My Name is Hank Giclas G-I-C-L-A-S

I am the Vice President for Strategic Planning, Science and Technology for Western Growers which is a non-profit trade association representing growers and handlers of fresh fruits, nuts and vegetables throughout California and Arizona.

In 2006 after the outbreak associated with spinach that halted sales of fresh market spinach and significantly depressed sales of all leafy greens – Our board of directors instructed WG to develop a leafy green program that would help ensure that growers and handlers were implementing best practices that were specific, measurable and verifiable and to engage government inspectors in the auditing of those practices in the field and facility.

We looked at many scenarios including the pursuit and promulgation of state law and the development of regulation at both the state and federal levels. We ultimately determined that state and federal marketing authority would provide the industry with the best option to work collaboratively with state and federal regulators in the design and implementation of a program that would enhance the quality of leafy greens by allowing willing handlers to voluntarily subject themselves to, and pay for, mandatory audits and verification processes, ensuring every possible preventative step has been taken to make certain that leafy greens put into commerce and ultimately consumed worldwide have been grown and handled according to the best available scientific data

USDA

The fresh leafy green industry believes that the USDA is the most appropriate federal agency to oversee a national food quality enhancement program because it has significant expertise and experience in the design and delivery of programs that involve inspections for product quality and verification of production practices. At industry's request, USDA has incorporated food safety related elements into several of its programs, and has established programs such as the Qualified Through Verification and the GAP&GHP Audit Verification Program to provide independent verification that growers and handlers are following Food and Drug Administration guidance and commodity specific best practices. Both the leafy green industry and the USDA have a good working relationship with

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the FDA on food quality programs that include food safety issues.

The Agricultural Marketing Service of the USDA offers the "Fresh Produce Audit Verification Program," a voluntary, audit-based program for the fresh produce industry based on the Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables and the California and Arizona Leafy Green Marketing Agreements. Another example of interagency cooperation in ensuring safety of our nation's food supply is the co-sponsorship of the National Advisory Committee on Microbiological Criteria for Foods by the Food Safety and Inspection Service of the USDA and the FDA along with our federal agencies such as the Centers for Disease Control and Prevention.[1] The FDA has been supportive of the utilization of marketing agreements and orders to address food safety issues and has worked with the fruit and vegetable industry and the USDA in developing and implementing best practices included in marketing agreements/orders. In his testimony before the U.S. House of Representatives' Subcommittees on Domestic Policy and Oversight and Government Reform on July 29, 2009, Michael Taylor, senior advisor to the Commissioner of the FDA said the following about the FDA's view of marketing agreements and orders to enhance produce safety:

> *You asked FDA to discuss the Agency's regulation of food safety provisions in agriculture marketing agreements. Although FDA has not had a direct role in creating such agreements, we do work collaboratively with our colleagues at AMS, which is the federal agency responsible for marketing agreements and orders. When AMS has incorporated food safety standards into its marketing orders, FDA has provided technical assistance to AMS on the appropriate safety practices and would provide such assistance for marketing agreements as well. It is our shared goal that any AMS safety standards would incorporate the applicable FDA regulations or guidance documents*
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> *As FDA moves forward to establish science-based standards to improve the safety of produce, the Agency must have a plan to help ensure high rates of adoption. Given the number of producers, FDA recognizes the importance of leveraging its resources with other federal, state, and local agencies to help achieve greater compliance. In particular, FDA plans to continue to work closely with USDA,*

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1 USDA/FSIS, "National Advisory Committee on Microbiological Criteria for Foods." http://www.fsis.usda.gov/About_FSIS/NACMCF_Background/index.asp

which has a great deal of experience in agricultural production and which has a significant workforce, including through its contracts with states. We believe that AMS, by incorporating FDA's produce safety standards in produce-related marketing agreements or orders, can help ensure high rates of compliance with FDA's standards..[2]

The USDA is currently administering marketing orders for almonds and pistachios that involve food safety-related requirements. In September 2007, the USDA implemented the requirement for pasteurization of almonds as an amendment to Marketing Order No. 981 in order to reduce bacterial contamination after two Salmonella outbreaks in 2001 and 2004. The main issue for the marketing order for California pistachios that went into effect in February 2005 was aflatoxin and the economic consequences of a contamination event. The marketing order for pistachios mandated testing for aflatoxin to improve food safety.

