] Combined, the 2013 specialty crop liability associated with the ARH plan was nearly $450 million. There are four crops which have ARH coverage available: sweet cherries, tart cherries, navel oranges, and strawberries (Table 2). The term "recall" is not used in the ARH Crop Provisions as an insurable or excluded cause of loss. Nonetheless, the ARH Crop Provisions do provide for coverage for a cause of loss described as "an inadequate market price"[20] which may provide an opportunity for producers to receive some compensation for losses associated with a lower market price resulting from a product recall. Yet it is important to note that "inadequate market price" as used in the ARH provisions refers to circumstances when the average price received by all producers is less

[19] Ibid
[20] USDA, RMA, 2014, Actual Revenue History Sweet Cherry Pilot Crop Provisions, http://www.rma.usda.gov/policies/2014/14-0057sweet.pdf, accessed November 2014

than the average valuation of the commodity as included in the actual revenue history, not a specific price for a specific producer. Thus the ARH provisions could provide indemnities for general market collapse but would not provide relief whenever the production of a few producers is affected by a recall that does not directly affect their production. ARH-based insurance policy language could be modified to provide coverage once statutory language and other impediments to coverage are addressed.

Table 2. Specialty Food Crops with Insurance Coverage: ARH Plan

Cherries, Sweet
Cherries, Tart
Navel Oranges
Strawberries

Source: The Contractor's Underwriting Department after FCIC Policies.

Dollar Plan

"Dollar Plan policies provide protection against declining value due to damage that causes a yield shortfall. The amount of insurance is based on the cost of growing a crop in a specific area. A loss occurs when the annual crop value is less than the amount of insurance. (See table 3 for 15 such crops)"[21] Combined, the 2013 specialty crop liability associated with the Dollar Plan was just over $2.85 billion. Currently the Dollar Plan does not provide recall-specific coverage. If a specialty crop insurance policy contains a quality adjustment endorsement or language providing an option to claim losses associated with missing quality standards, the plan could provide some level of relief from the financial losses associated with a recall. This would only be true in those instances where the policy does not specifically state that the failure to harvest in a timely manner is an excluded cause of loss. Dollar Plan insurance policy language could be modified to provide coverage once statutory language and other impediments to coverage are addressed. It should be noted that language contained in the Nursery Crop Provisions under the Dollar Plan may provide a precedent for addressing losses associated with the inability to market a crop. The following statement comes from the Nursery Crop Provisions:

> "***10. Causes of Loss.***
>
> *(b) Insurance is also provided against the following if due to a cause of loss specified in section 10(a) that occurs within the insurance period:*
>
> *(1) A loss in plant values because of an inability to market such plants, provided such plants would have been marketed during the crop year (e.g. poinsettias that are not marketable during their usual and recognized marketing period of November 1st through December 25th);.*"[22]

The cited language affects only those plants that have been damaged to the extent that they cannot be marketed during the normal season. Recall insurance as envisioned by the legislation would require extension of such coverage to producers who are indirectly affected by the recall notice (i.e., their production is not specifically subject to the recall but there is no market for it). The exclusion of man-made causes of loss also would need to be modified to provide coverage for food safety issues.

[21] USDA, RMA, 2014, Policies, http://www.rma.usda.gov/policies/ accessed November 2014
[22] USDA, RMA, 2015, Nursery Crop Provisions

Table 3. Specialty Food Crops with Insurance Coverage: Dollar Plan

Chile Peppers	Citrus VIII - Navel Oranges
Citrus (FL) - Early & Midseason Oranges	Macadamia Trees
Citrus (FL) - Grapefruit & Late Oranges (Fresh)	Nursery - Field Grown & Container
Citrus (FL) - Grapefruit (Juice)	Peppers
Citrus (FL) - Late Oranges (Juice)	Raisins
Citrus (FL) - Lemons, Limes	Sweet Corn (Fresh Market)
Citrus (FL) - Murcotts, Temples	Tomatoes (Fresh Market)
Citrus (FL) - Navel Oranges, Tangelos, Tangerines	

Source: The Contractor's Underwriting Department after FCIC Policies.

Pecan Revenue

The Pecan Revenue plan (PRV) is a revenue plan of insurance that "provides protection against unavoidable loss of pecan revenue due to standard causes of loss of yield as well as decline in market price."[23] The 2013 liability associated with PRV was nearly $190 million. Currently PRV does not provide recall-specific coverage and there is no quality adjustment language in the provisions, however, the coverage for decline in market price may provide some relief should the market price fall as a result of a recall action. However, the decline in market price must be broad-based and affect a majority of the production if the producer is to benefit since the pecans are valued at not less than 95 percent of the market price on the day pecans are sold. Furthermore, unless the demand for pecans dropped significantly as a result of a recall, a recall that affects a sufficient quantity of pecans to affect the price would likely result in an increase in the market price since AMS records only sales when determining the market price. Scarcer supply usually results in a higher price. Consequently, in the event of a recall conflicting economic forces may be acting on the price realized by the producer. Nonetheless, the PRV policy language could be modified to provide coverage once statutory language and other impediments to coverage are addressed. Pecans are the only crop covered by PRV.

Revenue Protection

The Revenue Protection (RP) plan insures "producers against yield losses due to natural causes such as drought, excessive moisture, hail, wind, frost, insects, and disease, and revenue losses caused by a change in the harvest price from the projected price."[24] The 2013 specialty crop liability associated with RP was nearly $263 million. Currently the RP program does not provide recall-specific coverage and there is no quality adjustment language in the provisions. However, the protection afforded against movement in the market price may provide some relief should the market price fall as a result of a recall action. As in the case of the Pecan Revenue policy, such market price decline must be broadly based. The RP-based insurance policy language could be modified to provide coverage once statutory language and other impediments to coverage are addressed. RP provides insurance for the specialty crops dry beans and dry peas in select states and counties.

[23] Teegerstrom, T., R.Tronstad and S.T. Nakamoto, 2012, An Overview of Risk Management Agency Insurance Products and Farm Service Agency Programs Available for Arizona Agricultural Producers as of December 2012; http://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1587.pdf, accessed November 2014

[24] USDA, RMA, 2014, Policies, http://www.rma.usda.gov/policies/ accessed November 2014

Revenue Protection with Harvest Price Exclusion

The Revenue Protection with Harvest Price Exclusion (RPHPE) program provides insurance for "producers in the same manner as Revenue Protection polices, except the amount of insurance protection is based on the projected price only (the amount of insurance protection is not increased if the harvest price is greater than the projected price)."[25] The 2013 specialty crop liability associated with RPHPE was just over $1 million. The RPHPE program otherwise is identical to the RP program.

Yield Protection

The Yield Protection (YP) program provides insurance for "producers in the same manner as APH polices, except a projected price is used to determine insurance coverage."[26] The 2013 specialty crop liability associated with YP was just over $247 million. The YP program otherwise is substantially identical to the RP program.

Whole Farm Revenue Protection

The Whole Farm Revenue Protection (WFRP) pilot insurance program protects growers against losses from low yields, low prices, low quality, or any combination of these events. As the program will first be offered for the 2015 crop year, there are no data on the liability covered by the plan. Insurance under the WFRP Pilot plan is available in Butte, Fresno, Kern, Mendocino, Monterey, Riverside, San Diego, San Joaquin, San Luis Obispo, Santa Barbara, Sonoma, Tulare, Ventura, Yuba, and Yolo counties in California; in all boroughs in Alaska except North Slope and Northwest Arctic, and in all other states in the United States except Arkansas, Louisiana, Mississippi, Oklahoma, and Texas. RMA expects to expand to other states and counties as data for the actuarial analysis become available and are processed.

Provision 9(a) of the WFRP policy indicates coverage is provided for "approved revenue" rather than for specific crops: "This policy insures the approved revenue that you expect to earn or will obtain from commodities that you produce or purchase for resale during the insurance year and in which you have an insurable interest." There are limitations on the total insurable liability (currently the limit is set at $8.5 million under Provision 2(b)(1), and on certain crops including livestock (with a revenue limit of $1 million set under Provision 2(b)(2)) and nursery with a revenue limit of $1 million set under Provision 2(b)(3)). However, these limitations, with the exception of the total insured revenue limitation, do not affect insurance of specialty food crops.

The term "recall" does not appear in the WFRP Provisions as an insurable or excluded cause of loss. The WFRP Provisions contain the standard limitation that losses due to quarantine, boycott, or refusal of any person to accept production are not covered losses. However, the WFRP Provisions do provide for coverage for losses from a decline in local market price (section 21(a)(9)). The language of section 21(d) indicates: "Decline in local market price will be presumed to be from unavoidable natural causes unless the Company [i.e., an Approved Insurance Provider (AIP)] or FCIC is able to specifically identify a man-made cause that resulted in a measurable change in the price. In the case of such occurrence, the portion of the loss caused by the man-made event will not be covered." While recalls are obviously "man-made,"

[25] *Ibid.*
[26] *Ibid.*

demonstrating the causal relationship of the recall for the price decline may be difficult. Since the underlying presumption is that market price changes are from "unavoidable natural causes" (section 21(d)), establishing the quantitative impact of a recall to establish "the portion of the loss caused by the man-made event" will be particularly burdensome. Consequently, the impact of the language from sections 21(a) and 21(d) is ambiguous. Furthermore, the complex relationship of supply and demand in the case of a recall makes it difficult to anticipate whether food safety issues will even result in local market price declines although individual producers may be impacted by a recall.

The Contractor also notes the existence of a quarantine endorsement available on a pilot basis for two crops in several counties of California. This endorsement provides exactly the type of coverage specified by the legislation that authorized this study. An indemnity is payable whenever a public authority imposes a quarantine on an agricultural commodity, and "does not permit the insured crop to be harvested, sold, transported, transferred, or otherwise restricts it from movement from the location where it was produced to the location of any buyer," and "insured production within the quarantine zone sustains unavoidable physical deterioration during the quarantine such that, under the terms of the Crop Provisions for the eligible crop, it no longer is considered to be production to count or the quantity of such production is reduced," or requires that the production be destroyed. The production insured under the relevant crop provisions need not be infected or otherwise harmed by the causal agent that resulted in the quarantine. It is sufficient that the production be located within the zone where the quarantine is imposed, and that the quarantine be of sufficient length that physical degradation of the production occurs (for reasons other than mandatory destruction).

There are substantive legal issues with applying this model to recalls that result in physical damage to production due to inability to market. The quarantine endorsement is a pilot, a term that allows experimental crop insurance coverages. As should be evident from the preceding paragraph, this coverage deviates from the crop insurance paradigm in that it allows indemnities for damage that occurs as a result of a man-made event. Further, it allows indemnities whenever a crop physically could have been harvested but was not due to the imposition of the quarantine.

An important distinction between quarantine and recall is the entity making the determination. Quarantines are imposed by public officials acting under the authority of codified regulations. Recalls are initiated by any person involved with handling the commodity who becomes aware of the issue. A public entity merely publishes the details of the recall. A recall can occur for a multitude of reasons, none of which are codified. Hence, the determination of whether the quarantine model can be applied to recalls without a change in statute is a question that must be referred to the Office of General Counsel.

There appears to be no system in place to compensate producers for a "specialty crop … lost in field due to physical deterioration by natural causes" that results from a recall of the production of another producer or that results from contamination introduced in the marketing chain. Data on contracts at the first point of sale are sparse. No stakeholder provided a contract documenting the terms between a producer and a buyer. Integrators handling both specialty crop fruits and vegetables indicated their contracts for purchase are proprietary. Furthermore, the terms of the contracts for each producer were described as "unique." Also, many specialty crop operations

are vertically integrated. In these integrated operations, the distribution of risks related to recall is subjective since ultimately all the risks within the integrated operation affect the bottom line of the entire operation. In a conversation with a producer of an annual fresh fruit, the producer indicated the purchaser placed all the risk for deterioration by natural causes resulting from events such as recall and quarantine on his operation, without recourse or compensation. The risks the producer's operation bore included both in field and post-harvest risks prior to delivery. The producer indicated a perfectly good harvest was allowed to deteriorate in a truck and all the expenses, including the cleaning of the truck, were borne by his operation. The Contractor found no evidence this situation is different for any other specialty crop. Producers who are not directly affected perhaps could pursue tort actions in civil courts as an alternative; such actions typically are expensive and lengthy. The terms of the producer's contract would limit the choices for recourse that are available.

SECTION IV. "UNINSURED" CROPS

This section of the report addresses specialty food crops on the USDA AMS specialty crops list that do not have crop-specific multi-peril crop insurance coverage provided by the FCIC. The Contractor notes in most U.S. counties these crops will be insurable under the WFRP plan that is available for the 2015 crop year.

More than 150 named specialty crops grown for food in the United States do not have crop-specific multi-peril crop insurance coverage reinsured by the FCIC. The majority of these uninsured specialty crops fall into the Culinary Herbs and Spices (68) and Medicinal Herbs (39) categories specified by AMS. However, there are 20 named crops not insured by FCIC under crop-specific policies in the Fruits and Tree Nuts category and 35 in the Vegetables category.

The Contractor has cataloged the specialty food crops from the USDA AMS specialty crop list that are currently not insured under FCIC crop-specific policies by category of the crop in Appendix B, Exhibit 1. The Contractor notes the list includes some specialty crops involved relatively frequently in recall actions (*e.g.*, melons (cantaloupe had 3 recalls and honeydew 1 between 2012 and 2014) and Romaine lettuce (3 recalls between 2012 and 2014)). Producers of these frequently recalled crops likely experience revenue losses associated with recalls more often than producers of other specialty food crops.

USDA National Agricultural Statistics Service (NASS) reported the value of production for 14 of these specialty food crops not insured under crop-specific multi-peril crop insurance in the 2008 Census of Agriculture (Census).[27] These included 11 Vegetables and 3 Fruits and Tree Nuts from the AMS listing. The value of those 14 crops collectively in 2008 was just over $380 million (Appendix B, Exhibit 2). The Contractor found no documentation of the value of the remaining crops gathered by a consistent method.

[27] The Contractor used the 2008 Census data because the 2012 Census did not document the value of these crops, only the area harvested for vegetable crops and the acreage bearing and non-bearing for fruit and nut tree crops.

SECTION V. STAKEHOLDER INPUT

The contract required one on-site listening session to gather stakeholder input concerning insurance addressing food safety issues. In addition to this on-site listening session, the Contractor conducted five teleconference listening sessions and invited telephone conversations, letters, and email input from any interested stakeholder. The Contractor anticipated the outreach effort would help determine whether specialty crop producers perceived a food safety recall insurance program as beneficial and to understand the level of interest producers of specialty food crops would have in such a program if it were offered.

In advertising the listening sessions, the Contractor contacted 32 grower associations in the 6 states by telephone and/or email (Appendix C, Exhibit 1). The Contractor preferred telephone for the purpose of this contact. However, grower organizations are increasingly limiting their distribution of telephone contact numbers and even of email addresses. Many now have contact pages on their websites that require initial contact to be made through a web interface rather than directly by email.

The Contractor asked each of the 32 grower groups to convey information about the listening session to its membership. The Contractor also placed advertisements in appropriate print and online forums for regional weekly agriculture papers and newsletters two weeks before the listening sessions. These advertisements and announcements were each run for two weeks and contained a brief synopsis of the topic for the listening session as well as a link to a website the Contractor created which contained the phone numbers and access codes to all five teleconference sessions. Appendix C, Exhibit 2 contains a list of the periodicals within which listening session advertisements were purchased in an effort to encourage participation. Appendix C, Exhibit 3 contains a copy of the advertisement placed in the Capital Press for the Sacramento listening session. Furthermore for this on-site listening session, a press release approved by RMA (Appendix C, Exhibit 4) was provided to both the Capital Press and Farm Press. These two periodicals have wide readership in the agricultural community, especially in the western states. The Capital Press featured the press release on its Press Release webpage. The newspaper also highlighted the online version of the advertisement through a scrolling link on its home page. The scrolling link to the advertisement was active from October 24 through October 30, 2014. The Capital Press advertisement also appeared in the print version of the paper.

Finally, the Contractor contacted university extension specialists, particularly those with research interests in specialty food crops and/or food safety, in all six targeted states and requested both their presence in the listening sessions and that they convey information about the listening sessions to producers of specialty food crops and producers particularly interested in food safety.

As a result of these efforts, the Contractor gathered stakeholder input during discussions with producer association representatives, insurance industry representatives, processors, academics and an agricultural lawyer. The Contractor conducted an on-site listening session in Sacramento, California on October 29, 2014. Producers in California grow more specialty crop species than producers in any other state. The California specialty crop production by value is also greater than that value for any other state. A copy of the agenda which guided the conversation during the California listening session is provided in Appendix C, Exhibit 5. The Contractor focused

the teleconference listening sessions on stakeholders in Florida (November 13, 2014), Michigan (November 13, 2014), New Jersey (November 14, 2014), New York (November 12, 2014), and Wisconsin (November 12, 2014).

In spite of these efforts to encourage participation, input from stakeholders was limited. Two participants attended the California listening session, one from the RMA Davis Regional Office (RO) and one representing a grower's association serving Arizona and California. The main concern expressed during this session was whether the insurance, if developed, would address a situation in which a shipment of produce was turned away at the point of sale due to a recall and then sold for a lower price because of a loss of quality while being stored.

There were a total of eight stakeholder participants who identified themselves in the telephone listening sessions. The participants included 2 extension agents, 2 grower association representatives, and 4 representatives of RMA ROs.

No follow-up communications from producers was received by telephone, email, or mail. The Contractor did have the opportunity in follow-up telephone conversations to talk with an insurance agent with numerous clients who grow melons, an agricultural attorney interested in recall, and staff at an association of grower association executives. All were encouraged to have producers contact the Contractor. These efforts did not result in any direct producer communication, although the Contractor was told repeatedly that recall is a rising concern among specialty crop food producers.

Comments provided by the interested parties are summarized in Appendix C, Exhibit 6.

SECTION VI. SPECIALTY FOOD CROP RECALL DATA

The Contractor reviewed the data available documenting specialty food crop recalls. Recalls are actions taken by a company, manufacturer, processor, distributor or other production entity to remove a product from the market. It is important to note governments do not recall products (including foods). The persons or companies responsible for the production issue the recall. Federal and state government agencies then publish the recall notice. Most recalls are voluntary. Even when a government agency informs a producer some of its production is contaminated and requests a recall, the recall action is still voluntary. While the U.S. FDA can seek legal action involving seizure of production, injunctive actions, and court ordered recall under the Federal Food, Drug, and Cosmetic Act (FD&C) Act, such actions are extremely rare. The voluntary system works because producers have an economic incentive to remove unsafe production from the marketplace.

The FDA is responsible for the regulation and safety standards for approximately 80 percent of the food supply in the United States. The FDA's authority covers both domestic and imported foods. The FDA is also responsible for overseeing the safety of pet foods. The remaining 20 percent of the U.S. food supply, primarily meat, poultry and some egg products, is regulated by a branch of the USDA known as the Food Safety and Inspection Service (FSIS).[28] The FDA is given authority under 21 CFR Part 7 Subpart C – Recalls (Including Product Corrections) - Guidelines on Policy, Procedures, and Industry Responsibilities to initiate, review, classify, publish, audit and terminate recall actions. Until the 2011 Food Safety Modernization Act (FSMA), food recalls were voluntary actions initiated by food processors, distributors or manufacturers, or actions initiated following a request from FDA or FSIS. FSMA gave authority to FDA through the FD&C to take direct action against production facilities if FDA determined the production facility posed a significant threat to the public health. As part of its responsibilities, the FDA publicizes recalls and maintains a database of those recalls. The FSIS also maintains a database of the recalls for which they provide oversight.