It is critical and timely for the industry to demonstrate the ability to apply standardized best practices and preventative controls to improve and ensure the safety of their product in light of the current regulatory climate as illustrated in the following statement by Michael Taylor, senior advisor to the Commissioner of the FDA in his testimony before the U.S. House of Representatives' Subcommittees on Domestic Policy and Oversight and Government Reform on July 29, 2009:

In the short term, FDA's approach is to issue commodity-specific guidance for industry on the measures they can implement to prevent or minimize microbial hazards of fresh produce. To improve compliance with such measures, FDA also plans to work with USDA's Agricultural Marketing Service (AMS) to include these recommended standards in their marketing agreements and orders when appropriate. Our long-term plan is to set enforceable produce safety standards through a regulation...As the federal regulatory agency responsible for ensuring produce safety, FDA has begun work on a regulation to establish enforceable standards for produce safety under our current authorities. The regulation will be based on the prevention-oriented public health principles embraced by the Working Group. It will capitalize on what we have learned over the past decade, since we published our "good agricultural practices" guidelines in 1998. ***The regulation also will utilize the progress industry has made in establishing quantitative metrics for the***

[2] http://www.fda.gov/NewsEvents/Testimony/ucm174793.htm

control of some of the factors affecting produce safety by incorporating appropriate measures of success. *These metrics, or measures, will improve our ability to verify that certain measures or practices are being carried out and are effective.*

Together with its federal and state partners, FDA will work to plan and implement an inspection and enforcement program to ensure high rates of compliance with the produce safety regulation. If Congress passes food safety legislation that includes explicit authority to require preventive controls, FDA would modify and update this rulemaking in light of the new authority.

The regulation will include the following key elements:

- *clear standards for implementation of modern preventive controls by all participants in the fresh produce supply chain, from farm to market. These performance-oriented standards will recognize that operators must tailor their preventive controls to the particular hazards and conditions affecting their operations, but the regulation will ensure they do so in accordance with modern food safety principles;*
- *product-specific standards and guidance, where appropriate, for high-risk commodities;*
- *quantitative measures of the effectiveness of control systems, to the extent they are feasible and valid; and*
- *microbial testing protocols to verify the effectiveness of preventive controls.*

In order to ensure the quality of fresh leafy greens by protecting them from potential contamination, the provisions of the NLGMA will include the scientifically-based best practices for production and handling, that cover all processes involved in the handling of leafy greens including all field operations from pre- to post-harvesting and all handling operations occurring after the crop leaves the field. A national marketing agreement would allow for verification of the use of best practices by audit.

It is with this background that I am pleased to present for the record a proposal from Western Growers, United Fresh Produce Association, Produce Marketing Association, Georgia Fruit and Vegetable Association, Texas Vegetable Association, Growers Shipper Association of Central California, Imperial Valley Vegetable Growers Association, California

Farm Bureau Federation, Georgia Farm Bureau Federation, Arizona Farm Bureau Federation and the California Leafy Green Handler Marketing Agreement for a national marketing agreement for leafy greens

I would like to submit Part 970 for the record and take this opportunity to walk through the first few sections of the agreement beginning with the definitions:

DEFINITIONS
§ 970.1 Act.
Act means Public Act No. 10, 73d Congress (May 12, 1933), as amended and as re-enacted and amended by the Agricultural Marketing Agreement Act of 1937, as amended (48 Stat. 31, as amended; 7 U.S.C. 601 *et seq.*).

The Agricultural Marketing Agreement Act of 1937, signed June 3, 1937 (P.L. 75-137), provided authority for federal marketing orders, and also reaffirmed the marketing agreements provisions of the Agricultural Adjustment Act of 1933 (P.L. 73-10). Under the authority of this permanent law and subsequent amendments, marketing orders have been established for milk as well as numerous fruits, vegetables, and specialty crops.

Marketing orders and agreements are legal instruments issued by the USDA Secretary that are designed to stabilize market conditions for certain agricultural commodities by regulating the handling of those commodities in interstate or foreign commerce. Under the applicable regulations, marketing orders for any commodity or its products, other than milk, must be designed to accomplish at least one of the following goals:

- *limit and/or allot the amount of any commodity, or any grade, size, or quality of that commodity that is marketed;*
- *provide for control and disposition of surplus commodities and establish reserve pools;*
- *require inspection of the commodity covered by the marketing order;*
- *provide "a method for fixing the size, capacity, weight, dimensions, or pack of the container, or containers, which may be used in the packaging, transportation, sale, shipment, or handling of any fresh or dried fruits, vegetables, or tree nuts"; and*
- *establish research and development projects to "assist, improve, or promote the marketing, distribution, and consumption or efficient*

production" of commodities covered by a particular marketing order.

§ 970.2 Audit verification.
Audit verification means the physical visit to the farm and/or facility when it is in operation by an Inspection Service audit team to verify and document that good agricultural, handling, and manufacturing practices are adhered to throughout the growing, harvesting, packing operation and transportation as defined in § 970.9, and § 970.10. This verification shall take the form of an official audit conducted by the Inspection Service, § 970.14.

An audit verification is a snapshot in time based on documentation reviewed, persons interviewed and operations observed, and is intended to represent the past and ongoing activities of the auditee.

§ 970.3 Broker.
Broker means an individual or entity that coordinates the sale and transport of fresh leafy green vegetable retail or foodservice buyers without taking ownership of the product.

§ 970.4 Critical limit.
Critical limit means a maximum and/or minimum value established as part of a process control to which a biological, chemical, or a physical parameter must be controlled to prevent or minimize the occurrence of a food safety hazard to an acceptable level.

§ 970.5 Crop year.
Crop year is synonymous with *fiscal year* and means the 12-month period beginning with April 1 of any year and ending with March 31 of the following year.

Leafy Greens are produced year round in the production area. Crop year is merely a fixed timeline established for the administrative purposes and functions of the agreement.

§ 970.6 Foodservice distributor.
Foodservice distributor means an individual or entity that provides leafy green vegetables to restaurants, cafeterias, industrial caterers, hospitals and nursing homes.

§ 970.7 Fresh-cut.
Fresh-cut means fresh vegetables that have been altered from their natural form by cutting, dicing, peeling, slicing, chopping, shredding, coring, or trimming, with or without washing prior to being packaged for use by the consumer, foodservice industry, or a retail establishment.

Fresh-cut products do not require additional preparation, processing, or cooking before human consumption.

§ 970.8 Fresh-cut, packaged leafy green product.
Fresh-cut, packaged leafy green product means any leafy green vegetable defined under § 970.15 that is fresh-cut and packaged for human consumption. This definition excludes from regulation all whole or cut non-leafy green vegetables or non-produce ingredients commingled with fresh-cut leafy green vegetables in packaged products (e.g. salad kits which may contain carrots, meat, cheese, and/or dressings).

§ 970.9 Good agricultural and handling practices.
Good agricultural practices (GAP) and good handling practices (GHP) refer to general practices to reduce microbial food safety hazards as outlined in the current U.S. Food and Drug Administration (FDA) "Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables" guidance document and the current Association of Food and Drug Officials (AFDO) model codes for food safety at the farm and packinghouse, or any other revised or modified versions thereof, or any other FDA document approved as a replacement thereof and as approved by the Secretary.

§ 970.10 Good manufacturing practices.
Good manufacturing practices (GMP) means any FDA regulations (21 CFR 110) that describe the methods, equipment, facilities, and controls required for producing processed food, including fresh-leafy green vegetable products or any other FDA regulation approved as a replacement or supplement thereof as approved by the Secretary.

§ 970.11 Handle.
Handle means to receive, acquire, sell, process, ship, distribute, or import leafy green vegetables, including both raw agricultural commodities and fresh cut, packaged products:

Provided, that handle does not include brokering, retail or foodservice sales of leafy green vegetables.

§ 970.12 Handler.
Handler means any person who handles: *Provided,* that, this definition does not include a retailer, a foodservice distributor, or a broker, except to the extent that such a person is otherwise engaged in handling.

§ 970.13 Importer.
Importer means a handler who imports leafy green vegetables that are produced or handled outside of the production area.

§ 970.14 Inspection Service.
Inspection Service means the Fruit and Vegetable Programs, Agricultural Marketing Service, USDA, its designees, or any other entity approved by USDA to inspect/audit on its behalf.

While the USDA AMS Fruit and Vegetable Program Inspection Service is designated to perform the inspection/audits associated with a marketing agreement proponents left flexibility in the language for USDA to approve other entities to perform this service. This might be necessary if capacity were an issue either seasonally or geographically.