Data Availability

The FDA and FSIS each maintain an archive of recall notices they have published. The recall archive for the FDA[29] contains recall actions dating from 2004. The recall archive for the FSIS[30] contains recall actions dating from 1994. Sample FDA recall announcements are provided in Appendix D, Exhibit 1. While many recall notices contain information about the quantity of the food recalled, that is not a required element of a recall notice.

Every state has an agency or agencies tasked with tracking and managing food safety issues and interacting with their FDA and/or FSIS counterparts (Appendix D, Exhibit 2). In some states both the state department of health and human services (or an agency with similar responsibilities) and the state department of agriculture are responsible for tracking and

[28] "Jessica White-Cason, 2013, Understanding Food Recalls: The Recall Process Explained, Food Safety News, http://www.foodsafetynews.com/2013/08/understanding-food-recalls-the-recall-process-explained/#.VGplRvnF9Zg accessed November 2014.
[29] U.S. Food and Drug Administration, 2014, Archive for Recalls, Market Withdrawals & Safety Alerts, http://www.fda.gov/Safety/Recalls/ArchiveRecalls/default.htm, accessed November 2014.
[30] USDA, Food Safety and Inspection Service, 2014, Recall Case Archive, http://www.fsis.usda.gov/wps/portal/fsis/topics/recalls-and-public-health-alerts/recall-case-archive, accessed November 2014.

addressing food safety issues within the state. In other states, only one of these entities is responsible for food safety issues, while the other entity directs inquiries to the responsible agency.

Nineteen states maintain recalls databases. State websites addressing food safety issues all had links to both the FoodSafety.gov website and the FDA and FSIS recall websites. Of the 19 states which maintain a separate, state-level recall database, the Ohio database is the most comprehensive and includes a search function allowing users to mine data on recalls. It appears the Ohio database is linked to both the FDA and the FSIS recall databases. The Ohio database website allows the user to query the recall database using multiple parameters. The user may query the database by date range, product type (fruit/vegetable/juices, fish/shellfish, meat, poultry, etc.), and reason for the recall (allergies or biological, chemical, or physical contamination).[31] Additionally, the Ohio site provides a hyperlink to a PDF document containing the original recall language. In contrast, the FDA database archive limits the review of the original recall language once the recall investigation has been closed.

While the information gathered and maintained by the governmental agencies responsible for overseeing food safety recalls is fairly comprehensive, it contains very limited economic data. While the recall notice may document the amount of product recalled, the value of recalled product, the number of farmers or markets affected, etc., are not included. It may not be clear from a notice if the recalled food is unprocessed, minimally processed, or substantially processed. The Contractor could not identify any agency within the government or any academic center that regularly or periodically assesses the economic impact of a recall. Furthermore, the majority of recalls are made on processed foods which are not afforded insurance coverage under the Act (see Appendix D, Exhibits 3 and 4). Considering the total quantity and value of specialty foods sold each year, there have been relatively few recalls of unprocessed or minimally processed specialty food crops in the last 12 years (Table 4). Recalls of unprocessed or minimally processed specialty food crops have averaged approximately nine per year.

[31] Ohio Department of Health, 2014, "Class I" food product recall announcements, http://www.odh.ohio.gov/alerts/food/foodrecall.aspx, accessed November 2014

Table 4. The Frequency of Unprocessed and Minimally Processed Specialty Food Crops Recalls by Crop: 2002-2014 and 2012–2014

	Number of Recalls			Number of Recalls	
Specialty Food Crop	2002–2014	2012-2014	Specialty Food Crop	2002–2014	2012-2014
Alfalfa Sprouts	3		Mushrooms	3	2
Almonds	1	1	Nectarines	3	
Apple	5		Olives	2	
Avocado	1		Onions	5	
Beets	2	1	Orange	2	
Cacao	1		Papaya	1	
Cantaloupe	13	3	Parsley	1	1
Cilantro	2	2	Peaches	4	3
Carrot	3		Peanuts	1	
Chile Peppers	1		Peppers	2	2
Chili Beans	1		Pistachio	1	1
Cilantro	2		Plums	3	3
Dark Red Kidney Beans	1		Pluots	2	2
Dry Peas	1		Pomegranate	1	
Garbanzo Beans	1		Potatoes	2	
Green Beans	5		Romaine Lettuce	10	3
Greens	1		Spinach	5	2
Honeydew	1	1	Tomato	5	5
Jalapeno Peppers	1		Turnip Greens	1	
Kale	1		Walnuts	1	
Macadamia	1	1	Wheatgrass	1	
Mangoes	3	2			

Source: The Contractor‘s Research Department after FDA and FSIS published Recall Notices 2012 through 2014

Data Sufficiency

From 2012 through 2014 FDA and FSIS have published more than 870 recall notices. The Contractor has identified 35 of these involved unprocessed or minimally processed specialty food crops, about 4 percent of the total recall notices. The remainder involved meats or other animal products, fish, processed (canned, frozen, etc.) specialty food crops, processed commodities other than specialty crops, or other commodity. Since 2002, there have been 1,840 food recalls, of which 1,054 had a biological basis. These cases involved bacterial or viral contamination rather than improper labelling or chemical or physical contaminants. The data published by the FDA includes the date of the initial recall and any updates; the name of the entity implementing the recall; contact information for the consumer; the area, region, states affected by the recall; the description of the product(s) subject to the recall including UPC Code, label numbers, lot numbers and date(s) of manufacture or packaging; an estimate of the amount of product being recalled; the reason for the recall; the specific contaminant (if known); and a photo of the product, if available.

In the past two years *Salmonella* has been cited as the contaminating agent in food recalls 176 times, closely followed by *Listeria* which was cited in 169 recalls. E. *coli* has been cited 30 times. Other causes of recall have been cited 496 times. The other causes of recall have included contaminants such as pencils, gloves, metal fragments, plastics, and glass, as well as inspection discrepancies, mislabeling, sulfites, cadmium, lead, discoloration, etc. In the 36 recall notices involving unprocessed or minimally processed specialty food crops published from 2012 through 2014, 18 cited *Salmonella,* 14 cited *Listeria*, and 2 cited E. *coli* as the contaminant. Only 4 cited other causes for the recall.

The data sources are sufficient for determining historical frequency of recalls for each contaminant. Some of the gaps in the data identified during the course of the study include the notices not including quantities of product recalled. Some recall notices for specialty food crops identify recall amounts in pounds, others identify the amounts in cases, while still others identify amounts by lot or not at all. This lack of precision will require substantial additional research to construct a dataset suitable for an insurance product development.

Another element in the current food safety recall datasets that would require additional research for improvement of an insurance development dataset is the issue of whether the recalled product has been processed prior to the recall. Furthermore, the economic impacts of recalls are not clearly documented in any database resource identified by the Contractor. Finally, the recall process, by construct, does not identify contaminated food until after it has been distributed. Recalls are not initiated at the farm gate.

SECTION VII. IMPEDIMENTS TO IMPLEMENTATION

The Contractor identified six categories of potential impediments to the implementation of Specialty Crop Food Safety and Contamination Issues Insurance. These are:

- Legislative Impediments;
- Policy Language Impediments;
- Procedural Impediments;
- Impediments Resulting from Lack of Available FCIC Crop-specific Coverage;
- Actuarial Impediments; and
- Logistic impediments;

While none of these impediments introduces a completely insurmountable barrier in and of itself to the offer of FCIC Specialty Crop Food Safety and Contamination Issues Insurance, many require a substantial change from the paradigm upon which the current FCIC insurance offers are based. This section introduces the impediments to offering coverage under current law and procedures. An overview of the steps that would be required to overcome each of the impediments is provided in Attachment I.

Legislative Impediments

The only mention of food safety or of recall in the Agricultural Adjustment Act Of 1938 & Federal Crop Insurance Act (7 U.S.C. Chapter 36) is in Subchapter I Title V Section 522 (23) (A) and (B), in the language authorizing the study reported herein. Yet, the Contractor identified three specific sections of the Act that introduce impediments to the offer of insurance of food safety and contamination issues. The first two are in 7 U.S. Code § 1508 Subsection (a) "AUTHORITY TO OFFER INSURANCE — ." They are marked in bold for emphasis by the Contractor below:

> "*(1) IN GENERAL.—**If sufficient actuarial data are available**[32] (as determined by the Corporation), the Corporation may insure, or provide reinsurance for insurers of, producers of agricultural commodities grown in the United States under 1 [one] or more plans of insurance determined by the Corporation to be adapted to the agricultural commodity concerned. **To qualify for coverage under a plan of insurance, the losses of the insured commodity must be due to drought, flood, or other natural disaster (as determined by the Secretary).**"*[1]

Data are essential to the offer of reasonable insurance contracts. The Act recognizes the essential role of sufficient data in the development of crop insurance. The sporadic and unique nature of food safety and contamination events makes it challenging to incorporate food safety and contamination perils into the traditional crop insurance paradigm. However, since no legislative action regarding data sufficiency is required should the Corporation "determine" sufficient actuarial data are available, the Contractor believes further discussion of data issues under the topic heading: "Actuarial Impediments" is most appropriate.

In contrast, the issue of providing FCIC coverage for "natural disasters" introduces a substantial legislative impediment to the offer of food safety and contamination issues insurance by the

[32] Emphasis added.

Government. The difficulties with such an offer resulting from the requirement for a "natural disaster" cause of loss are discussed below.

Foods can be tainted with chemicals, physical materials, and biological contaminants. In a crop insurance loss adjustment, production contaminated with chemicals or physical objects will most likely be determined to result from human (i.e., man-made) actions. Regardless of whether these actions were carried out by the insured or a third party, the losses cannot logically be indemnified by a crop insurance product. Insurance is a financial contract wherein the insurer agrees to indemnify the insured against loss resulting from a specified contingency or risk. While a deliberate action may be perilous, it is neither a contingency nor a risk as that term is used in insurance.

Negligent contamination of a crop would include among a plurality of such causes: irrigating the crop with contaminated water, allowing chemical sprays to drift over a crop, or accidentally applying the wrong fertilizer or pesticide. Losses due to negligent third-party origins of chemical contamination might be indemnified by liability insurance held by that third party, but they do not logically fall under the purview of a crop insurance policy. Losses resulting from such negligent actions by the insured are *de facto* uninsurable. The risks of negligent acts cannot be known or quantified. Additionally, insurance for negligent actions may prompt such actions in certain circumstances (i.e., they might provide perverse incentives that encourage inappropriate behavior on the part of the insured). Therefore an appropriate premium for such insurance cannot be calculated. The impediments to insuring the risks associated with negligent contamination are insurmountable. Furthermore, the Act precludes insurance of negligent actions by an insured under 7 U.S.C 1508 (a)(3)(A)(i).

Consequently, the remainder of this report will address food safety scenarios with an emphasis on contamination by biological agents causing food poisoning. There are many potential contaminating agents. Specifics for the most common causes of food poisoning are provided below.

Listeria monocytogenes, (L. *monocytogenes*) is a microorganism that may contaminate food. L. *monocytogenes* is endemic, abundant, and pervasive in the environment. It is particularly common in moist environments, soil and decaying vegetation. Consequently *Listeria* may contaminate crops incidentally, as a result of the crop production, even when the crop is managed properly. Healthy individuals infected with L. *monocytogenes* often experience only short-term symptoms including headache, fever, stiffness, nausea, abdominal pain and diarrhea. However, L. *monocytogenes* infections are sometimes fatal in infants, young children, the elderly, and others with weak immune systems. L. *monocytogenes* infection can cause miscarriages and stillbirths among pregnant woman. The ubiquitous nature of the species in crop-production environments and the persistence of L. *monocytogenes* in food-manufacturing environments once they are contaminated make this organism particularly problematic as a cause of food safety and contamination issues.

Escherichia coli (E. *coli*) are common digestive system bacteria. Cattle, sheep, goats, and humans all have E. *coli* in their intestines,[33] as do many avian and mammalian species of wildlife.[34] While most strains of E. *coli* are harmless, some strains contaminating food can cause serious illness. Enterohemorrhagic E. *coli* that produce Shiga toxin cause diarrhea, and may cause blood-clotting problems, kidney failure, and death. The enterohemorrhagic E. *coli* includes the E. *coli* O157:H7 strain. Outbreaks of E. *coli* O157:H7 have been traced to ground meats, "raw" milk, unpasteurized fruit juice, lettuce, spinach, sprouts, and frozen cookie dough. Most people recover from E. *coli* O157:H7 infections without specific treatment. However, some people can develop Hemolytic Uremic Syndrome (HUS). Severe cases of HUS can lead to kidney damage and death.

Salmonella is a genus of bacteria common in the digestive tract of birds (both wild and domesticated), reptiles, and some mammals. The genera *Salmonella* and *Escherichia* are in the same family. Due to the prevalence of *Salmonella* in animal digestive tracts, they are also common in the soil and in some aquatic environments. The most common symptoms of salmonella food poisoning are diarrhea, abdominal cramps, and fever. These symptoms generally develop within 8 to 72 hours of eating contaminated food. The illness usually lasts four to seven days and most people recover without treatment. However, salmonellosis can be severe or even life-threatening for infants, older people, pregnant women, and people with weakened immune systems.

Other bacteria causing food safety and contamination issues include *Bacillus cereus, Campylobacter* spp., *Clostridium botulinum, Clostridium perefringens, Shigella* spp., *Staphylococcus* spp., and *Vibrio parahaemolyticus.* B. *cereus, Campylobacter spp.,* C. *botulinum,* C. *perefringens,* and *Staphylococcus* spp. are ubiquitous in the environment, including sites of agricultural production. *Vibrio* spp. are common in marine environments. Sources of bacteria that can caused food safety and contamination issues include soil (C. *botulinum,* C. *perefringens, and Staphylococcus* spp.), human feces (*Campylobacter* spp., C. *perefringens, Shigella* spp., *Staphylococcus* spp., and V. *parahaemolyticus*), livestock feces (*Campylobacter* spp., C. *botulinum,* C. *perefringens, Staphylococcus* spp.), and wildlife feces (*Campylobacter* spp., C. *botulinum,* C. *perefringens, Staphylococcus* spp).

Consequently, food safety and contamination issues resulting from bacteria can be categorized as:

- Completely natural (resulting from contamination of an insured's production by wildlife (including wild birds);
- Fundamentally natural (resulting from contamination of an insured's production by a ubiquitous food poisoning agent, but with the possibility of poor management practices having contributed to the issue);

[33] U.S. Department of Health & Human Service, 2014, E. coli, http://www.foodsafety.gov/poisoning/causes/bacteriaviruses/ecoli/, accessed November, 2014.

[34] Somarelli, J.A., J.C. Makarewicz, R. Sia and R. Simon, 2007, Wildlife identified as major source of Escherichia coli in agriculturally dominated watersheds by BOX A1R derived genetic fingerprints, J Environ Manage. 82:60-65.

- Questionably natural (resulting from contamination of an insured's production by a food poisoning agent carried primarily by humans[35]);
- Essentially man-made (resulting from a recall because of contamination of production other than that of an insured's by a food poisoning agent carried primarily by wildlife);
- Almost unquestionably of human origin (resulting from a recall because of contamination of production other than that of an insured's by a food poisoning agent carried exclusively by humans).

In this last case, the Contractor employs the adverb "almost" to acknowledge that even the organisms carried exclusively by humans are themselves part of nature and may contaminate agricultural production even when good management practices are employed.

Viruses causing food safety and contamination issues include Hepatitis, Norovirus, and Rotavirus. It is unusual for these agents to contaminate unprocessed produce. Instead, contamination by these viruses results primarily from poor human hygiene and is evident primarily when processed specialty crop foods are contaminated by food handlers.

Finally, parasites (e.g., *Giardia* from dogs and cats and *Cryptosporidium* spp. from livestock or wildlife feces) and fungi (e.g., mold from soils or decaying organic matter) are occasionally causative in food poisoning incidents. A full discourse on the etiology, biology, and clinical characteristics of food poisoning is beyond the scope of this study. The reader will find additional details on food safety and the causes of food poisoning in a variety of sources, including useful resources from the U.S. Food and Drug Administration. [36] *Nonetheless,* in considering the impediments to insuring food safety and contamination issues when an organism is the contaminant, it is important to understand that knowledge of the contaminating organism and its source are vital. The source of contaminations affects the insurability of the food safety and contaminations issues. The nature of contaminating organism affects the frequency of the risk to producers (which is independent of the risk to consumers of the contaminated food). Furthermore, the severity of a loss to a crop producer from a food safety and contamination issue is likely correlated with the perception of the public about the severity of the risk to the public if the contaminated food is consumed. These issues of the contaminating organism and the frequency of a species as a source for recall are discussed further in the section on data availability.

Direct and Collateral Impacts of Contamination

As noted previously, foodborne illness caused by biological contamination of fresh produce may affect producers other than the growers whose produce was contaminated. The producers who lose production because of contamination are experiencing a direct effect of the food safety issue. Producers who do not experience damage to their production from a contaminant may nonetheless experience lost revenue. Publicity about a food-borne illness outbreak may impact sales of production (i.e., reduce demand) regardless of whether the product currently being sold

[35] The Contractor notes that humans are natural organisms. However, the precedent in interpretation of the "natural disaster" language is that human actions are excluded as insurable causes of loss.

[36] U.S. Department of Health and Human Services, Food and Drug Administration, 2012, Bad Bug Book: Foodborne Pathogenic Microorganisms and Natural Toxins. Second Edition, http://www.fda.gov/downloads/Food/FoodSafety/FoodborneIllness/FoodborneIllnessFoodbornePathogensNaturalToxins/BadBugBook/UCM297627.pdf, accessed November, 2014.

might itself be contaminated. If demand for a recalled crop falls sharply, a price decline may affect revenue even well outside the locale of the recall. Consequently, it is not unknown for prices to drop for all producers of the crop as a result of a food safety recall. The Contractor considers this indirect effect to be a collateral impact of the contamination. The Act provides legal authority for crop insurance coverage of price changes. Such coverage is available for crops insured under revenue plans of insurance. There is no exclusion in the Act for the offer of revenue insurance for specialty food crops. Thus the only question relevant to the price decline is whether it was the result of an insurable cause of loss.

While the authority to indemnify losses from completely natural food safety and contamination issues is granted by 7 U.S.C. 1508(a)(1), authority to insure losses in the other categories are at best ambiguous. In light of the precedents set in interpretation of 7 U.S.C. 1508(a)(1), any FCIC offer of insurance for collateral damage resulting from human actions regarding food safety and contamination issues would require additional legislative authority. Such collateral damage has heretofore been treated as man-made. Having been made by man, it has not been treated as natural.

A third legislative impediment to insuring food safety and contamination issues is found in 7 U.S.C. 1508 (a) (2) which reads:

> *"PERIOD.—Except in the cases of tobacco, potatoes, and sweet potatoes, insurance shall not extend beyond the period during which the insured commodity is in the field…."*

Losses from food safety and contamination issues, especially collateral damage losses, are likely to occur either because a crop cannot be timely harvested, or because a timely harvested crop cannot be sold. Indemnification of losses resulting from a failure to timely harvest the crop are generally excluded either by language in *7* U.S.C. 1508 (a)(3)(A)(iii), which states: "Insurance provided under this subsection shall not cover losses due to… the failure of the producer to follow good farming practices." This exclusion is re-emphasized in policy language. The language of *7* U.S.C. 1508 (a)(2) generally excludes the indemnification of losses of crops which have been harvested (i.e., which is generally considered to be taken from the field) but could not be timely sold. A notable exception is potatoes placed in storage, which can be indemnified if they were infected prior to leaving the field and the infection manifested itself while the crop is in storage (e.g., the Northern Potato Storage Coverage Endorsement 08-084d). Sweet potatoes lost in storage to an insured cause of loss that occurred in the field would likewise be indemnifiable.

In addition to the impediments detailed above, the following language from U.S.C. 1508 (m) is relevant to the legislative authority to provide coverage for food safety issues:

> *QUALITY LOSS ADJUSTMENT COVERAGE.—*
>
> *(1) EFFECT OF COVERAGE.—If a policy or plan of insurance offered under this subtitle includes quality loss adjustment coverage, the coverage shall provide for a reduction in the quantity of production of the agricultural commodity considered produced during a crop year, or a similar adjustment, as a result of the agricultural commodity not meeting the quality standards established in the policy or plan of insurance.*
>
> *(2) ADDITIONAL QUALITY LOSS ADJUSTMENT.—*

> *(A) PRODUCER OPTION.—Notwithstanding any other provision of law, in addition to the quality loss adjustment coverage available under paragraph (1), the Corporation shall offer producers the option of purchasing quality loss adjustment coverage on a basis that is smaller than a unit with respect to an agricultural commodity that satisfies each of the following:*
>
> *(i) The agricultural commodity is sold on an identity-preserved basis.*
>
> *(ii) All quality determinations are made solely by the Federal agency designated to grade or classify the agricultural commodity.*
>
> *(iii) All quality determinations are made in accordance with standards published by the Federal agency in the Federal Register*.[37]"

The specific requirements in (m)(2)(A)(i) through (m)(2)(A)(iii) limit the possibility for quality adjustments for some specialty food crops, even if the restrictions of 7 *U.S.C. 1508 (a)*(1) and 7 *U.S.C. 1508 (a)*(2) are not an issue. Irrespective of this, the language applies only to the production of an individual producer. It does not extend to a crop that is lost in the field due to natural causes because a recall has been initiated by some third party.

Impediment in the Policy Language

As noted earlier, 75 specialty food crops currently have some crop-specific multi-peril crop insurance coverage provided by the FCIC. Coverage is offered for 53 specialty food crops under the APH plan; for 15 under the DOL plan; for 4 under the ARH plan; for 1 under the PRV plan; and for 2 with the offer of YP, RP, and RPHPE. The policy for each of these crops consists of three policy documents: The Basic Provisions, the Crop Provisions, and the Special Provisions. Basic Provision section 12 addresses causes of loss.

> ***12. Causes of Loss.***
>
> *Insurance is provided only to protect against unavoidable, naturally occurring events. A list of the covered naturally occurring events is contained in the applicable Crop Provisions. All other causes of loss, including but not limited to the following, are NOT covered:*
>
> *(b) Any act by any person that affects the yield, quality or price of the insured crop (e.g., chemical drift, fire, terrorism, etc.)*;"

Furthermore, section 13 of the Crop Provisions (Table 5) contains a statement that specifically identifies failure to harvest in a timely manner as an uninsurable cause of loss.

[37] Agricultural Adjustment Act of 1938 & Federal Crop Insurance Act [as Amended Through P.L. 113–79, Enacted February 7, 2014], TITLE V—CROP INSURANCE, Subtitle A—Federal Crop Insurance Act, SEC. 508. (7 U.S.C. 1508).

Table 5. Specialty Food Crop Provisions Specifically Addressing Failure to Harvest in a Timely Manner as an Uninsurable Cause of Loss

Provision Number	Provision Title	Provision Number	Provision Title
11-0105	Fresh Market Bean Crop Provisions	12-0215-47	ARH Citrus Pilot Crop Provisions
05-012	Blueberry Crop Provisions	15-0154	ARH - Strawberry Pilot Crop Provisions
12-0470	Pistachio (Pilot) Crop Provisions	2010-045	Pilot Processing Chile Pepper Crop Provisions
09-0147	Processing Pumpkin Crop Provisions	08-0044	Fresh Market Sweet Corn Crop Provisions
05-087	Processing Tomato Crop Provisions	13-0086	Fresh Market Tomato (Dollar Plan) Crop Provisions
14-0057-Sweet	Sweet Cherry Pilot Crop Provisions	99-083	Fresh Market Pepper Crop Provisions
15-0057-Tart	Tart Cherry for Processing Pilot Crop Provisions		

Source: The Contractor's Underwriting Department after USDA RMA Crop Provisions.

Nearly two thirds of the crop provisions contain a version of a general marketing exclusionary statement in their causes of loss section (Table 6). This statement identifies losses associated with the inability to market the crop as not insurable.

> "*In addition to the causes of loss excluded in section 12 (Causes of Loss) of the Basic Provisions, we will not insure against damage or loss of production due to the inability to market the* [covered crop] *for any reason other than actual physical damage to the* [covered crop] *from an insurable cause specified in this section. For example, we will not pay you an indemnity if you are unable to market due to quarantine, boycott, or refusal of any person to accept production.*"

While this statement does not specifically identify recalls as a reason the producer may experience an inability to market their product, recalls are in the same category of obstacles to marketing as quarantine, boycott, and refusal of any person to accept production; recalls are also a man-made obstruction, even if the event triggering the recall is natural.

Table 6. Specialty Food Crop Provisions with a General Marketing Exclusion

Provision Number	Provision Title	Provision Number	Provision Title
08-028	Almond Crop Provisions	14-0501	Olive Crop Provisions
11-0054	Apple Crop Provisions	13-0034	Peach Crop Provisions
12-0215	ARH Citrus Pilot Crop Provisions	15-0089	Pear Crop Provisions
15-0126	Arizona-California Citrus Crop Provisions	14-0020	Pecan Revenue Crop Provisions
05-012	Blueberry Crop Provisions	12-0470	Pistachio (Pilot) Crop Provisions
11-0072	Cabbage Crop Insurance Provisions	13-0036	Prune Crop Provisions
12-0019	California APH Avocado Pilot Provisions	98-037	Raisin Crop Provisions
99-058	Cranberry Crop Provisions	11-077	Stonefruit Crop Provisions
01-060	Fig Crop Provisions	15-0154	ARH - Strawberry Pilot Crop Provisions
14-0026	Florida Citrus Fruit Crop Provisions	14-0057-Sweet	Sweet Cherry Pilot Crop Provisions
08-044	Fresh Market Sweet Corn Crop Provisions	14-0156	Sweet Potato Crop Provisions
13-0086	Fresh Market Tomato (Dollar Plan) Crop Provisions	10-0052	Table Grape Crop Provisions
10-0053	Grape Crop Provisions	15-0057-Tart	Tart Cherry for Processing Pilot Crop Provisions
11-0255	Hawaii Tropical Fruit Pilot Crop Provisions	00-226	Texas Citrus Fruit Crop Provisions
12-0023	Macadamia Nut Crop Provisions	08-029	Walnut Crop Provisions
08-073	Nursery Crop Provisions		

Source: The Contractor's Underwriting Department after USDA RMA Crop Provisions.

The term "recall" does not appear in the WFRP Provisions as an insurable or excluded cause of loss. However, WFRP Provision 21(d) indicates:

> *"Decline in local market price will be presumed to be from unavoidable natural causes* ***unless the Company*** [i.e., an Approved Insurance Provider (AIP)] ***or FCIC is able to specifically identify a man-made cause that resulted in a measurable change in the price. In the case of such occurrence, the portion of the loss caused by the man-made event will not be covered****.*[38]*"*

Thus while the initial cause of a recall may be natural, if the recall itself is considered man-made, the AIP is expected not to cover losses caused by the recall in a WFRP indemnity. It is worth noting that market price change coverage is common for many commodity crops. The policies for these crops often include a similar exclusion. However, the Contractor was unable to identify any instance where FCIC or an AIP has specifically identified a man-made cause that resulted in a measurable change in price. Indeed, even if a widespread contamination outbreak were specifically associated with a specialty crop and prices for non-contaminated production fell sharply at the same time, linking the price shift to the man-made event or assigning a portion of the price reduction to the man-made event would be challenging as a practical matter.

The language above from the Basic Provisions and the Crop Provisions is the policy language that introduces impediments to implementation of recall insurance for specialty food crops. The

[38] Emphasis added.

Contractor identified no specific language in Special Provisions which introduces additional impediments.

Procedural Impediments

The procedures for implementation of crop insurance plans and policies are contained in numerous handbooks, bulletins and memoranda issued by RMA and distributed to AIPs and their agents. The Contractor limited the review of these documents to the 2014 Crop Insurance Handbook (CIH: FCIC 18010-01(08-2013)), the slipsheets for the CIH for 2015 (FCIC 18010-3(6-2014)), the 2014 Loss Adjustment Manual (LAM) Standards Handbook (25010-1(01/2014): Updated Handbook including slipsheets), and the 2015 Good Farming Determination Standards Handbook (FCIC-14060 (10/2014)) as these are the documents most likely to address food safety issues. Recall, food safety, and contamination are not explicitly mentioned in any of these documents. There are limited mentions of timely harvest, though none of these *per se* would impact implementation of a food safety and contamination insurance offer. Most address very specific circumstances for individual crops (e.g., dry beans). The only procedural impediment the Contractor identified was the absence of an appropriate loss identification code in Appendix III of the Standard Reinsurance Agreement (SRA). Such a code would be required to monitor the losses for premium rate-making purposes should food safety issues be an approved insured cause of loss. An alternative would be to allow the disease code to be used for contamination by food poisoning organisms, although that would limit the utility of the data in monitoring food safety issue losses.

Impediments Due to Lack of Available FCIC Crop-specific Coverage

If recall insurance were offered as an element of or an endorsement to existing crop-specific policies, more than half the specialty food crops identified by AMS and listed in Appendix A of this report would not have crop-specific coverage available. This situation has the potential to exacerbate any existing distortion in the specialty food crops markets created by the current insurance offers. One of the feasibility requirements identified by RMA for the development of a new insurance offer is that markets not be distorted. In the absence of a rigorous development effort, it is impossible to know if the market distortion created by adding food safety and contamination issues as an insured cause of loss under existing policies would be acceptable (i.e., limited or incidental market distortion) or unacceptable (major market distortion). Moreover, it is reasonable to assume the potential scope for frequency and severity of these events will vary by crop, region, and through time. Impediments to accounting for these risks actuarially are considered in the next section.

Actuarial Impediments

As noted earlier, data are the foundation of any insurance development. The most challenging insurance rating is for rare events whose severity is difficult to quantify. As the Contractor noted in the "Specialty Food Crop Recall Data" section, food safety issues as defined in the contract have been infrequent. However, there are substantial government archives of food safety to provide data about the frequency of recalls. These can be mined to establish the limited frequency of major food safety issues that might be traced to the farm level. The archived records include information about the food that was recalled, and generally include information about the geographic region affected by the recall (although these records rarely pinpoint the location of the contaminated production to the county level).

In contrast, quantitative data on the severity of the impact of food safety and contamination issues on producers are generally limited. Anecdotal accounts may address delayed harvests, reduction in prices (due to quality losses or market collapse), marketability, and lost sales. The Contractor found no source of severity of food safety and contamination issue loss data that were collected by a consistent approach. While this is not an insurmountable barrier to implementing insurance for food safety and contamination issues (see Attachment I), it does limit the ability of a developer to identify appropriate rates for an offer. This may in turn introduce issues during a policy submission package expert review which may in turn impact the acceptability of the submission package to the FCIC Board. Therefore the submission package might be rejected under the requirements of 7 U.S.C. 1508(a)(1).

To further exacerbate these actuarial issues, during the study few respondents expressed interest in paying any significant amount of premium for food safety and contamination issues insurance. If the market for such insurance is very small relative to the whole producer population, there is greater risk the premium income will be insufficient to pay the expected losses even if the premium rates are accurately determined. This, of course, depends on the scope of the coverage that is implemented. If it is offered on a crop by crop basis as an optional coverage, premium rates necessarily will be higher due to the uncertainty that a recall will affect that particular crop and due to the adverse selection that may occur. If coverage is offered as an additional feature of every crop provisions, the risk can be spread across all crops and producers (much the same as prevented planting coverage). The additional load on the premium rate may be a relatively small amount relative to the premium rate already charged.

Logistic Impediments

The specialty food crop recalled; the contamination of the insured crop or lack of such contamination; the insurability of the crops under current plans and policies; the level of processing of the recalled specialty crop food; the ability to sell the crop; the timeliness of harvest; and the reduction in price actually realized are all variables that might influence a food safety and contamination issues insurance offer. Consequently, there are innumerable potential scenarios involving specialty food crops safety and contamination. Unless food safety issues are addressed in a newly developed, stand-alone food safety and contamination issues insurance policy, the interaction of these many variables create a potential logistical challenge for provision of crop insurance for food safety and contamination issues. Already insured crops will need to be treated differently from crops that do not currently have crop-specific insurance available. Leveling the playing field between already insured and uninsured crops would require more than simply providing coverage under the WFRP plan. Losses of crops that are directly contaminated would need to be addressed through different provisions and procedures than losses that result from collateral damage. Losses due to abandoned production and losses due to price collapse would need to be addressed for both direct and collateral impacts.

A crop by crop modification of existing insurance coverage would require substantial funding. Furthermore, each of the crop by crop development activities would likely require a time consuming research effort primarily to develop premium rates for that crop. Even with an extremely aggressive schedule, neither the current pool of agricultural consultants who address crop insurance issues nor RMA have the human resources to complete the required research and

development projects to implement insurance coverage for yield or revenue-based losses caused by food safety issues on a crop-by-crop basis in a timely fashion.

There are alternatives within the crop insurance model for developing insurance coverages. Endorsements to existing policies provide a voluntary way of providing additional coverage but are subject to adverse selection. Generalized terms within the Common Crop Insurance Policy Basic Provisions or the WFRP policy, with the proviso that supplementary terms may be provided by a crop provisions or a special provisions, are another method. In the latter case, the coverage becomes a mandatory feature of the policy protection. If recall coverage is identified as a desirable public policy goal, inclusion of that coverage in the Basic Provisions and/or the WFRP would be the most efficient manner to achieve it.

Overcoming These Impediments

The Contractor provides an overview of actions necessary to develop insurance for food safety and contamination issues, including actions that could be undertaken to address and overcome the identified impediments to implementation, in Attachment I.

SECTION VIII. SUMMARY OF FINDINGS

The SOW stated four objectives. A brief summary of findings is provided for each.

a) To "determine if providing food safety and contamination coverage would benefit agricultural producers of specialty crops."

Providing food safety and contamination issues crop insurance coverage would benefit some producers of specialty crops. However, the losses from those food safety issues are rare and the interest in such insurance appears to be limited. No producers provided input for the study which indicated interest. Further, the low interest in a broadly similar coverage, the Quarantine Pilot Endorsement, may be indicative of the potential interest in recall insurance that pays an indemnity for losses in the field due to inability to market as a result of a recall. One commenter suggested producers would have interest in recall liability insurance (responsibility for damages incurred by other parties). Such insurance is beyond the scope of the study and the legislation that directed it be undertaken.

b) To "help specialty crop producers and Congress understand how these risks are already being, or could be addressed by the crop insurance system."

The existing crop insurance paradigm limits coverage to losses directly affecting an insured crop due to adverse natural causes, not man-made events. Failure to timely harvest for any reason, or deterioration of production due to quarantine (very similar in effect to a recall), boycott, or refusal of any buyer to accept production are not insurable causes of loss. Thus, if a recall causes consumers to avoid a product or commodity resulting in a loss of market opportunities for producers, no liability accrues under the crop insurance program.

Some insurance policies contain quality adjustment provisions that reduce the production to count due to failure to meet designated standards. These provisions, if they exist in a specific crop provisions for a specific specialty crop, may or may not apply for the individual producer whose production is DIRECTLY affected by the reason for the recall. A recall, by its nature, means the product or commodity has entered the wholesale and retail food distribution channels. This occurs after removal of the commodity from the field or environment in which it was grown and typically after handling and processing of some sort. It could be difficult for the producer to demonstrate that the causal agent for the recall existed in the commodity before harvest. However, the present crop insurance policies, even with quality standards, would not extend relief to any producer whose production is not affected by the contaminating agent but cannot be marketed due to the effects of the recall.

Addressing these risks requires a change in the crop insurance paradigm. The Quarantine Endorsement available for two crops in several counties in California provides a model for that change.

c) To "find and evaluate any existing policies or plans of insurance on specialty crops that provide coverage for food safety concerns (i.e. government, retail, or national consumer group announcements of health advisory, product removal, or product recall related to a contamination concern) to help make this determination."

The Contractor was able to identify the quarantine endorsement reinsured by FCIC as an existing policy or plan of insurance that provides coverage for food safety concerns and that includes losses suffered by producers due to a man-made event (although that event is precipitated by the presence of some disease vector). As discussed in d) below, its applicability is a legal question. Many crop insurance policies, most of which do not cover specialty crops, do include quality provisions that reduce the production to count in the event mycotoxins or other substances injurious to human health are present. The FDA and USDA announce the existence of a recall action that falls within the purview of the respective Agency; however, the recall action itself must be initiated by a producer, a handler, a retailer, or similar entity that handles the commodity. There appears to be no systematic system to compensate producers for a "specialty crop … lost in field due to physical deterioration by natural causes" that results from a recall of the production of another producer or that results from contamination introduced in the marketing chain. Producers perhaps could pursue tort actions in civil courts as an alternative; such actions typically are expensive and lengthy.

d) To "determine what practical challenges are present that need to be overcome in order to create actuarially sound products related to these food safety risks."

The Contractor does not believe there are sufficient quantitative data to support a statistical approach to developing appropriate premium rates. A qualitative or judgmental approach will be needed. The Delphi method is an alternative used for complex issues that cannot be modeled. Hence, lack of sufficient quantitative data can be surmounted.

Ultimately, the Contractor identified six categories of potential impediments to the implementation of Specialty Crop Food Safety and Contamination Issues Insurance, including legislation, policy language, regulatory, actuarial, and logistic impediments, as well as impediments resulting from lack of currently available FCIC crop-specific coverage for a number of specialty crops. While none of these impediments introduces a completely insurmountable barrier to the offer of insurance, many require a substantial change from the paradigm upon which the current FCIC insurance offers are based.

The scope of the challenges depends in part on the chosen avenue for implementation if recall coverage is deemed to be a public policy initiative that should be undertaken. The most time-consuming and costly approach would be a crop by crop, location by location, development of amendments to each existing crop insurance policy and rating. The most expeditious approach would be to incorporate recall coverage into the Common Crop Insurance Policy Basic Provisions and the Whole Farm Revenue Protection provisions (i.e., making recall coverage a mandatory element of the crop insurance program) with generalized terms that could be amended via the special provisions. A generalized premium rate load could be established subject to refinement as experience dictates. Alternatively, the specialty crops could be assorted into categories (such as higher, medium, lower risk) with a common initial premium rate load for all crops in each category, again subject to refinement as experience dictates.