At this point it is helpful to talk briefly about the sales of leafy greens in general terms

Most fresh leafy greens are sold by seasonal contract between producers and handlers. Handlers of raw leafy green commodities have shifted away from spot markets in order to directly supply large economy-of-scale buyers such as national and international grocery store chains. As such, spot markets play a secondary role in the fresh leafy green industry. They serve as a source during supply shortages and as an outlet for small, local producers. Because so much of the industry does business by contract, spot markets have minimal affect on pricing with shipping point prices now serving as the pricing floor.

In large production areas such as Arizona, California, and Florida,

relationships between producers and handlers are usually long-term with handlers buying from the same producers for many years. In these large production areas where handlers supply products nationally there are generally three types of contracts: 1) by poundage: a specific poundage in a given time frame such as a growing season (e.g. x lbs/growing season), 2) by acreage: a specific poundage per acre at a given price with a given expected yield per acre, and 3) by the going market price: a specific amount of product at the current market price with additional contract terms and provisions such as premiums, extended time frames, and minimum amounts. Most large handlers have all three types of contracts in their portfolios to hedge the risks associated with product supply.

In 2005, the USDA conducted a survey of organic handlers to collect information on basic characteristics of the sector. They reported that most organic handlers are small, independent businesses that sell most of their organic products domestically. Transactions between organic handlers and suppliers are generally under written contract because handlers need consistent quality ingredients essential to their businesses. Most organic handlers operated as first handlers primarily selling to other handlers with over 50 percent of their product going to wholesalers, brokers, distributors and repackers.[3]

Fresh leafy greens are sold either as a raw commodity in their natural form such as a head of unpackaged lettuce or cabbage or as fresh value-added products such as pre-washed bags of salad or braising mixes containing one variety of leafy greens or a combination of several varieties. Some salad mixes include salad dressing, nuts, dried fruits, and other vegetables in the package as a complete salad kit. Leafy greens are also used as ingredients in other products in grocery outlets such as ready-made salads and sandwiches often sold in grocery store deli departments.

All over the U.S., lettuce and fresh leafy greens are marketed to consumers at grocery outlets or directly to consumers at community farmers markets and through CSA programs. California and Arizona, the two largest U.S. producers of lettuce and spinach, ship fresh leafy green produce from their states throughout the U.S. Many smaller producers sell their leafy greens locally to independent grocery stores, produce markets, and restaurants, or directly to the public at community farmers markets or through CSA programs. California has a Certified Farmers Market Program that allows certified farmers to forego packing, sizing, and labeling regulations when

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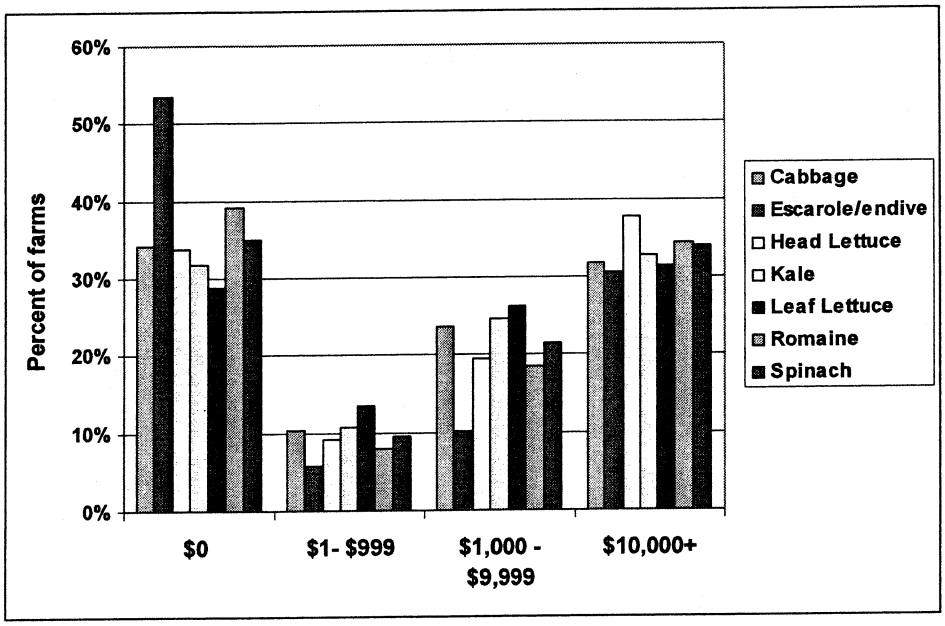
[3] Dimitri and Oberholtzer, "The U.S. Organic Handling Sector in 2004: Baseline Findings of the Nationwide Survey of Organic Manufacturers, Processors, and Distributors." USDA, Economic Research Service, EIB No. 36, May 2008.

they sell their products directly to consumers.[4]

Figure X below shows the percentage and value of fresh leafy green products that were sold directly to consumers as reported by farmers in the 2007 Census.