Appendix A

USDA AMS List of Specialty Crops

USDA Definition of Specialty Crop

BACKGROUND

The purpose of this document is to facilitate coordination among the various US Department of Agriculture (USDA) agencies with programs that address the needs of specialty crop producers, handlers and processors. Although a common definition of specialty crops across these agencies is desirable for USDA stakeholders and customers, it is also recognized that the mission of each agency is unique and so the application of a common definition might vary. It is also recognized that individual states may wish to modify the definition used by USDA to satisfy local or regional needs. The agencies involved in this effort were the Agricultural Marketing Service (AMS), the National Institute of Food and Agriculture (NIFA), the Foreign Agricultural Service (FAS), the National Agricultural Statistics Service (NASS), the Office of the Chief Economist (OCE), U.S. Forest Service (FS), the National Resource Conservation Service (NRCS) and the Risk Management Agency (RMA).

WHAT ARE SPECIALTY CROPS?

Specialty crops are defined in law as "fruits and vegetables, tree nuts, dried fruits and horticulture and nursery crops, including floriculture." This definition, although more exact than previous legal definitions, leaves a certain amount of latitude in interpretation. Fruits, vegetables, tree nuts, nursery crops and floricultural crops are all considered to be horticultural crops. Regardless, the specific mention of these crop groups means that plants so classified automatically qualify as specialty crops. Where interpretation is needed is in which plants, not specifically mentioned in legislation, can be classified as horticulture (sic) crops.

WHAT IS HORTICULTURE?

Horticulture is defined as that branch of agriculture concerned with growing plants that are used by people for food, for medicinal purposes, and for aesthetic gratification. Horticulture is divided into specializations. The terms used to describe these specializations derive from millennia of common usage and are sometimes at odds with botanical nomenclature. For example, vegetables are described as herbaceous plants of which some portion is eaten raw or cooked during the main part of a meal. Fruits, for horticultural purposes, are described as plants from which a more or less succulent fruit or closely related botanical structure is commonly eaten as a dessert or snack. By these definitions, plants such as tomato, squash and cucumber are considered vegetables despite the fact that the edible portion is defined botanically as a fruit. The delineation of plants by common usage was legally established in 1893 by the unanimous U.S. Supreme Court decision in the case of Nix vs. Hedden – 149 U.S. 304.

Over the last 60 years, agriculture, including horticulture, has become increasingly reliant on science and technology to maintain profitable production. The scientific study of horticulture is divided into various sub-disciplines. Pomology is defined as that branch of horticulture dealing with fruit and tree nut production. Fruit production includes the so-called tree fruits; such as apple, peach, and orange, and small fruits; such as strawberry, blueberry, and raspberry. Olericulture is defined as that branch of horticulture dealing with the production of vegetables and herbs. Floriculture is that branch of horticulture dealing with the production of field-grown or greenhouse-grown plants for their flowers or showy leaves. Environmental horticulture is that branch of horticulture that deals with the production of plants for ornamental use in constructed environments, both indoors and outdoors.

There are many facets to environmental horticulture. Nursery production involves growing plants under intensive management for use in another location. Nurseries are defined in a variety of ways:

a) the type of plant grown, such as fruit tree, turf or Christmas tree nurseries;

b) the function of the nursery, such as production, wholesale, retail, mail-order or landscape nurseries; and

c) the production system, such as field-grown or container-grown.

Landscape horticulture involves the design, installation, and maintenance of both outdoor and indoor environments. Public horticulture involves the design and maintenance of arboreta, public gardens, parks, and athletic facilities. Horticultural therapy involves the use of horticultural plants to improve the condition of people with physical, intellectual or emotional disabilities. Horticultural therapy also includes the use of plants in hospitals and other medical facilities to ease the pain and suffering of patients. Home horticulture involves the use of horticultural plants as a recreational activity, generally by non-professionals. Home horticulture is the most popular hobby in the United States with a commercial value of over $35 billion in 2012.

WHAT ARE CROPS?

There are many definitions of the word “crop”. When referring to plants, USDA considers crops to be those plants that are cultivated either for sale or for subsistence. There are many plants that are specialty crops when cultivated, but are also collected from wild populations. Wild plants are not considered specialty crops even though they may be used for the same purpose as cultivated plants. This is somewhat common among medicinal herbs and woodland plants. There are a number of native ferns that are collected from wild populations for use in the floral trade. There are also a number of marine plants that are collected from wild populations both for direct consumption and for industrial uses. Although these are specialty uses, wild plants are not considered specialty crops by USDA. However, natural populations of native plants that are brought into cultivation, such as sugar maple trees, pecans, blueberry, huckleberry and cranberry are considered specialty crops by USDA. In order for a plant to be considered cultivated, some form of management must be applied. The intensity of the management is not critical to determining whether a plant is cultivated or not. This definition includes plants or plant products harvested from “wild areas” whose populations are managed, monitored and documented to ensure long-term, sustainable production. If a naturally occurring population of plants is brought under management and that plant satisfies the definition of specialty crop presented in the second paragraph of this document, then those plants would be considered specialty crops. It is common for such plants to be designated “wild-harvested” for marketing purposes. Such a designation does not preclude a plant from being considered a specialty crop as long as the above criteria are met. For the purpose of some programs in which state agencies are the eligible entities, states may choose to define plants collected from the wild as specialty crops.

Similarly, some cultivated plants have multiple uses. Amaranth may be grown as a leafy green, or it may be grown as a grain. Leafy greens are vegetables, therefore amaranth grown in such a manner would be considered a specialty crop. However, grains are not specialty crops, therefore amaranth grown for grain would not be considered a specialty crop. There are many other examples of crops with multiple uses and an exhaustive list would not be possible here. However, the following groups of crops are not considered specialty crops: grains (corn, wheat, rice, etc.), oil seed crops (canola, soy bean, camelina, etc), bio-energy crops (switchgrass, sugar cane, etc), forages (hay, alfalfa, clover, etc.), field crops (peanut, sugar beet, cotton, etc.), and plants federally controlled as illegal drug plants (cannabis, coca).

The following appendices give examples of plants that are considered specialty crops by USDA. These appendices are not intended to be all-inclusive, but rather are intended to give examples of the most common members of the various groups.

APPENDIX A – PLANTS COMMONLY CONSIDERED FRUITS AND TREE NUTS

Almond	Grape (including Raisin)
Apple	Guava
Apricot	Kiwi
Avocado	Litchi
Banana	Macadamia
Blackberry	Mango
Blueberry	Nectarine
Breadfruit	Olive
Cacao	Papaya
Cashew	Passion Fruit
Citrus	Peach
Cherimoya	Pear
Cherry	Pecan
Chestnut (for Nuts)	Persimmon
Coconut	Pineapple
Coffee	Pistachio
Cranberry	Plum (including Prune)
Currant	Pomegranate
Date	Quince
Feijoa	Raspberry
Fig	Strawberry
Filbert (Hazelnut)	Surinam Cherry
Gooseberry	Walnut

APPENDIX B – PLANTS COMMONLY CONSIDERED VEGETABLES

Artichoke	Mustard and Other Greens
Asparagus	Okra
Bean Snap or Green Lima Dry, Edible	Pea Garden English or Edible Pod Dry, Edible
Beet, Table	Onion
Broccoli (including Broccoli Raab)	Opuntia
Brussels Sprouts	Parsley
Cabbage (including Chinese)	Parsnip
Carrot	Pepper
Cauliflower	Potato
Celeriac	Pumpkin
Celery	Radish (All Types)
Chickpeas (Large and Small)	Rhubarb
Chive	Rutabaga
Collards (including Kale)	Salsify
Cucumber	Spinach
Eggplant	Squash (Summer and Winter)
Endive	Sweet Corn
Garlic	Sweet Potato
Horseradish	Swiss Chard
Kohlrabi	Taro
Leek	Rhubarb
Lentils	Tomato (including Tomatillo)
Lettuce	Turnip
Melon (All Types)	Watermelon
Mushroom (Cultivated)	

APPENDIX C: PLANTS COMMONLY CONSIDERED CULINARY HERBS AND SPICES

Ajwain	Clary	Malabathrum
Allspice	Cloves	Marjoram
Angelica	Comfrey	Mint (All Types)
Anise	Common Rue	Nutmeg
Annatto	Coriander	Oregano
Artemisia (All Types)	Cress	Orris Root
Asafetida	Cumin	Paprika
Basil (All Types)	Curry	Parsley
Bay (Cultivated)	Dill	Pepper
Bladder Wrack	Fennel	Rocket (Arugula)
Bolivian Coriander	Fenugreek	Rosemary
Borage	Filé (Gumbo, Cultivated)	Rue
Calendula	Fingerroot	Saffron
Chamomile	French Sorrel	Sage (All Types)
Candle Nut	Galangal	Savory (All Types)
Caper	Ginger	Tarragon
Caraway	Hops	Thyme
Cardamom	Horehound	Turmeric
Cassia	Hyssop	Vanilla
Catnip	Lavender	Wasabi
Chervil	Lemon Balm	Water Cress
Chicory	Lemon Thyme	
Cicely	Lovage	
Cilantro	Mace	
Cinnamon	Mahlab	

APPENDIX D: PLANTS COMMONLY CONSIDERED MEDICINAL HERBS

Artemissia	Mullein
Arum	Passion Flower
Astragalus	Patchouli
Boldo	Pennyroyal
Cananga	Pokeweed
Comfrey	St. John's Wort
Coneflower	Senna
Fenugreek	Skullcap
Feverfew	Sonchus
Foxglove	Sorrel
Ginko Biloba	Stevia
Ginseng	Tansy
Goat's Rue	Urtica
Goldenseal	Witch Hazel
Gypsywort	Wood Betony
Horehound	Wormwood
Horsetail	Yarrow
Lavender	Yerba Buena
Liquorice	
Marshmallow	

APPENDIX E: PLANTS COMMONLY CONSIDERED FLORICULTURE AND NURSERY CROPS

This list includes the major segments of floriculture and nursery crops. For each segment, a non-exclusive list of the most common plants is provided. Providing a complete list for each segment would not be practical given the thousands of different ornamental plant taxa that are commercially produced.

Annual Bedding Plants

Begonia	Coleus	Dahlia
Geranium	Impatiens	Marigold
Pansy	Petunia	Snapdragon
Vegetable Transplants		

Broadleaf Evergreens

Azalea	Boxwood	Cotoneaster
Euonymus	Holly	Pieris
Rhododendron	Viburnum	

Christmas Trees

Balsam Fir	Blue Spruce	Douglas Fir
Fraser Fir	Living Christmas Tree	Noble Fir
Scots Pine	White Pine	

Cut Cultivated Greens

Asparagus Fern	Coniferous Evergreens	Eucalyptus
Holly	Leatherleaf Fern	Pittosporum

Cut Flowers

Carnation	Chrysanthemum	Delphinium
Gladiolus	Iris	Lily
Orchid	Rose	Snapdragon
Tulip		

Deciduous Flowering Trees

Crabapple	Dogwood	Crepe Myrtle
Flowering Pear	Flowering Cherry	Flowering Plum

Hawthorn	Magnolia	Redbud
Service Berry		

Deciduous Shade Trees

Ash	Elm	Honey Locust
Linden	Maple	Oak
Poplar	Sweetgum	Sycamore

Deciduous Shrubs

Barberry	Buddleia	Hibiscus
Hydrangea	Rose	Spirea
Viburnum	Weigela	

Foliage Plants

Anthurium	Bromeliad	Cacti
Dieffenbachia	Dracaena	Fern
Ficus	Ivy	Palm
Philodendron	Spathipyllum	

Fruit And Nut Plants

Berry Plants	Citrus Trees	Deciduous Fruit and Nut Trees
Grapevines		

Landscape Conifers

Arborvitae	Chamaecyparis	Fir
Hemlock	Juniper	Pine
Spruce	Yew	

Potted Flowering Plants

African Violet	Azalea	Florist Chrysanthemum
Flowering Bulbs	Hydrangea	Lily
Orchid	Poinsettia	Rose

Potted Herbaceous Perennials

Astilbe	Columbine	Coreopsis
Daylily	Delphinium	Dianthus
Garden Chrysanthemum	Heuchera	Hosta
Ivy	Ornamental Grasses	Peony
Phlox	Rudbeckia	Salvia
Vinca		

Propagative Materials

Bare-Root Divisions	Cuttings	Liners
Plug Seedlings	Tissue-Cultured Plantlets	Prefinished Plants

APPENDIX F: EXAMPLES OF INELIGIBLE CROPS

The following lists are not intended to be all-inclusive but to provide guidance based on previous inquiries.

Oil Seed Crops (including oil and non-oil cultivars)

Camelina	Canola	Cottonseed
Crambe	Flaxseed	Linseed
Mustard seed	Peanut	Rapeseed
Safflower	Sesame	Soybean
Sunflower seed		

Field and Grain Crops

Amaranth for grain	Buckwheat	Barley
Corn	Cotton	Grain sorghum
Oats	Peanut	Proso millet
Rye	Quinoa	Rice (including wild)
Sugar beet	Sugarcane	Tobacco
Wheat		

Forage Crops

Alfalfa	Clover	Hay
Range grasses		

Fiber Crops

Cotton	Flax	Hemp

Appendix B

Specialty Food Crops from the USDA AMS List with No Crop-specific FCIC Insurance.

Exhibit 1. Specialty Food Crops from the USDA AMS List with No Crop-specific FCIC Insurance Sorted by Crop Category

Exhibit 2. NASS Documented Specialty Food Crops Values from Crops with No Crop-specific FCIC Insurance

Exhibit 1

Specialty Food Crops from the USDA AMS List with No Crop-specific FCIC Insurance Sorted by Crop Category

Crop	Classification	Further Classification
Ajwain	Culinary Herbs and Spices	
Allspice	Culinary Herbs and Spices	
Angelica	Culinary Herbs and Spices	
Anise	Culinary Herbs and Spices	
Annatto	Culinary Herbs and Spices	
Artemisia (All Types)	Culinary Herbs and Spices	
Asafetida	Culinary Herbs and Spices	
Balm	Culinary Herbs and Spices	
Basil (All Types)	Culinary Herbs and Spices	
Bay (Cultivated)	Culinary Herbs and Spices	
Bladder Wrack	Culinary Herbs and Spices	
Bolivian Coriander	Culinary Herbs and Spices	
Borage	Culinary Herbs and Spices	
Calendula	Culinary Herbs and Spices	
Candle Nut	Culinary Herbs and Spices	
Caper	Culinary Herbs and Spices	
Caraway	Culinary Herbs and Spices	
Cardamom	Culinary Herbs and Spices	
Cassia	Culinary Herbs and Spices	
Catnip	Culinary Herbs and Spices	
Chamomile	Culinary Herbs and Spices	
Chervil	Culinary Herbs and Spices	
Chicory	Culinary Herbs and Spices	
Cicely	Culinary Herbs and Spices	
Cilantro	Culinary Herbs and Spices	
Cinnamon	Culinary Herbs and Spices	
Clary	Culinary Herbs and Spices	
Cloves	Culinary Herbs and Spices	
Comfrey	Culinary Herbs and Spices	Medicinal Herbs
Common Rue	Culinary Herbs and Spices	
Coriander	Culinary Herbs and Spices	
Cress	Culinary Herbs and Spices	
Cumin	Culinary Herbs and Spices	
Curry	Culinary Herbs and Spices	
Dill	Culinary Herbs and Spices	
Fennel	Culinary Herbs and Spices	
Fenugreek	Culinary Herbs and Spices	Medicinal Herbs
Filé (Gumbo, Cultivated)	Culinary Herbs and Spices	
Fingerroot	Culinary Herbs and Spices	
French Sorrel	Culinary Herbs and Spices	
Galangal	Culinary Herbs and Spices	
Ginger	Culinary Herbs and Spices	
Hops	Culinary Herbs and Spices	
Horehound	Culinary Herbs and Spices	Medicinal Herbs
Hyssop	Culinary Herbs and Spices	
Lavender	Culinary Herbs and Spices	Medicinal Herbs
Lovage	Culinary Herbs and Spices	
Mace	Culinary Herbs and Spices	
Mahlab	Culinary Herbs and Spices	
Malabathrum	Culinary Herbs and Spices	
Marjoram	Culinary Herbs and Spices	
Nutmeg	Culinary Herbs and Spices	
Oregano	Culinary Herbs and Spices	
Orris Root	Culinary Herbs and Spices	
Paprika	Culinary Herbs and Spices	

Crop	Classification	Further Classification
Pepper	Culinary Herbs and Spices	
Rocket (Arugula)	Culinary Herbs and Spices	
Rosemary	Culinary Herbs and Spices	
Rue	Culinary Herbs and Spices	Medicinal Herbs
Saffron	Culinary Herbs and Spices	
Sage (All Types)	Culinary Herbs and Spices	
Savory (All Types)	Culinary Herbs and Spices	
Tarragon	Culinary Herbs and Spices	
Thyme	Culinary Herbs and Spices	
Turmeric	Culinary Herbs and Spices	
Vanilla	Culinary Herbs and Spices	
Wasabi	Culinary Herbs and Spices	
Water Cress	Culinary Herbs and Spices	
Blackberry	Fruits and Tree Nuts	
Breadfruit	Fruits and Tree Nuts	
Cacao	Fruits and Tree Nuts	
Cherimoya	Fruits and Tree Nuts	
Chestnut (for Nuts)	Fruits and Tree Nuts	
Coconut	Fruits and Tree Nuts	
Currant	Fruits and Tree Nuts	
Date	Fruits and Tree Nuts	
Feijou	Fruits and Tree Nuts	
Gooseberry	Fruits and Tree Nuts	
Guava	Fruits and Tree Nuts	
Kiwi	Fruits and Tree Nuts	
Litchi	Fruits and Tree Nuts	
Passion Fruit	Fruits and Tree Nuts	
Persimmon	Fruits and Tree Nuts	
Pineapple	Fruits and Tree Nuts	
Pomegranate	Fruits and Tree Nuts	
Quince	Fruits and Tree Nuts	
Raspberry	Fruits and Tree Nuts	
Suriname Cherry	Fruits and Tree Nuts	
Artemissia	Medicinal Herbs	
Arum	Medicinal Herbs	
Astragalus	Medicinal Herbs	
Biloba Stevia	Medicinal Herbs	
Boldo	Medicinal Herbs	
Cananga	Medicinal Herbs	
Coneflower	Medicinal Herbs	
Feverfew	Medicinal Herbs	
Foxglove	Medicinal Herbs	
Ginko	Medicinal Herbs	
Ginseng	Medicinal Herbs	
Goat’s rue	Medicinal Herbs	
Goldenseal	Medicinal Herbs	
Gypsywort	Medicinal Herbs	
Horsetail	Medicinal Herbs	
Liquorice	Medicinal Herbs	
Marshmallow	Medicinal Herbs	
Mullein	Medicinal Herbs	
Passion Flower	Medicinal Herbs	
Patchouli	Medicinal Herbs	
Pennyroyal	Medicinal Herbs	
Pokeweed	Medicinal Herbs	

Crop	Classification	Further Classification
Senna	Medicinal Herbs	
Skullcap	Medicinal Herbs	
Sonchus	Medicinal Herbs	
Sorrel	Medicinal Herbs	
St. John's Wort	Medicinal Herbs	
Tansy	Medicinal Herbs	
Urtica	Medicinal Herbs	
Witch Hazel	Medicinal Herbs	
Wood Betony	Medicinal Herbs	
Wormwood	Medicinal Herbs	
Yarrow	Medicinal Herbs	
Yerba Buena	Medicinal Herbs	
Artichoke	Vegetables	
Asparagus	Vegetables	
Beet, Table	Vegetables	
Broccoli (including Broccoli Raab)	Vegetables	
Brussels Sprouts	Vegetables	
Carrot	Vegetables	
Cauliflower	Vegetables	
Celeriac	Vegetables	
Celery	Vegetables	
Chive	Vegetables	
Collards (including Kale)	Vegetables	
Cucumber	Vegetables	
Eggplant	Vegetables	
Endive	Vegetables	
Garlic	Vegetables	
Horseradish	Vegetables	
Kohlrabi	Vegetables	
Leek	Vegetables	
Lettuce	Vegetables	
Mushroom (Cultivated)	Vegetables	
Okra	Vegetables	
Opuntia	Vegetables	
Parsley	Vegetables	Culinary Herbs and Spices
Parsnip	Vegetables	
Pea, Garden	Vegetables	
Radish (All Types)	Vegetables	
Rhubarb	Vegetables	
Rutabaga	Vegetables	
Salsify	Vegetables	
Spinach	Vegetables	
Squash (Summer and Winter)	Vegetables	
Swiss Chard	Vegetables	
Taro	Vegetables	
Turnip	Vegetables	
Watermelon	Vegetables	

Exhibit 2

NASS Documented Specialty Food Crops Values from Crops with No Crop-specific FCIC Insurance

Crop (Organic with Sales in $)	Classification	Value of Production (000)
Blackberry	Fruits and Tree Nuts	$4,570
Breadfruit	Fruits and Tree Nuts	
Cacao	Fruits and Tree Nuts	
Cherimoya	Fruits and Tree Nuts	
Chestnut (for Nuts)	Fruits and Tree Nuts	
Coconut	Fruits and Tree Nuts	
Currant	Fruits and Tree Nuts	
Date	Fruits and Tree Nuts	$8,603
Feijoa	Fruits and Tree Nuts	
Gooseberry	Fruits and Tree Nuts	
Guava	Fruits and Tree Nuts	
Kiwi	Fruits and Tree Nuts	
Litchi	Fruits and Tree Nuts	
Passion Fruit	Fruits and Tree Nuts	
Persimmon	Fruits and Tree Nuts	
Pineapple	Fruits and Tree Nuts	
Pomegranate	Fruits and Tree Nuts	
Quince	Fruits and Tree Nuts	
Raspberry	Fruits and Tree Nuts	$12,882
Suriname Cherry	Fruits and Tree Nuts	
Artichoke	Vegetables	$1,455
Asparagus	Vegetables	
Beet, Table	Vegetables	
Broccoli (including Broccoli Raab)	Vegetables	$33,178
Brussels Sprouts	Vegetables	
Carrot	Vegetables	$11,530
Cauliflower	Vegetables	$17,659
Celeriac	Vegetables	
Celery	Vegetables	$27,068
Chive	Vegetables	
Collards (including Kale)	Vegetables	
Cucumber	Vegetables	
Eggplant	Vegetables	
Endive	Vegetables	
Garlic	Vegetables	$7,319
Horseradish	Vegetables	
Kohlrabi	Vegetables	
Leek	Vegetables	
Lettuce	Vegetables	$186,621
Mushroom (Cultivated)	Vegetables	
Okra	Vegetables	
Opuntia	Vegetables	
Parsley	Vegetables	
Parsnip	Vegetables	
Pea, Garden	Vegetables	$6,954
Radish (All Types)	Vegetables	
Rhubarb	Vegetables	
Rutabaga	Vegetables	

Crop (Organic with Sales in $)	Classification	Value of Production (000)
Salsify	Vegetables	
Spinach	Vegetables	$37,437
Squash (Summer and Winter)	Vegetables	$20,401
Swiss Chard	Vegetables	
Taro	Vegetables	
Turnip	Vegetables	
Watermelon	Vegetables	$5,017

Appendix C

Listening Sessions

Exhibit 1

Grower Associations Contacted

Florida
Florida Tomato Committee
Florida Specialty Crop Foundation
Florida Fruit and Vegetable Association
Florida Strawberry Growers Association
Florida Blueberry Growers Association
Florida Nursery Growers and Landscape Association
Florida Grape Growers Association

New York
New York State Vegetable Growers Association
New York State Berry Growers Association
New York Nut Growers Association
New York Apple Association
National Onion Association

New Jersey
Garden State Wine Growers Association
Vegetable Growers Association of New Jersey
American Cranberry Growers Association

Michigan
Michigan Blueberry Growers Association
Michigan Nut Growers Association
Michigan Farmers Market Association
Michigan Apple Committee

Wisconsin
Wisconsin Fresh Market Vegetable Growers
Wisconsin Grape Growers Association
Wisconsin State Cranberry Growers Association
Wisconsin Potato & Vegetable Growers Association
Wisconsin Apple Growers Association
The Wisconsin Berry Growers Association
Midwest Organic Sustainable Education Service

California
Western Growers Association
California Tomato Growers Association
Almond Board of California
California Garlic & Onion Advisory Board
California Pear Advisory Board
Napa Valley Olive Growers

Exhibit 2

Periodicals in which Listening Sessions Were Advertised

Publications Used for Advertisements	Region Covered
American Farm-Mid-Atlantic Grower	New York/New Jersey
American Farm-The New Jersey Farmer	New York/New Jersey
Farmers Advance	Michigan
Wisconsin State Farmer	Wisconsin
Farmer & Rancher	Florida
Capital Press	California

Exhibit 3

Sample Listening Session Advertisement

(For 508 compliance, the language of the advertisement is included as alternate text imbedded behind the image).

11/10/2014 Farmers' Advance Classifieds: Announcements

Announcements

RMA CONTRACTOR Food Safety Insurance Listening Session Scheduled Watts and Associates, Inc. will hold a teleconference listening session on November 13, 2014 beginning at 10:00 am. W&A hopes to obtain input about food safety and the effects of recalls on the ability of specialty crop producers to market their crops, input on the level of concern these issues raise, and any other relevant feedback. The session is open to the public. If you are unable to attend, but want your opinion recorded, you can provide input to Randy Landgren at Watts and Associates, Inc. by email at rlandgren@wattsandassociates.com. Please access the teleconference number by going to www.wattsandassociates.com/foodsafetyls.html

Exhibit 4

Press Release

Government Contractor Holds Listening Session on Federal Insurance for Specialty Crops from Food Safety and Contamination Issues.

One action in the Agricultural Act of 2014 (Public Law 113-79) was the inclusion of an amendment to Section 522(c) of the Federal Crop Insurance Act (7 U.S.C. 1522(c)). One portion of this amendment added a subparagraph to the Federal Crop Insurance Act directing the Federal Crop Insurance Corporation (FCIC) to enter into a contract for a study of insurance policies that might provide coverage for specialty crop production or revenue losses resulting from food safety and contamination issues. Specialty crops are defined in law as "fruits and vegetables, tree nuts, dried fruits and horticulture and nursery crops, including floriculture." Health advisories and/or recalls related to contamination concerns and issued by government, retail, or national consumer group will be considered.

The United States Department of Agriculture (USDA), Risk Management Agency (RMA) Office of Product Management issued a contract on behalf of the FCIC. In that contract, a "Food Safety and Contamination Issue" is defined as "an issue when a specialty crop food has been contaminated or tainted making it unfit for consumption which results in a recall and causes an inability of producers to market their specialty crop from the field and the specialty crop is lost in field due to physical deterioration by natural causes."

Watts and Associates, Inc. (W&A) was awarded the contract to conduct this food safety research study. Part of the research involves gathering stakeholder input. To that end, W&A is conducting a listening session open to the public at the Heidrick Ag History Center, 1962 Hays Lane, Woodland, CA 95776 on October 30, 2014 at 9:00 am. W&A hopes to obtain input about food safety and the effects of recalls on the ability of specialty crop producers to market their crops, input on the level of concern these issues raise, and other relevant feedback. If you are unable to attend, you can provide your input to Randy Landgren at W&A by email at rlandgren@wattsandassociates.com.

Exhibit 5

Listening Session Agenda

Food Safety Study Listening Session Agenda

- Introductions
  - Watts and Associates, Inc.
  - Attendees

- Purpose
  - Gather stakeholder input
  - Learn about effects on producers' access to markets following a food recall

- Background
  - FCIC Insurance (Specialty Crops)
  - Legislative Authority/Restrictions
  - Recent History of Food Safety Recalls
  - Frequency/Severity

- Stakeholder Input
  - Experiences with Food Safety Recall
  - Issues with the Food Safety Recall Process (the Process)
  - Does the Process Work?
  - Impacts of Recalls on Market Access
  - How I Protect Myself from the Risks Related to Food Safety Issues

- Questions

Exhibit 6

Stakeholder Comments

Commenter Type	Stakeholder Comment
Grower Organization	I reached out to one of our specialists with Stone fruit and she indicated that she didn't know of any food safety recalls among the wineries and growers in the State of Florida.
Grower Organization	Our growers are not concerned with recalls as their production primarily goes into producing wines.
Grower Organization	The impression is that many times the impact is regional and they rebound rather quickly but actually it takes quite a while for the markets to get back to normal. For example, the spinach recall in 2008 impacted the markets until this year.
Grower Organization	The spinach recall impacted all leafy greens, not just spinach.
Grower Organization	Specialty Crops are a different commodity than grain crops with different marketing practices and different farming practices; need to make sure any development effort takes these differences into consideration.
Grower Organization	Growers will need to be educated about insurance before even discussing needs for insurance as most growers do not have access to insurance for their crops.
Government Official	Georgia Fruit and Vegetable Association typically do a lot of training in this area and might be interested.
Government Official	How are you going to get growers to buy an insurance product when they look in the past 10 – 15 years and a safety recall hasn't happened?
Extension Specialist	That is much bigger issue for growers, particularly in the Southern part of the State. I have heard of that. Delaware or Maryland had to deal with the recall of 300 acres worth of Spinach.
Extension Specialist	This is all very interesting. With our Food Safety program, we always recognize that we are missing the insurance end and the liability end and it concerns us...because there is a lot of opportunity for things to go wrong for growers.

Appendix D

Food Safety Recalls

Exhibit 1. Sample Recall Notices
Exhibit 2. State Food Safety Monitoring Agencies
Exhibit 3. Food Recall Notices: 2014
Exhibit 4. Recall Notices for unprocessed and Minimally Processed Specialty Crop Foods: 2012 through 2014

Exhibit 1

Sample Recall Notices

North Carolina Farm Recalls Athena Cantaloupes

Contact
Consumer:
Michael Norton:
207-885-3132

FOR IMMEDIATE RELEASE - July 28, 2012 - On Saturday, Burch Farms of North Carolina announced a recall of Athena cantaloupes because the product may contain listeria monocytogenes. No illnesses have been associated with this recall, according to Burch Farms.

Hannaford is advising customers because its stores had carried Burch Farms Athena cantaloupes. The product has been removed. Athena cantaloupes, a variety grown in the Southeastern United States, are a whole cantaloupe produce item. If stickered, the label on the item will reference Burch Farm and read: "Cantaloupe PLU 4319."

Customers should not consume these cantaloupes. Return the item to stores or dispose of the item and return the sticker for a full refund. Listeria has the potential to cause serious illness.

No other products are affected by this recall.

Hannaford Supermarkets, based in Scarborough, Maine, operates 181 stores and employs more than 26,000 associates in Maine, Massachusetts, New Hampshire, New York and Vermont. For additional information, visit disclaimer icon www.hannaford.com.

Burch Equipment LLC Expands Recall to Include Additional Cantaloupe Shipping Dates and to include Honeydew Melons

Contact
Consumer:
910-267-5781
burch@intrstar.net

FOR IMMEDIATE RELEASE - August 10, 2012 - Burch Equipment LLC, North Carolina, is expanding its recall to include all of this growing season's cantaloupes and honeydew melons that may remain on the market because they may possibly be contaminated with Listeria monocytogenes. There have been no illnesses reported to date.

Listeria monocytogenes is an organism which can cause serious and sometimes fatal infections in young children, frail or elderly people, and others with weakened immune systems. Although healthy individuals may suffer only short-term symptoms such as high fever, severe headache, stiffness, nausea, abdominal pain and diarrhea, infection can cause miscarriages and stillbirths among pregnant women. The incubation period (the length of time between consuming a product and becoming ill) for Listeria monocytogenes can be 1 to 3 weeks, but may be in the range of 3 to 70 days.

The whole cantaloupes are identified by a red label reading Burch Farms referencing PLU # 4319. All cantaloupes involved in the recall were grown by Burch Farms, however some of the cantaloupes may have been identified with a "Cottle Strawberry, Inc." sticker referencing PLU #4319 (note: Cottle Strawberry, Inc. did not grow or process the cantaloupe involved in this recall). Cantaloupes from Burch Farms were shipped in both corrugated boxes (9 cantaloupe per case) and in bulk bins.

Honeydew melons involved in this recall expansion do not bear any identifying stickers and were packed in cartons labeled melons.

Consumers who may have purchased these honeydew melons should contact the store where they purchased their melons, for information about whether those melons are part of this recall.

The cantaloupes and honeydew melons involved in this expanded recall were sold to distributors between June 23rd and July 27th, in the following states: FL, GA, IL, KY, MA, MD, ME, MI, NC, NH, NJ, NY, OH, PA, SC, and VA, VT and WV. The melons may have further been distributed to retail stores, restaurants and food service facilities in other states."

Burch Equipment LLC is requesting any consumer that may have one of these cantaloupes or honeydews to discard the product.

There have been no illnesses reported to date. FDA and the North Carolina Department of Agriculture and Consumer Services are working with Burch Equipment LLC following a random sample of a cantaloupe testing positive for Listeria monocytogenes.

This recall expansion is based on FDA's finding of Listeria monocytogenes on a honeydew melon grown and packed by Burch.

Questions can be directed to Burch Equipment LLC at 910-267-5781 Monday through Friday, (9:00am to 4:00pm) or email burch@intrstar.net.

Pacific Organic Produce Announce Voluntary Recall of Mangos Due to Possible Health Risk

Contact:
Consumer:
415-673-5555
amy@pacorg.com

FOR IMMEDIATE RELEASE - May 5th, 2014 - Pacific Organic Produce, San Francisco, CA is voluntarily recalling a limited number of cases of organic Tommy Atkins mangos (PLU numbers 94051 & 94959) that were sold under the Purity Organic brand between the dates of April 14, 2014 and May 2, 2014 due to a possible health risk from Listeria monocytogenes. No illnesses have been reported in association with the recall and no other mangos or products under the Purity Organic brand are being recalled.

No illnesses have been reported to date. However, the recall was issued as a precaution because a single sample in a FDA sample yielded a positive result for Listeria monocytogenes. Pacific Organic Produce is coordinating closely with regulatory officials and has contacted its customers to ensure that any remaining recalled products are removed. Listeria monocytogenes is an organism that can cause foodborne illness in a person who consumes a food item contaminated with it. Symptoms of infection may include fever, muscle aches and gastrointestinal symptoms such as nausea or diarrhea. The illness primarily impacts pregnant women and adults with weakened immune systems. Most healthy adults and children rarely become seriously ill.

The PLU number is printed in the middle of the PLU sticker on the fruit. The mangos were shipped to retailers and distributors in limited quantities within five (5) U.S. states (Arizona, California, Colorado, New Jersey and Texas).

Only the specific PLU numbers and sell dates identified above are included in this recall. Consumers who have any remaining product with these Product Codes purchased between the dates of April 14, 2014 and May 2, 2014 should not consume it, but rather should discard it. Consumers should retain their store receipts, PLU stickers or any other proof of purchase they may have. Retailers and consumers with questions may call Amy Rosenoff at Pacific Organic Produce customer service at 415-673-5555, which is open 8:00 am to 4:00 pm (PT) Monday - Friday.

Tanimura & Antle Voluntarily Recalls Single Lot of Romaine Lettuce Because of Possible Health Risk

Contact
Consumer:
877-827-7388 (8 a.m. - 5 p.m. PDT, Monday-Friday)

FOR IMMEDIATE RELEASE – August 19, 2012 – Tanimura & Antle Inc. is voluntarily recalling a single lot of romaine lettuce because it may be contaminated with Escherichia coli O157:H7 bacteria (E. Coli O157:H7). The affected product is limited to Tanimura & Antle Field Fresh Wrapped Single Head Romaine. This product is packed in a plastic bag with the UPC number 0-27918-20314-9 and may have a Best Buy date of "08 19 12". The product was available at retail locations Aug. 2 – Aug. 19, 2012. NO OTHER TANIMURA & ANTLE PRODUCTS ARE BEING RECALLED.

A total of 2,095 cases of potentially affected product were distributed throughout the US and Canada starting on August 2. A total of 1,969 cases were shipped to the following states: AL, AR, AZ, CA, GA, KS, KY, MD, NC, NM, NV, NY, NJ, PA, SC, TN, TX, VA, WA and Puerto Rico.

Importantly, there are no reported illnesses associated with consumption of this product. E.coli O157:H7 can cause a diarrheal illness, often with bloody stools. Although most healthy adults can recover completely within a week, some people can develop a form of kidney failure called Hemolytic Uremic Syndrome (HUS). HUS is most likely to occur in young children and the elderly. The condition can lead to serious kidney damage and even death.

The recall is being conducted in consultation with FDA, and is based on the testing of a single random sample by the Canadian Food Inspection Agency.

The affected product was shipped in cases packed in either 12 or 18 heads per case. Retailers and Distributors can identify the affected products through a traceability code label affixed to exterior of the case. The traceability code label affixed to the exterior of the case is 5417802151. Tanimura and Antle's #1 priority is food safety, and in an overabundance of caution we are asking that if any of the above Romaine is in the possession of consumers, retailers or distributors, the product be disposed of and not consumed.

Consumers with questions or who would like replacement coupons may call at 877-827-7388, 8 a.m. - 5 p.m. PDT, Monday-Friday.

Exhibit 2

State Food Safety Monitoring Agencies

State Level Agencies Responsible for Food Safety and Recall
(Many of these websites refer the researcher to FoodSafety.gov.)