Figure X. Direct to consumer sales, 2007



§ 970.15 Leafy green vegetables.

Leafy greens means the fresh mature and immature leafy portions of any of the following: arugula, cabbage (red, green and savoy), chard, **cilantro**, endive, escarole, kale, lettuce (iceberg, leaf, butter, head and romaine), **parsley**, raddichio, spinach, spring mix (baby leaf items including, but not limited to, cress, dandelion, endigia, mache, mizuna, tat soi, winter purslane) or any other leafy green vegetable recommended by the Committee and approved by the Secretary. The Committee may also recommend, subject to the approval of the Secretary, the removal of any leafy green vegetable from this definition.

Arugula

Arugula, a member of the Brassicaceae family of plants native to the Mediterranean region, has three species that are used for human consumption: the annual - Eruca sativa (domesticated) and wild-type Eruca

4 CA Department of Agriculture, "Certified Farmers Market Program," State of California, 2009.

sativa vesicaria (L.) Cav.; a perennial specie – Diplotaxis tenuifolia (L.) DC; and a polyploidy perennial Diplotaxis muralis (L.) DC. It is a low-growing annual that is also commonly called rocket, roquette (French), rughetta and rucola (Italian). Its long thin forked, dull-green leaves have a rich peppery taste that is more pungent than most leafy greens. In the U.S., it is grown in Arizona, California, Florida, and New Jersey, however the USDA currently does not keep records of arugula production in the U.S.

Arugula is a fast growing leafy green with some wild varieties ready for harvest only 18 days post-planting. In Arizona arugula is grown in light, sandy loam soil in the fall, winter, and spring with planting beginning in mid-October and continuing through mid-February. Arugula is directly seeded in beds approximately 2 inches apart with 9 rows per bed. Because most of the crop in Arizona is grown for value-added packaged salad mixes, plants are not thinned after sprouting and are harvested as "baby" arugula. Harvesting begins mid-November and is usually completed by the beginning of April. Some growers cut arugula at soil level up to three times during one growing season. If arugula is marketed as a raw commodity, it is usually bunched and packed into cartons in the field. Arugula that is processed is shipped from the fields to the processing facility in bulk containers.[5]

In New Jersey the majority of arugula, both mature and baby leaves, is grown in the southern part of the state in soils that are light, ranging from sand to sandy loam and some areas of silt loam. Production varies by region but generally extends from early spring to the first hard frost in late fall. Some producers plant only in the spring and fall. In the southern region where wholesale arugula production is more common, arugula is grown from spring through fall with 1-2 plantings throughout the season. Plant maturity typically ranges from 30-50 days. Irrigation is typically by overhead sprinklers; a few growers use drip tape over the beds. Large producers pull, wash, and bundle their crop and sell it as a raw commodity at a local produce auction in wholesale units of 24 bunches per crate. Small producers generally sell their crop in bunches directly to customers at farm markets. Baby arugula is generally used in bagged salad mixes and is typically sold directly to a large buyer in 4 lb. boxes.[6]

Head Cabbage

Head cabbage, one of the most consumed vegetables in the world, is a member of the Brassica oleracea species (Capitata Group) of the family

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5 Integrated Pest Management Centers. Crop Profile for Arugula in Arizona. October, 2001.
6 Integrated Pest Management Centers, "Crop Profile for Arugula in New Jersey," 2007.

Brassicaceae. It is a hardy vegetable that is grown in all 50 states. In California, the state with the greatest production volume, head cabbage is grown all year round. Head cabbage grows best at temperatures between 60-65°F, but can tolerate temperatures as low as 45°F and as high as 80°F. Seeds can germinate in soils with temperatures as low as 50°F. Unlike many leafy greens that require well-drained soil, head cabbage grows in a wide range of soil types including heavy soils such as clay that drain poorly. Plantings are either direct-seeded or transplanted in the field. As a young transplant, cabbage requires the soil pH to be above 7.0 so as to prevent the development of clubroot, a soil-borne disease caused by a fungus. During maturation, cabbage prefers slightly acidic soils with a pH of 6.2-6.5.