Alabama Department of Agriculture and Industries: http://www.agi.alabama.gov/divisions/food-safety
Alabama Public Health: http://www.adph.org/

Alaska Department of Natural Resources, Division of Agriculture: http://dnr.alaska.gov/ag/
Alaska Division of Environmental Health Food Safety and Sanitation Program: http://dec.alaska.gov/eh/fss/recallsalerts.html

Arizona Department of Agriculture: https://agriculture.az.gov/
Arizona Department of Health Services: http://www.azdhs.gov/phs/oeh/fses/index.htm

Arkansas Agriculture Department: http://aad.arkansas.gov/Pages/default.aspx
Arkansas Department of Health: http://www.healthy.arkansas.gov/Pages/default.aspx

California Department of Food and Agriculture: http://cdfa.ca.gov/ahfss/Animal_Health/Food_Safety.html
California Department of Public Health: http://www.cdph.ca.gov/HEALTHINFO/Pages/fdbFr.aspx

Colorado Department of Agriculture: http://www.colorado.gov/cs/Satellite/ag_Main/CBON/1251599402890
Colorado Department of Public Health and Environment: https://www.colorado.gov/pacific/cdphe/food-drug-and-cosmetic-recalls

Connecticut Department of Agriculture: http://www.ct.gov/doag/site/default.asp
Connecticut Department of Public Health: http://www.ct.gov/dph/cwp/view.asp?a=3136&q=388294

Delaware Department of Agriculture: http://dda.delaware.gov
Delaware Division of Public Health: http://www.dhss.delaware.gov/dhss/dph/hsp/foodsafety.html#Recalls

Florida Department of Agriculture and Consumer Services: http://www.freshfromflorida.com/Food-Nutrition/Food-Safety
Florida Department of Health: http://www.floridahealth.gov/

Georgia Department of Agriculture: http://agr.georgia.gov/recalls.aspx
Georgia Department of Public Health: http://dph.georgia.gov/

Hawaii Department of Agriculture: http://hdoa.hawaii.gov/
Hawaii State Department of Health: http://health.hawaii.gov/

Idaho Department of Health and Welfare: http://www.healthandwelfare.idaho.gov/
Idaho State Department of Agriculture: http://www.agri.idaho.gov/

Illinois Department of Agriculture: http://www.agr.state.il.us/
Illinois Department of Public Health: http://www.recalls.gov/food.html

Indiana State Department of Agriculture: http://www.in.gov/isda/
Indiana State Department of Health: http://www.in.gov/isdh/20640.htm

Iowa Department of Agriculture and Land Stewardship:
http://www.iowaagriculture.gov/FoodSafetyDivision.asp
Iowa Department of Public Health: http://www.idph.state.ia.us/

Kansas Department of Agriculture: http://www.agriculture.ks.gov/
Kansas Department of Health and Environment: http://www.kdheks.gov/

Kentucky Cabinet for Health and Family Services: http://chfs.ky.gov/
Kentucky Department of Agriculture: http://www.kyagr.com/

Maine Center for Disease Control and Prevention: http://www.maine.gov/dhhs/mecdc/
Maine Department of Agriculture, Conservations and Forestry:
http://www.maine.gov/dacf/about/index.shtml

Maryland Department of Agriculture: http://mda.maryland.gov/Pages/homepage.aspx
Maryland Department of Health and Mental Hygiene:
http://phpa.dhmh.maryland.gov/OEHFP/OFPCHS/SitePages/Home.aspx

Massachusetts Department of Agricultural Resources: http://www.mass.gov/eea/agencies/agr/
Massachusetts Health and Human Services:
http://www.mass.gov/eohhs/gov/departments/dph/programs/environmental-health/food-safety/recalls-and-alerts/

Michigan Department of Agriculture and Rural Development:
http://www.michigan.gov/mdard/0,4610,7-125-50772_50776---,00.html
Michigan Department of Community Health: http://www.michigan.gov/mdch

Minnesota Department of Agriculture: http://www.mda.state.mn.us/en/food/safety/recalls.aspx
Minnesota Department of Health: http://www.mda.state.mn.us/food/safety/recalls.aspx

Mississippi Department of Agriculture and Commerce: http://www.mdac.state.ms.us/
Mississippi State Department of Health: http://www.msdh.state.ms.us/

Missouri Department of Agriculture: http://agriculture.mo.gov/connect/foodsafety.php
Missouri Department of Health and Senior Services:
http://health.mo.gov/safety/foodrecalls/index.php

Montana Department of Agriculture: http://agr.mt.gov/
Montana Department of Public Health and Human Services:
http://www.dphhs.mt.gov/publichealth/fcs/index.shtml

Nebraska Department of Agriculture: http://www.nda.nebraska.gov/
Nebraska Department of Health and Human Services: http://dhhs.ne.gov/Pages/default.aspx

Nevada Department of Agriculture: http://agri.nv.gov/
Nevada Division of Public and Behavioral Health: http://health.nv.gov/

New Hampshire Department of Agriculture, Markets and Food: http://agriculture.nh.gov/
New Hampshire Department of Health and Human Services: http://www.dhhs.nh.gov/

New Jersey Department of Agriculture:
http://www.nj.gov/agriculture/news/hottopics/topics070319.html
New Jersey Department of Health: http://www.state.nj.us/health/

New Mexico Department of Agriculture: http://www.nmda.nmsu.edu/food-safety/
New Mexico Department of Health: http://nmhealth.org/about/erd/ideb/fdp/

New York Department of Agriculture and Markets:
http://www.agriculture.ny.gov/AD/alertList.asp
New York Department of Health: http://www.health.ny.gov/environmental/indoors/food_safety/

North Carolina Department of Agriculture and Consumer Services:
http://www.ncagr.gov/fooddrug/
North Carolina Department of Health and Human Services: http://www.ncdhhs.gov/

North Dakota Department of Agriculture: http://www.nd.gov/ndda/
North Dakota Department of Health: http://www.ndhealth.gov/

Ohio Department of Agriculture: http://www.agri.ohio.gov/divs/FoodSafety/foodsafety.aspx
Ohio Department of Health: http://www.odh.ohio.gov/alerts/food/foodrecall.aspx

Oklahoma Department of Agriculture Food and Forestry:
http://www.oda.state.ok.us/food/index.htm
Oklahoma State Department of Health: http://www.ok.gov/health/

Oregon Department of Agriculture:
http://www.oregon.gov/ODA/programs/FoodSafety/Pages/AboutFoodSafety.aspx
Oregon Health Authority:
http://public.health.oregon.gov/NEWSADVISORIES/Pages/FoodSafetyAlerts.aspx

Pennsylvania Department of Agriculture:
http://www.agriculture.state.pa.us/portal/server.pt/community/pennsylvania_department_of_agriculture/10297
Pennsylvania Department of Health:
http://www.portal.state.pa.us/portal/server.pt/community/department_of_health_home/17457

Rhode Island Department of Environmental Management Division of Agriculture:
http://www.dem.ri.gov/programs/bnatres/agricult/index.php
Rhode Island Department of Health: http://www.health.state.ri.us/

South Carolina Department of Agriculture: http://agriculture.sc.gov/foodsafetyandcompliance
South Carolina Department of Health and Environmental Control: http://www.dhec.sc.gov/

South Dakota Department of Agriculture: http://sdda.sd.gov/
South Dakota Department of Health: http://doh.sd.gov/

State of Louisiana Department of Agriculture and Forestry: http://www.ldaf.state.la.us/food-safety/
State of Louisiana Department of Health and Hospitals: http://www.dhh.state.la.us/

Tennessee Department of Agriculture:
http://www.tn.gov/agriculture/regulatory/foodrecalls.shtml
Tennessee Department of Health: http://health.state.tn.us/healthalert.shtml

Texas Department of Agriculture: http://www.texasagriculture.gov/
Texas Department of State Health Services: http://www.dshs.state.tx.us/foods/alerts.aspx

Utah Department of Agriculture and Food: http://ag.utah.gov/food-safety-consumers.html
Utah Department of Health: http://www.health.state.ut.us/

Vermont Agency of Agriculture Food and Markets:
http://agriculture.vermont.gov/food_safety_consumer_protection
Vermont Department of Health: http://www.healthvermont.gov/advisory/index.aspx

Virginia Department of Agriculture and Consumer Services: http://www.vdacs.virginia.gov/
Virginia Department of Health:
http://www.vdh.state.va.us/EnvironmentalHealth/Food/FoodSafety/RecallInfo/index.htm

Washington State Department of Agriculture: http://agr.wa.gov/AboutWSDA/Divisions/FS-CS_Div.aspx
Washington State Department of Health:
http://www.doh.wa.gov/YouandYourFamily/FoodSafety/Recalls

West Virginia Department of Agriculture: http://www.wvagriculture.org/index.html
West Virginia Department of Health and Human Resources:
http://www.dhhr.wv.gov/Pages/default.aspx

Wisconsin Department of Agriculture, Trade and Consumer Protection:
http://datcp.wi.gov/Food/Food_Recalls/index.aspx
Wisconsin Department of Health Services: http://www.dhs.wisconsin.gov/

Wyoming Department of Agriculture: http://wyagric.state.wy.us/divisions/chs/food-safety
Wyoming Department of Health: http://www.health.wyo.gov/default.aspx

Exhibit 3

Food Recall Notices: 2014

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
January 1, 2014	Campbell Soup Company	Prego Traditional Italian sauce	300 cases	risk of spoilage	
January 1, 2014	Cultured Kitchen	Non-dairy cashew cheese	unspecified	contaminant	Salmonella
January 8, 2014	L.M. Noodle Company	Marlyce's Butterballs	unspecified	Mislabeled	wheat flour, soy flour, whey, milk
January 10, 2014	Tyson Foods Inc	separated chicken	33840 lbs	contaminant	Salmonella
January 15, 2014	Paskesz Candy Company	Belgian Chocolate coins	unspecified	Mislabeled	milk
January 15, 2014	Cloverdale Foods Co.	beef franks	2664 lbs	Mislabeled	milk
January 17, 2014	European Meat Products Inc.	fresh ready-to-eat beef and pork	130000 lbs	Mislabeled	allergen
January 17, 2014	Gusto Packing	sliced, spiral ham	67113 lbs	contaminant	Listeria
January 19, 2014	Truitt Brothers Inc.	shelf-stable pasta and ground beef	1.77 million lbs	Mislabeled	allergen
January 21, 2014	Rise'n Roll Bakery	donuts, cinnamon caramel donut holes, Rise'n Roll Specialties Nutty Crunch	all	Mislabeled	egg in donuts/donut holes, peanuts in Nutty Crunch
January 21, 2014	Merrell Food Group	Crunch'N Nutter Mixed Nut candy	all with sell by date of June 1 2014 or before	Mislabeled	peanuts
January 22, 2014	Lochiel Enterprises Limited	Oven Smoked Atlantic Salmon Stix, Chili Mango flavor	56 lbs	contaminant	Listeria
January 24, 2014	Kinnikinnick Foods	Various waffle/bread products	expansion from 1/10, 1/15 recalls (original recalls not in emails)	Mislabeled	Milk
January 24, 2014	Araya Inc.	Various products, Marshmallows, Choc. Bars, Dry fruits w/ chocolate, gift boxes	unspecified	Mislabeled	Allergens- wheat, tree nuts, soy, milk protein
January 27, 2014	Winn-Dixie	Instant Chocolate Drink Mix	in all stores in Florida	Unspecified	
January 27, 2014	George's Inc.	Frozen par-fried chicken tenders	1.25 million lbs	Mislabeled	allergens
January 28, 2014	Pringles	Original Crisps	small quantity	contaminant	exposed to seasoning containing milk, not on label

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
January 30, 2014	Walker's Food Products Co.	Chicken salad products	2200 lbs	Mislabeled	allergen
February 1, 2014	House of Smoke, Inc.	Meat and poultry products	144,000 lbs	Mislabeled	allergen, soy lecithin not on label
February 4, 2014	PFP Enterprises	beef products	15865 lbs	contaminant	E.coli, various strains
February 5, 2014	Humei Trading Inc	"Dried Lily" packages	unspecified	Mislabeled	sulfites
February 5, 2014	K-Fat Inc.	KFI Sweetened Ginger Candy	unspecified	Mislabeled	sulfites
February 4, 2014	ConAgra Foods	Chicken Noodle Soup	54673 lbs	Mislabeled	allergens
February 7, 2014	Wyoming Authentic Products, LLC	beef jerky	365 lbs	Processing Deviation	
February 10, 2014	Big Red Tomato Packers, LLC	Fresh Tomatoes	limited recall of 790 boxes	contaminant	Salmonella
February 10, 2014	Vitamin Cottage Natural Food Markets, Inc.	Dark Chocolate Almonds	one lot	Mislabeled	peanuts
February 10, 2014	Mars Foodservices US	Uncle Ben's Infused Rice	unspecified	Unspecified	
February 11, 2014	Prime Snax Incorporated	beef jerky	90000 lbs	Mislabeled	allergen
February 13, 2014	Roth Farms Inc.	Bunched Curly Parsley	unspecified	contaminant	Salmonella
February 17, 2014	Kettle Brand	Sea Salt Potato Chips	limited run	Mislabeled	Exposed to milk-based sour cream seasoning, milk allergen not declared
February 17, 2014	Ice Cream Specialties	Chocolate Ice Cream	unspecified	Mislabeled	peanut butter/allergen
February 20, 2014	Fannie May Confections Brands, Inc.	chocolate gift boxes	12000 units	Mislabeled	one piece of candy contains peanuts, not indicated on label
February 20, 2014	Whole Foods Market Mid-Atlantic Region	Tom Yom Soup	all with specific UPC number, use by date of 4/8/14	Mislabeled	milk/allergen
February 21, 2014	Falafel King	Green Chile Hummus and Green Chile Wraps	unspecified	contaminant	Listeria

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
February 21, 2014	Evolution Fresh	Organic Sweet Greens and Ginger juice	1700 bottles	unspecified	
February 24, 2014	Wolfgang B. Gourmet Foods, Inc.	Condiment grilling sauce	236 unites	Mislabeled	contains anchovies in the Worcestershire sauce, anchovies not on label
February 24, 2014	Roos Foods	cheeses	unspecified	contaminant	Listeria
March 1, 2014	Jinsunmi International Inc.	Frozen fruit bar, watermelon flavor	unspecified	Mislabeled	peanuts
March 3, 2014	Mars Food North America	Uncle Ben's Ready Rice	3500 cases	unspecified	
March 3, 2014	Roos Foods	cheeses	expanded	contaminant	Listeria
March 3, 2014	Unilever United States, Inc.	Popsicle brand orange, cherry, and grape flavored ice pops	limited number	Mislabeled	milk not on label
March 5, 2014	Twin Marquis, Inc.	Cooked noodle and Lo Mein Noodle	specific lots	Mislabeled	milk
March 5, 2014	Plum Organics	Pouch Childs food products	limited quantity of two varieties	Damage	Intermittent damage to plastic spouts during manufacturing
March 5, 2014	HC Schau and Son	Fresh to Go Tuscan Style Compo on Tomato Basil Bread	3422 unites	Mislabeled	Pine Nuts (tree nuts)
March 5, 2014	Lehigh Valley Dairy	Orange Juice	sell by date of March 23rd, specific UPC sold in Pennsylvania	Mislabeled	allergen (milk)
March 5, 2014	House of Flavors Ice Cream Company	Belmont Chocolate Chip Cookie Dough Ice Cream	unspecified	Mislabeled	nut allergen
March 6, 2014	Gretchen's Shoebox Express	Greek Yogurt Raspberry and Lemon Parfait cups	limited number distributed to Starbucks	Mislabeled	eggs
March 7, 2014	Crown Food Distributors, Inc.	Golden Natural Fruit Island	unspecified	Mislabeled	sulfites, Yellow #6
March 7, 2014	Net Foods Import & Export	Turkey Diced Apricots	unspecified	Mislabeled	sulfites
March 7, 2014	Hong Lee Trading Inc.	Coconut candy strips	unspecified	Mislabeled	sulfites
March 7, 2014	George's Inc.	raw chicken breast strips	29200 lbs	Mislabeled	wrong label, actually made with soy protein and MSG-not on present label

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
March 14, 2014	Oregon Freeze Dry, Inc.	Kirkland Signature Real Sliced Fruit	59780 cases	contaminant	Salmonella
March 14, 2014	Dole Fresh Vegetables, Inc.	Bagged Salads	limited number	contaminant	Listeria
March 17, 2014	Infinite Herbs LLC	Organic Basil Clamshells	one lot	contaminant	Salmonella
March 18, 2014	Simply Natural Foods, LLC	Simply Lite Dark Chocolate Bar	unspecified	Mislabeled	label says may contain traces of milk but contains high levels of milk protein
March 18, 2014	Fanny Mae Confections Brand	assorted boxed chocolates	19 units	Mislabeled	peanuts
March 19, 2014	Harry's Farmers Market	Amberjack (seafood)	all sold through March 15, 2014 at particular store	5 reported customer illnesses	
March 20, 2014	Helados La Tapatia, Inc.	ice cream products, popsicles, fruit bars/cups, bolis	all	Mislabeled	Listeria
March 25, 2014	Parkers Farm Acquisition, LLC	peanut butter, cheese, salsa, and spreads	unspecified	contaminant	Listeria
March 27, 2014	Oscar's Smokehouse Inc.	eleven types of cheese spread varieties	all lots with 3 digit numbers ranging from 719 to 959	contaminant	Listeria
March 27, 2014	Vermont Common Foods	Lemon Cookie Buttons	one lot	Mislabeled	May contain peanut butter cookies not on label.
March 26, 2014	Nutriom LLC	processed egg products	expanded, additional 118,541 lbs	unspecified	
March 27, 2014	BBM Chocolate Distributors, Ltd.	Various Dark Chocolate products	all lots	Mislabeled	milk allergen
March 28, 2014	Clif Bar and Company	Chocolate Chunk LUNA bars	small amount	Mislabeled	made with Macadamia nut butter, not listed on label
March 31, 2014	Fresh Express Incorporated	Italian Salad	limited number	Already expired and contamination	Use-by-date of March 26, Listeria
March 31, 2014	Vita Food Products, Inc.	Elf Herring Fillets in Wine Sauce	2280 jars	swapped labels	actually contains Herring fillets in sour cream, therefore undeclared milk
April 1, 2014	Lao Tai Nam Corp.	Salted Fish	unspecified	contaminant	Clostridium
April 1, 2014	AdvancePierre Foods	frozen chicken breast	8730 lbs	Mislabeled	allergen

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
April 2, 2014	American Outdoor Products	dehydrated Fettuccini Alfredo with Chicken	633 lbs	Mislabeled	allergen
April 3, 2014	Emparedados Boricua	Chicken and Cheese	unspecified	Mislabeled	eggs
April 4, 2014	Koru Pacific Packaging	Ah!laska organic cocoa non-dairy chocolate mix	one lot	Mislabeled	milk
April 4, 2014	Tyson Foods Inc	frozen, fully cooked chicken nuggets	75320 lbs	contaminant	extraneous materials
April 7, 2014	Whole Foods Market	Chipotle Chicken Wrap	unspecified	Mislabeled	fish
April 7, 2014	Sprouts Farmers Market, Inc.	Organic Black Peppercorns	from all stores	contaminant	Salmonella
April 7, 2014	Frontier Natural Products Co-Op	Products with Organic Black Peppercorns	all	contaminant	Salmonella
April 9, 2014	Buffalo SAV Inc	Potato and Bacon perogies	unspecified	Mislabeled	soy protein allergen
April 10, 2014	Lisy Corporation	Sweet basil (albahaca)	unspecified	contaminant	Salmonella
April 10, 2014	Karl Bissinger's LLC	Dark Chocolate Bunny Ears	one lot	Mislabeled	milk
April 11, 2014	Fernandez Chile Company Inc	Chile Molido Puro, Chile Rojo	all with specific UPC code	contaminant	Salmonella
April 11, 2014	Sinco Inc	Chocolate hazelnut swirl gelato	all with specific UPC code	Mislabeled	peanut protein
April 15, 2014	The Kroger Co.	Sweet Strawberry Sorbet	unspecified	Mislabeled	milk
April 14, 2014	Nutriom LLC	processed egg products	expanded, additional 82884 lbs	contaminant	Salmonella
April 17, 2014	Health Matters America Inc.	Dark chocolate golden berries and dark chocolate sacha inchi seeds	specific lots	Mislabeled	milk
April 18, 2014	Price Chopper Supermarkets	Tuscan White Bean Hummus	unspecified	swapped labels	has label for Sweet Potato Hummus, contains parmesan cheese
April 17, 2014	Bolzano Artisan Meats LLC	salami	5723 lbs	produced without inspection and Mislabeled	

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
April 21, 2014	Whole Foods Market Southwest Region	mini butter croissants	unspecified	Mislabeled	eggs
April 20, 2014	Kraft Foods Group, Inc.	Oscar Mayer Classic Wieners	96000 lbs	swapped labels	may contain Classic Cheese Dogs in packages
April 21, 2014	Hickory Farms, Inc.	Chipotle Ranch Sauce	unspecified	Mislabeled	buttermilk powder
April 22, 2014	Wegmans Food Markets, Inc.	Easter Bread	all	Mislabeled	egg
April 22, 2014	Dominex Natural Foods, LLC	Corkscrew Pasta and Creamy Tomato Vodka Sauce	all with day codes 00914 and 01314	Mislabeled	pine nuts, some cases inadvertently mispackaged
April 24, 2014	Miravalle Foods, Inc.	Ground Annato Spice	unspecified	contaminant	Salmonella
April 24, 2014	Skilcor Food Products	Fully cooked pork baby back ribs in honey garlic barbeque sauce	36 lbs	not inspected	imported from Canada, not presented at border for inspection
April 25, 2014	Knockum Hill Bar-B-Que	Hickory smoked, pit cooked barbeque pork	350 lbs	Mislabeled	allergen
April 28, 2014	Stonyfield	Peach/Pear Yogurt cups	188 6-packs	Unspecified	
April 30, 2014	The Kroger Co.	Chocolate Hazelnut Mascarpone Ice Cream, Caramel Hazelnut Fudge Truffle Ice Cream	all sold at Kroger stores	Mislabeled	egg
May 2, 2014	NOH Foods of Hawaii	Hawaiian Coconut Pudding	unspecified	Mislabeled	milk
May 3, 2014	Schnucks Kitchen	Curry White Meat chicken salad	130 lbs	contaminant	Listeria
May 5, 2014	Wells Enterprises, Inc.	Blue Bunny Premium Bordeaux Cherry Chocolate Ice Cream	unspecified	Mislabeled	egg
May 5, 2014	Anhing Corporation	Chili Powder	all	contaminant	Salmonella
May 5, 2014	Sixdog Investments, LLC	certified organic eggs	some cases	contaminant	Salmonella
May 6, 2014	Pacific Organic Produce	Mangos	limited number	contaminant	Listeria
May 8, 2014	Lily Bloom's Kitchen	Poparoons	unspecified	Mislabeled	Milk allergen
May 9, 2014	Ste Fromagere du Livradois	Raclette and Montboissie cheese	lot# 350	contaminant	Salmonella

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
May 13, 2014	Domega NY International Co.	Sesame flavor cracker	unspecified	Mislabeled	peanuts
May 13, 2014	Stonyfield	Peach/Pear Yogurt cups	expanded, additional 1344 6-packs	Unspecified	
May 13, 2014	Strong America Limited	Meatball Medley	unspecified	Mislabeled	eggs
May 13, 2014	Domega NY International Co Ltd	Cake with filling milk (biscuits)	unspecified	Mislabeled	eggs
May 13, 2014	Surma Distributors LLC.	Golden Raisens	unspecified	Mislabeled	sulfites
May 14, 2014	US Trading Company	Crushed Chili Powder	lot code 359XP	contaminant	Salmonella
May 16, 2014	Transatlantic Foods, Inc.	Pork products	449000 lbs	Mislabeled	
May 19, 2014	Wolverine Packing Company	Ground Beef	1.8 million lbs	contaminant	E.coli O157:H7
May 20, 2014	Kraft Foods Group	Cottage Cheese	unspecified	Not stored in accordance with temp. standards	
May 20, 2014	WhiteWave	Soymilk	unspecified	Mislabeled	Almond milk
May 20, 2014	American Waffle Company	Gluten Free Blueberry Pancakes	480 cases	Mislabeled	milk
May 20, 2014	Lansal, Inc.	Hummus and Dip	14860 lbs	contaminant	Listeria
May 20, 2014	Middle East Bakery	Gluten-Free Pancakes	all lots	Mislabeled	milk
May 22, 2014	Sherman Produce	Walnuts	241 cases	contaminant	Listeria
May 21, 2014	Prime Pak Foods	Fully-cooked breaded chicken breast/tender	23250 lbs	Mislabeled	allergen
May 23, 2014	KIND Healthy Snacks	STRONG/KIND bars, KIND Pumpkin seeds w/ sea salt bars	all	Processing Deviation	Pumpkin seeds roasted on equipment used to roast peanuts, no testing done
May 23, 2014	Whole Foods Market	Thai Soba Noodle Salad	all sold in five States	Mislabeled	soy allergen
May 23, 2014	Chaparros Mexican Foods Inc.	beef	568503 lbs	Mislabeled	allergen

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
May 27, 2014	Brunkow Cheese	Jalapeno Pepper Raw Milk Cheddar Cold Pack Cheese Spread	all	Mislabeled	soy allergen
May 27, 2014	Sun Tree LLC	Walnuts	46 cases	contaminant	Listeria
May 27, 2014	Belleville Farmer's Market	Walnuts	all	contaminant	Listeria
May 28, 2014	American Importing Co, Inc.	Cinnamon Crunch Granola	limited number from 1 lot	Mislabeled	almonds
May 28, 2014	Rome Packing Co.	Minced Crab Meat	all	contaminant	Listeria
May 29, 2014	Navitas Naturals	Chia Powder	unspecified	contaminant	Salmonella
May 29, 2014	Boulder Natural Meats	Chicken breasts	363 lbs	Mislabeling	
June 3, 2014	Princess House, Inc.	Tangerine Appetizer Plates	all	contaminant	cadmium and lead levels possibly higher than acceptable
June 4, 2014	Glutino	Rosemary and Olive Oil Snack Crackers	unspecified	contaminant	Salmonella, seasoning recalled by supplier (Kerry Ingredients)
June 4, 2014	Baptista's Bakery	Gluten Free Rosemary and Olive Oil Multiseed Crackers	4339 cases	contaminant	Salmonella, seasoning recalled by supplier (Kerry Ingredients)
June 5, 2014	Ocean Spray	Greek Yogurt covered Craisins (dried cranberries)	two lots	Mislabeled	May contain yogurt covered peanuts
June 6, 2014	Rite Aid	Mint'n Chip Ice Cream	560 16oz pints	Mislabeled	May contain pistachio ice cream instead, allergen
June 6, 2014	GreenSmoothieGirl	Chia Powder	unspecified	contaminant	Salmonella
June 9, 2014	Olde Thompson Inc	Ground Malabar Pepper	unspecified	contaminant	Salmonella
June 9, 2014	Navitas Naturals	Chia Powder	expanded to additional expiration dates	contaminant	Salmonella
June 9, 2014	Dole Packaged Foods, LLC	Roasted Garlic Tomato Basil soup	unspecified	Mislabeled	milk allergen
June 10, 2014	Lansal, Inc.	Egg White Salad with Chives	304 containers (114 lbs)	contaminant	Listeria

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
June 11, 2014	Eillien's Candies, Inc.	Sponge Candy	unspecified	Mislabeled	milk allergen
June 11, 2014	Wegman's Food Markets, Inc.	Bagged Ice	all sold between January 1 and June 10, 2014	contaminant	metal fragments
June 11, 2014	Fruitland American Meat	beef	4012 lbs	Processing Deviation	dorsal root ganglia may not have been completely removed
June 13, 2014	La Finquita, LLC	Fresh Farmers Cheese	unspecified	Processing Deviation	May have peanuts and pistachios mixed in by mistake
June 13, 2014	Fish Family Farm, Inc.	Milk products and cream	unspecified	Processing Deviation	May have peanuts and pistachios mixed in by mistake
June 16, 2014	Smith's Country Cheese	Waxed Gouda	21 wheels	contaminant	Listeria
June 16, 2014	Schnucks Bakery	Devil's Food Cakes	unspecified	Mislabeled	pecans
June 16, 2014	Wegmans Food Market	Cinnamon Raisin Buns	1315 units	Mislabeled	egg
June 18, 2014	Vita Food Products, Inc.	Smoked Atlantic Salmon	1878 lbs	contaminant	Listeria
June 18, 2014	Domega NY International Co Ltd	Gong xifacai gift chocolates	unspecified	Mislabeled	peanuts and milk
June 19, 2014	Bellisio Foods, Inc.	Thai Kitchen Chicken Pad Thai	12180 lbs	Mislabeled	allergen
June 19, 2014	Dearborn Sausage Co.	Slab bacon	3660 lbs	Mislabeled	allergen
June 21, 2014	Wei-Chuan USA, Inc.	Pork Mini Buns with Crab Meat	332 lbs	Mislabeled	allergen
June 24, 2014	Kraft Foods Group	Velveeta Cheese	260 cases	Processing Deviation	Does not contain appropriate levels of sorbic acid, a preservative
June 25, 2014	K & W Sausage	Sausage	1761 lbs	Mislabeled	allergens, soy and wheat
June 25, 2014	Rudolph Foods	Pork products	34 lbs	Mislabeled	
June 26, 2014	Mr. Wok Foods	Raw Pork Nugget	14760 lbs	Mislabeled	wheat allergen

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
June 27, 2014	Health Matters America Inc.	Chia Powder	expanded	contaminant	Salmonella
June 27, 2014	E.G. Emils & Sons, Inc.	deli ham	5896 lbs	contaminant	extraneous materials
July 1, 2014	Flowers Foods	Bar-B-Q bread, various brands	unspecified	Mislabeled	milk
July 2, 2014	Oriya Organics, LLC	Protein Medley	unspecified	contaminant	Salmonella, contains Chia powder from other recalls
July 3, 2014	HEB Meat Processing	fresh beef products	75465 lbs	contaminant	foreign materials
July 4, 2014	Foster Farms	chicken products	unspecified	contaminant	Salmonella Heidelberg
July 3, 2014	Kanani Foods	chicken products	59 lbs	Processing Deviation	Not produced under proper HACCP plan
July 9, 2014	Whole Foods Market	pre-packaged Caesar salad, Mesclun Goat Cheese salad	all sold on July 8 2014 in multiple States	Mislabeled	fish and egg allergen
July 16, 2014	King of Pops	banana puddin' pops	unspecified	Mislabeled	milk, wheat, egg, and/or soy
July 18, 2014	Mars Food North America	Uncle Ben's Ready Rice Garden Vegetable	2 lot cods, just short of 2000 cases	Mislabeled	some pouches contained barley, not declared
July 18, 2014	B.Roberts Foods	grilled chicken entrees	202 lbs	Mislabeled	allergen, milk
July 21, 2014	Wegmans Food Markets, Inc.	in-store baked desserts	unspecified	contaminant	Listeria, contain fresh peaches, nectarines, plums
July 21, 2014	Wawona Packing Company	whole peaches, nectarines, plums, and pluots	certain lots packed between June 1, 2014 and July 12, 2014	contaminant	Listeria
July 21, 2014	Whole Foods Market	Chocolate Chewies	unspecified	Mislabeled	tree nut allergen
July 22, 2014	Sara Lee Foodservice	smoked sausage	82440 lbs	Mislabeled	allergen
July 24, 2014	Whole Foods Market	stone fruit, including peaches, nectarines, and plums	unspecified	contaminant	Listeria, related to Wawona Packing Co. recalls
July 24, 2014	Earth Circle Organics	Organic Carob powder	all	contaminant	Salmonella
July 24, 2014	Great American Marketing	Ready-to-eat products	475 lbs	contaminant	Listeria
July 25, 2014	Lion Pavilion LTD.	Peach slices	unspecified	Mislabeled	sulfites
July 25, 2014	Dancing Star LLC	Various snacks	unspecified	contaminant	Listeria, related to Ciranda Inc.'s Carob powder recalls

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
July 25, 2014	VU Foods, LLC	Breaded Chicken products	unspecified	Produced without inspection	
July 26, 2014	Puritan Foods Co., Inc.	Raw boneless turkey breasts	2476 lbs	Mislabeled	allergen
July 28, 2014	TJX Companies, Inc.	Sweet Paprika Powder	unspecified	contaminant	Salmonella
July 28, 2014	GoMacro	MACROBARS brand "almond butter + carob" and "sunflower butter + chocolate"	specific lots	contaminant	Salmonella
July 28, 2014	Carmel Food Group	Butternut Squash Ravioli	unspecified	Mislabeled	mixed product with Sell by date of Apr 09 2015, allergens-milk, egg, soy
July 28, 2014	CaCoCo, Inc.	Organic Carob powder	all	contaminant	Salmonella
July 29, 2014	Starway Incorporated	Roasted and Salted Pumpkin Seeds	unspecified	Mislabeled	sulfites
July 29, 2014	Erlo Distribution Inc.	Carrot drink, Beet drink, Peanut Punch	unspecified	Mislabeled	milk
July 30, 2014	Hummingbird Wholesale	Organic Carob powder	all	contaminant	Salmonella
July 30, 2014	SW Wisc Dairy Goat Products Coop	Raw Milk Mild Cheddar Cheese	Lot code 103-114	contaminant	Shiga toxin producing Escherichia Coli (STEC) 0111:H8 bacteria
July 31, 2014	Natural Grocers	Carob Greens, Date/Flax/Tumeric	unspecified	contaminant	Salmonella, carob powder from other recalls present
August 4, 2014	Wawona Packing Co.	white and yellow peaches, white and yellow nectarines, plums and pluots	expanded	contaminant	Listeria
August 4, 2014	VR Green Farms	jarred food products	unspecified	Improper Production	susceptible to contamination with Clostridium Botulinum
August 4, 2014	Sunburst Superfoods	Organic Carob Powder	sold from March 12, 2014 to July 28th, 2014	contaminant	Salmonella
August 5, 2014	Oasis Brands, Inc	Quesito Casero 12oz	all with expiration date 09/27/14	contaminant	Listeria
August 5, 2014	Ortho Molecular Products	Lifecore Chocolate and Lifecore Complete Chocolate flavoring	all lots	Mislabeled	milk
August 6, 2014	Zemco Industries Inc.	Smoked Sausage	106,800 lbs	Mislabeled	allergen

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
August 8, 2014	Oberto's Brands	Chicken Strips	57578 lbs	Company Quality Issues	
August 12, 2014	Purdue	fully-cooked chicken nuggets	15306 lbs	contaminant	extraneous materials
August 13, 2014	Sunfood	Organic Carob Powder	all	contaminant	Salmonella
August 15, 2014	McCormick & Company	Ground Oregano	UPC 0-523561-6, BestBy dates of Aug 22 16 H & Aug 22 16 H	contaminant	Salmonella
August 15, 2014	Whole Food Market	Ground Beef	368 lbs	contaminant	E.coli O157:H7
August 19, 2014	nSPIRED Natural Foods, Inc.	Arrowhead Mills Peanuts butters, Maranatha Almond Butters, misc. nut butters	Certain lots	contaminant	Salmonella
August 21, 2014	APPA Fine Foods	Chicken Caesar Salad kit	92657 lbs	contaminant	Listeria
August 21, 2014	Nestle Prepared Foods Company	Lean Cuisine Culinary Collection Chicken with Peanut Sauce	limited quantity by UPC code 13800 10154	Mislabeled	shrimp
August 27, 2014	McCall Farms Incorporated	Turnip Greens and Mixed Greens	unspecified	Questionable seals	
August 27, 2014	TNUVA USA	Chicken extra thin cutlets	8316 lbs	contaminant	Listeria
August 29, 2014	Dole Fresh Vegetables	Spinach	unspecified	contaminant	walnuts
September 1, 2014	Kraft Foods Group	Select varieties of American singles pasteurized cheese	7691 cases	ingredient not stored in accordance w/ temp standards	
September 4, 2014	TJs Place	Basil Pesto Pasta	20 containers	contaminant	Listeria
September 4, 2014	La Orocovena Biscuit	Pound Cake de Queso	All with expiration dates 8/11/14 to 10/12/14	Mislabeled	Milk, Wheat, and Soy
September 5, 2014	Tullia's	Italian Meatless Pasta Sauce	All with code 530140	High pH level	could allow growth of Clostridium botulinum
September 6, 2014	Purdue Food LLC	Raw, fresh chicken	720 lbs	Processing Deviation in temperature	
September 8, 2014	Mars Chocolate North America	TWIX unwrapped bites	Code Date: 421BA4GA60	Mislabeled	peanuts and eggs

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
September 9, 2014	Publix Jalapeno Bagels	Publix Jalapeno Bagels	all sold in bakery department in multiple States	contaminant	glass and small stones
September 11, 2014	Interbay Food Company, LLC	pork Banger-style sausage products	4820 lbs	Mislabeled	milk allergen
September 12, 2014	Jerky By Art	beef jerky	unspecified	Produced without benefit of inspection	also Mislabeled, milk and anchovies are not declared
September 16, 2014	Taylor Farms Pacific, Inc.	Roma Tomatoes	specific lots	contaminant	Salmonella
September 16, 2014	Gel Spice Company, Inc.	Fresh Finds-Ground Black Pepper	16443 cases	contaminant	Salmonella
September 22, 2014	Mars Chocolate North America	M&M Brand Theater Box	UPC# 40000294764	Mislabeled	peanut butter
September 23, 2014	Glaser Organic Farms	Organic Carob powder	unspecified	contaminant	Salmonella
September 23, 2014	Golden King Bakery	Coconut Bun	unspecified	Mislabeled	eggs
September 23, 2014	Monogram Comfort Foods	uncured beef corn dogs	607 lbs	temperature abuse	
September 24, 2014	Gold Star Smoked Fish Corp	Cold Smoked Steelhead	unspecified	contaminant	Listeria
September 25, 2014	The Original Soupman	Lobster Bisque	some amounts	Mislabeled	Does not declare that shrimp, perch, or tilapia is in lobster base
September 25, 2014	Caviness Beef Packers	Beef trimmings	23100 lbs	contaminant	E.coli O157:H7
September 25, 2014	Foster Farms	pre-cooked chicken products	39747 lbs	contaminant	Listeria
September 27, 2014	Delicious Beef Jerkey, LLC	beef jerky	8 lbs	Produced without benefit of inspection	retail exemption
September 29, 2014	Whole Foods Market	Plain Streusel Coffeecake	All with Sell By date between Sept 19 and Sept 30 2014	Mislabeled	tree nut allergen
September 29, 2014	Dominguez Foods of Washington Inc.	Plain Bread Crumbs	unspecified	Mislabeled	Wheat, Whey (milk) and Soy
September 30, 2014	Sam Kane Beef Processors, LLC	Ground Beef Chub	2633 lbs	contaminant	foreign materials (plastic)

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
October 2, 2014	Tropical Valley Foods Inc.	Dark Chocolate Cherries	455 cases	Mislabeled	peanuts
October 2, 2014	IKEA	wholegrain pasta	unspecified	Mislabeled	soy
October 2, 2014	Olson Meat	Pork Blood Product	160 lbs	Produced without benefit of inspection	outside regular inspection hours
October 4, 2014	Sam Kane Beef Processors, LLC	Ground Beef	90987 lbs	contaminant	extraneous materials
October 6, 2014	Markpol Distributors Inc.	Kupiec Rice Cakes with Dark Chocolate	unspecified	Mislabeled	milk
October 3, 2014	Vigil Beef Jerkey Co.	Beef Jerky	48 lbs	Shipped without mark of inspection	produced under retail exemption
October 6, 2014	Galant Food Company	Beef	410 lbs	Meat filling does not meet cooking critical limit	
October 7, 2014	HAR Maspeth Corp.	Pan Fried Anchovies	all 2oz and 4oz packages	contaminant	Listeria
October 7, 2014	J&B European Distributing Inc.	Rice Cakes with Dark Chocolate	40 cases	Mislabeled	milk
October 7, 2014	Buddy's Kitchen	Meat and poultry products	62488 lbs	contaminant	Listeria
October 8, 2014	Oasis Brands, Inc	Cuajada en Hoja 12oz	Best by dates 10/1/14-10/8/14 and 10/18/14	contaminant	Listeria
October 9, 2014	LOTTE Confectionary Co. Ltd.	Lotte Waffles	unspecified	Mislabeled	egg ingredients
October 13, 2014	Galant Food Company	beef products	expanded to additional 130 lbs	Meat filling does not meet cooking critical limit	
October 14, 2014	California Olive and Vine, LLC	Pumpkin Seed Pesto	unspecified	Irregular Lab Results	
October 14, 2014	SunBurst Foods	SunBurst, Fresh Bites, and Private labeled products	all	contaminant	Listeria
October 14, 2014	Real Foods of Seattle, LLC	Mexican Cheddar Dip	96 units	Mislabeled	Allergen- egg
October 14, 2014	Fresh Food Manufacturing	Italian Style Wedding Soup	1008 lbs	Mislabeled	Allergens
October 16, 2014	Shop Packaging LLC	Chicken wing products	115505 lbs	Mislabeled	Allergens

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
October 17, 2014	New Hope Mills Manufacturing	Gluten Free Chia Pancake and Waffle Mix	unspecified	Mislabeled	soy
October 18, 2014	JFC International, Inc	3-pack Hapi Pudding	all lots	Mislabeled	milk
October 17, 2014	E.&B.'s Natural Way	raw lamb products	27948 lbs	Not presented for USDA-FSIS inspection at border	
October 20, 2014	Oasis Brands, Inc	Lacteos Santa Martha products	select lots	contaminant	Listeria
October 20, 2014	Publix Super Markets	Publix Asian Mix	unspecified	Mislabeled	peanuts
October 20, 2014	United Natural Trading LLC	Asian 7 Rice Cracker Mix	22lb bulk cases, LOT# YOUI03, LOT# 14248	Mislabeled	peanuts
October 22, 2014	Bailey Farms, Inc.	Fresh Serrano Chile Peppers	6215 lbs	contaminant	salmonella
October 24, 2014	Rome Packing Co.	All Natural Jonah Crab Leg Meat	unspecified	contaminant	Listeria
October 24, 2014	Aspen Foods Division of Koch Meats	chicken products	28980 lbs	contaminant	Salmonella Enteritidis
October 25, 2014	Murry's Inc.	gluten free breaded chicken products	31689 lbs	contaminant	Staphylococcus enterotoxin
October 27, 2014	Lundberg Family Farms	Sea Salt Rice Chips	unspecified	Mislabeled	allergen
October 27, 2014	Z Natural Foods	Lightly Roasted Organic Carob Powder	55lbs	contaminant	Salmonella
October 24, 2014	Taylor Farms	Broccoli Kale Salad with Chicken	377 lbs	Mislabeled	tree nut allergen
October 27, 2014	Shur-Green Farms LLC	Soyoil containing Lascadoil (Industrial processing waste oil)	all loads	contaminant	intended for non-food product/biofuels, but used as feed ingredient.
October 27, 2014	Chetak New York LLC	Deep Raw Cashew Pieces	5560 packages of 7oz, 3840 of 14oz, 1920 of 28oz	contaminant	salmonella
October 28, 2014	Whole Foods Market	Vegan Gingersnap Cookies	sold only in Melrose, Massachusetts, SBD of 10/28/14	Mislabeled	tree nut, milk, soy, and egg allergens

Date	Company that sold recalled product	What was recalled	Estimate of recalled amount	Why recalled?	Specifics of why recalled?
October 30, 2014	Carlton Foods	Fresh Boudin products	25764 lbs	contaminant	pre-cooked rice-temperature abuse, may have emetic toxin by Bacillus cereus
November 3, 2014	Marathon Ventures, Inc	raw macadamia nuts	retail and bulk packages	contaminant	salmonella
November 4, 2014	Taylor Farms New Jersey, Inc.	WAWA Garden Rotini Salad	1510 units	Mislabeled	fish, wheat, and egg allergens
November 5, 2014	Welcome Market, Inc.	Various types of specialty Toast	unspecified	Mislabeled	wheat, soy, and/or milk
November 6, 2014	House of Spices	Laxmi Nutkhhat Golden Raisin food treats	unspecified	Mislabeled	sulfites
November 6, 2014	CS Best Food Inc.	pork products	6560 lbs	Mislabeled	allergens
November 7, 2014	Schwartz Brothers Bakery	"Everything Bagels"	unspecified	Mislabeled	milk
November 8, 2014	Marin Foods Specialties, Inc.	Organic Raw Almonds	all	contaminant	elevated levels of naturally occurring hydrogen cyanide
November 9, 2014	Kulana Foods Ltd.	frozen, fully cooked pork products	4465 lbs	Mislabeled	allergen

Exhibit 4

Recall Notices for Unprocessed and Minimally Processed Specialty Crop Foods: 2012 through 2014

Table D4. Specialty Food Crops Recalls: 2012 – 2014

Date	Company	Product	Estimated Amount	Cause	Specific Contaminant
June 26, 2012	Banner Mountain Sprouts	Sprouts	433 cases	Bacteria	*Salmonella*
July 6, 2012	Pacific International Marketing	Romaine lettuce	19 cases	Bacteria	*Salmonella*
July 28, 2012	Hannaford Supermarkets	Cantaloupes	None specified	Bacteria	*Listeria monocytogenes*
August 3, 2012	Burch Equipment LLC	Whole Cantaloupes	580 cases	Bacteria	*Listeria monocytogenes*
August 10, 2012	Burch Equipment LLC	Cantaloupes	13,888 cases	Bacteria	*Listeria monocytogenes*
August 10, 2012	Burch Equipment LLC	Honeydew Melons	total crop	Bacteria	*Listeria monocytogenes*
August 8, 2012	Menno Beachy	Organic Grape Tomatoes	15 cases	Bacteria	*Salmonella*
August 9, 2012	Fresco Green Farms Inc.	Cilantro	1,643 cases	Bacteria	*Salmonella*
August 19, 2012	Tamimura and Antle	Romaine lettuce	2,095 cases	Bacteria	*E coli* O157:H7
August 23, 2012	Chamberlain Farms	Cantaloupes	all production	Bacteria	*Salmonella*
August 31, 2012	BI-LO	mango	6 weeks production	Bacteria	*Salmonella*
September 12, 2012	DFI marketing	Cantaloupes	28,000 cartons	Bacteria	*Salmonella*
September 19, 2012	Kroger	Fresh spinach	15 states one day's production	Bacteria	*Listeria monocytogenes*
September 27, 2012	Fresh Express	romaine	one day's production	Bacteria	*Listeria monocytogenes*
November 10, 2012	Rio Queen Citrus	Cherry Tomatoes	840 cartons	Bacteria	*Salmonella*
November 21, 2012	Capital City	Cherry Tomatoes	4 day's production	Bacteria	*Salmonella*
February 13, 2013	Taylor Farms Retail	organic baby spinach	one best by date, 39 states	Bacteria	*E. coli*
April 15, 2013	Winn-Dixie	apple juice	All production one size	toxin	patulin
May 30, 2013	Fruit Treasure	Thai peppers	43 boxes (25 lbs each)	Bacteria	*Salmonella*
June 10, 2013	Alderman Farms Sales	organic cherry Tomatoes	10 cartons one lot	Bacteria	*Salmonella*
July 12, 2013	Western Mixers Produce & Nut Company	Pistachio	6 month's production, 3 sizes	Bacteria	*Salmonella*
August 18, 2013	Buurma Farms	Fresh Cilantro	458 boxes	Bacteria	*Listeria*
October 17, 2013	Orange County Produce, LLC	Fresh red and green Bell Peppers	not specified	Bacteria	*Salmonella*
February 10, 2014	Big Red Tomato Packers, LLC	Fresh Tomatoes	790 boxes	Bacteria	*Salmonella*
February 13, 2014	Roth Farms Inc.	Bunched Curly Parsley	unspecified	Bacteria	*Salmonella*
May 6, 2014	Pacific Organic Produce	Mangos	"limited number"	Bacteria	*Listeria*

Date	Company	Product	Estimated Amount	Cause	Specific Contaminant
May 22, 2014	Sherman Produce	Walnuts	241 cases	Bacteria	*Listeria*
May 27, 2014	Sun Tree LLC	Walnuts	46 cases	Bacteria	*Listeria*
May 27, 2014	Belleville Farmer's Market	Walnuts	All production	Bacteria	*Listeria*
July 21, 2014	Wawona Packing Company	whole peaches, nectarines, plums, and pluots	certain lots packed between June 1, 2014 and July 12, 2014	Bacteria	*Listeria*
July 24, 2014	Whole Foods Market	stone fruit, including peaches, nectarines, and plums	unspecified	Bacteria	*Listeria*, related to Wawona Packing Co. recalls
August 4, 2014	Wawona Packing Co.	white and yellow peaches, white and yellow nectarines, plums and pluots	"expanded"	Bacteria	*Listeria*
September 16, 2014	Taylor Farms Pacific, Inc.	Roma Tomatoes	specific lots	Bacteria	*Salmonella*
October 22, 2014	Bailey Farms, Inc.	Fresh Serrano Chile Peppers	6,215 lbs	Bacteria	*Salmonella*
November 3, 2014	Marathon Ventures, Inc	raw macadamia nuts	"retail and bulk packages"	Bacteria	*Salmonella*
November 8, 2014	Marin Foods Specialties, Inc.	Organic Raw Almonds	All production	contaminant	elevated levels of naturally occurring hydrogen cyanide

Attachment I

Overcoming the Impediments to Implementation of Food Safety and Contamination Issues Coverage Under an FCIC Program

Overcoming Legislative Impediments

While it may be possible to interpret 7 U.S.C. 1508(a)(1) in such a way that the Secretary might overcome the legislative impediments in that portion of the Act by an administrative action defining a food safety or contamination peril under specific circumstances as a natural disaster, the Contractor believes addressing the impediments of 7 U.S.C. 1508(a)(2), 1508(*a)*(3)(A)(iii), and 1508(m)(2)(A)(i) through (m)(2)(A)(iii) may require Congressional action. It is beyond the scope of the contract authorizing this study for the Contractor to propose specific language to amend the Act. However, the Contractor believes any such amendments would need to clarify the treatment of human actions to allow coverage for collateral damage caused by biological contamination of specialty crop foods. Furthermore, the timeframe (i.e., the insurance period) for coverage of losses due to a food safety and contamination issue would need to be addressed. Finally, language addressing both the timeliness of harvest when a crop is under a recall and the effects of any delay in harvest on quality may require changes to the Act.

Overcoming Impediment in the Policy Language

This impediment is among the most easily overcome. Policy language is regularly adjusted based on changing legislative authority and/or changes in production practices. Once the legislative impediment is eliminated, the language that identifies failure to harvest in a timely manner as an uninsurable cause of loss would have to be adjusted so delays in harvest due to recall are insurable. A similar adjustment to the statement identifying losses associated with the inability to market the crop as not uninsurable would be appropriate. The similarity of the language for each of these subjects among the various policies should simplify the implementation of these changes. Likewise, language could be added to the WFRP Provisions making recall or similar food safety-based events an insurable cause of loss. WFRP Provision 21(d) could be changed to read:

> *"Decline in local market price will be presumed to be from unavoidable natural causes unless the Company* [i.e., an Approved Insurance Provider (AIP)] *or FCIC is able to specifically identify a man-made cause* ***other than food safety event or recall*** *that resulted in a measurable change in the price. In the case of such occurrence, the portion of the loss caused by the man-made event will not be covered.*[1] *"*

Though as noted earlier, assigning a portion of price loss to any specific cause will at best be difficult. In addition, language concerning other excluded causes of loss under the WFRP provisions, including abandonment and failure to obtain the local market price would need to be modified appropriately.

Overcoming Procedural Impediments

For consistency and clarity, should recall be incorporated into the insurable causes of loss, it would be best if that inclusion were documented in the CIH and LAM, and perhaps in the Good Farming Determination Standards Handbook. Language for the LAM, appropriately identifying the procedures for adjusting losses due to recall will need to be drafted. Similar language for the WFRP Pilot Handbook (FCIC 18160) will need to be incorporated into that document. Language in that handbook in Section 92(16) stating: "Decline in local market prices due to man-made causes" are not insurable will need to be modified to provide for insurable losses due

[1] Emphasis added to identify the amendments to the text.

to food safety and contamination issues. Furthermore, a recall loss code would need to be generated for the Manual 13 (Appendix III).

Overcoming Impediments Due to Lack of Available FCIC Crop-specific Coverage

The Contractor believes the WFRP plan provides the best opportunity for insurance of recall for the numerous specialty food crops for which no crop-specific policy exists. However, this coverage addresses the revenue of the whole farm. Consequently, whether a revenue loss due to food safety issues will be indemnified will be impacted by the farm structure, including the number of crops and the distribution of revenue among those crops. Furthermore, the current geographic coverage available under the WFRP leaves some areas without available coverage. Some of these areas have substantial specialty food crop production. However, RMA has indicated:

> *"Expansion to the areas not included for 2015 will be considered when underwriting can be completed in future insurance years. These areas were not similar enough to the existing Adjusted Gross Revenue and Adjusted Gross Revenue-Lite program areas for accurate underwriting and actuarial work to be completed for WFRP for 2015. Additional underwriting work will include the identification of: (1) Similar risk areas, (2) What commodities are grown in each risk area, (3) What data are available for actuarial work, and (4) Risks specific to the risk areas, along with the completion of all of the necessary actuarial work."*[2]

Overcoming Actuarial Impediments

There are limited approaches for rating infrequent events whose potential severity is not well documented. Conducting a rating analysis for recall insurance is far beyond the scope of this study. However, the Contractor would note that similar actuarial impediments exist with the rating of quarantine. Yet, there is an FCIC pilot insurance endorsement providing coverage for losses due to quarantine experienced by California producers of citrus and avocadoes. That insurance was rated using an approach called the Delphi Process. The Delphi method was developed specifically for applications to address predictive problems when either few quantitative data are available or when the issue is too complex to effectively model under more traditional approaches. The method was developed by Project Rand during the 1950s and 1960s by Helmer, Dalkey, and Rescher for applications in the defense industry.

The Delphi method is an approach to obtain and quantify opinion and experience-based information from experts. Although there are valid criticisms of any rating approach that sacrifices quantitative rigor to obtain a broadly deductive solution, the Delphi approach can be used when sufficient quantitative data are not available to support traditional analyses.

The method has been used extensively for a wide range of applications, including modeling infrequent and potentially severe events including hurricanes, earthquakes, and volcanic eruption for insurance risk assessment. In the case of quarantine rating for FCIC insurance, the experts were asked for estimates of both the potential frequency and the anticipated severity of quarantine events. For recall, more data are available documenting the potential frequency of an

[2] USDA, RMA, 2014, Whole-Farm Revenue Protection (WFRP) Plan FAQs, http://www.rma.usda.gov/help/faq/wfrp.html, accessed November 2014.

event than there are for quarantine. The Contractor refers the reader to the "Quarantine Endorsement Crop Insurance Program Updating Survey and Rating Material – Deliverable 1: Quarantine Endorsement Pilot Program Rate Update Report" produced for RMA under Order Number: D12PD01237 for additional information about the Delphi process as it was used in a crop insurance product and to "The Delphi Method: Techniques and Applications," edited by H.A. Linstone and M. Turoff" [3] for a general discussion of the approach.

The actuarial challenges of limited producer interest in paying an appropriate premium for food safety and contamination issues insurance are more intractable. The risks of improper rating of an insurance product with a very limited number of insureds are especially difficult. One way to overcome this problem is to offer the coverage as a mandatory part of the perils covered by a policy. In this case, a relatively small load to existing rates might be sufficient. In the case of recall of specialty food crops, this is exacerbated by the large number of crops that might be recalled, the differential risk of recall among those crops, and a limited ability to quantify the differences in relative risk. The Delphi Process works because the opinions of the experts on the panel regress toward a mean as the experts are provided information about the opinions of the other experts. The Contractor believes the noise in the initial expert opinion data concerning specialty food crop recalls, if the data are parsed at the crop level, will make it much more difficult to obtain consensus judgments from the expert panel. While not an insurmountable barrier, limited interest among potential insureds makes overcoming actuarial impediments to implementation of food safety and contamination issues insurance particularly challenging.

Overcoming Logistic Impediments

The logistic impediments to implementation of food safety and contamination issues insurance derive primarily from the large number of specialty food crops. If changes are made to the FCIC program to provide coverage for losses due to food safety issues, they should not be made piecemeal (i.e., crop by crop). The least logistically challenging approach to providing coverage for these issues would be to implement that coverage as part of the Basic Provisions and the provisions of the WFRP. Alternatively, a mandatory food safety issues rider could be developed for use with all FCIC policies. However, depending on design, such changes could conflict with elements of the Act. Consequently, changes in the definitions and other elements of the Act itself would need to be made concurrently. Both these changes are substantive and affect more than one element in each of these documents.

The Act vests authority to define natural disasters with the Secretary of the United States Department of Agriculture (Secretary). An executive action by the Secretary could declare contamination by biological agents (i.e., bacteria, viruses, fungi, and parasites) a natural disaster. As a natural disaster, such contamination could be added to the list of named, approved causes of loss. However, careful safeguards would be required to assure the conflicts between the new insured cause of loss language and language concerning negligent actions and good farming practices were appropriately resolved. It would also be necessary to adjust appropriately the language concerning human actions as excluded causes of loss so the collateral damage from the recall (as opposed to the direct losses due to the contamination itself) could be covered. While

[3] H.A. Linstone and M. Turoff (eds.), 2002, The Delphi Method: Techniques and Applications, Turoff and Linstone, http://is.njit.edu/pubs/delphibook/delphibook.pdf, accessed July, 2012.

this approach would limit the logistic impediments to implementation of coverage for losses due to food safety and contamination issues, it would still require extensive changes to numerous documents managed by RMA on behalf of the FCIC. However, the activities required to implement these changes would be less than those required to introduce food safety and contamination issues coverage into each existing crop policy and to provide coverage for food safety and contamination issues for crops currently uninsured by crop specific policies.

A single endorsement or rider available for any covered crop or insurable revenue would accomplish the same efficiencies as changing the Basic Provisions and the WFRP Provisions. However, the data management and procedural requirements for such an endorsement would be greater than those for an amended Basic Provisions or for an amended WFRP Provisions. Such an endorsement could add specific named food safety and contamination issues risks as covered perils for a fixed percentage of premium. This premium could be established by the Delphi Process for all crops collectively. It could then be updated experientially either for all crops or for individual crops as data become available. One advantage of an endorsement is that it would allow growers to opt in or out. However, that opportunity would complicate the actuarial process and risks adverse selection by producers of crops more prone to recall.