A mature head of cabbage generally weighs between 3-5 lbs. depending on the variety. The timing of harvest is critical; overly mature heads may develop infestations of the plant pathogens, alternaria leaf spot or downy mildew. Head cabbage is irrigated throughout the growing cycle due to its shallow root system that requires constant moisture. Head cabbage needs high levels of nitrogen and potassium. Fertilization requirements vary by region and soil type, but are applied both pre- and post-planting in all production areas.

Cabbage grown for the fresh market is harvested by hand and packed 18-24 heads per carton. Ideal storage conditions are refrigeration at 32°F and 95% relative humidity.[7]

Chard

Chard (Beta vulgaris var. cicla) is a member of the Amaranthaceae family of plants that is commonly called Swiss chard in the U.S. It is the same species as beetroot. Stems of the chard plant vary from white to red and yellow depending on the variety. Its ribbed shiny green leaves are slightly bitter tasting when eaten raw with the bitterness fading when cooked.[8] *In Arizona chard is grown in the fall with planting beginning in mid-September and complete by November. Harvesting is done by hand and typically begins in January and is complete by March. If only mature leaves are harvested, the plants will continue to be productive for up to a year. Leaves are typically bunched in the field during harvest and then shipped to a cooler. Immature or baby leaves may be added to packaged salad mixes. Chard has a storage life of 10-14 days if stored at 32°F and 95-100 % relative humidity.*[9]

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7 Daugovish, O., et al., "Cabbage Production in California." Vegetable Production Series, UC Vegetable Research & Information Center. UC Davis 2009.

8 Wikipedia, "Chard," Last edited March 9, 2009.

9 Integrated Pest Management Centers, "Crop Profile for Swiss Chard in Arizona," October, 2001.

Cilantro

Cilantro (Coriandrum sativum) is an annual herb in the family Apiaceae that is also called Chinese or Mexican parsley in the U.S. In the U.S. the fruit of the cilantro plant, called coriander seeds, is dried and used as a spice. Cilantro grows wild in areas of southwest Asia and southern Europe.[10]

In southern Florida it is commercially produced by approximately two dozen small operations with total acreage less than 500 acres. Cilantro produced for the fresh-cut market is field-grown with a production period between late September and May.[11]

In the Central Coast region of California, cilantro is grown year-round in Ventura, Santa Barbara, San Luis Obispo, and Monterey Counties with the main harvest occurring from March to mid-November. Santa Cruz, San Benito, and Santa Clara Counties also have limited acreage year-round. In Riverside, Fresno, and Stanislaus Counties, growers plant in winter from late September to November and harvest in November through March. Cilantro is harvested with three different methods: 1) Cut the foliage 1-2 inches above the crown (the most common method), 2) Cut the whole plant just below the soil, and 3) bulk harvest into bins using a mower and conveyer. Hand-harvested product is sold in bunches tied with a rubber band or twist tie. Conventional packing is 30 bunches in 10 lb boxes. Fresh cilantro is usually hydrocooled or iced as soon as possible after harvest and held at 33° to 35°F. Under these conditions, cilantro typically has a shelf-life of 14 days.[12]

Cress

There are three major cress species known in North America: Garden cress, Upland cress, and watercress.

Garden cress (Lepidium nativum), also called peppergrass, pepper cress, or pepperwort, is a fast-growing leafy green that is a member of the family Brassicaceae. Introduced to the U.S. from China, it is botanically related to mustard and watercress and is sometimes referred to as an herb. Its pungent peppery taste and aroma is due to the presence of isothiocyanates. It is commonly used in salads as a baby green. Cress grows well in many climates, but does not tolerate frost well. Planted by seed, cress grows in all

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10 Wikipedia, "Coriander," Last edited May 10, 2009.
11 Integrated Pest Management Centers, "Crop Profile for Herbs in Florida (Basil, Cilantro, Dill, Mint, Parsley, Rosemary, Sage, Thyme) in Florida," July, 2005.
12 Laemmlen F, Smith R. "Cilantro Production in California." Vegetable Production Series, UC Vegetable Research & Information Center. UC Davis, 1998.

types of soils that receive adequate moisture and nutrients. Plants grow rapidly and are ready for harvest about one week post-planting.[13,14]

Upland cress (Barbarea verna) has shiny, lobed leaves that have a spicy, peppery flavor and aroma.[15] *In the southeast U.S., where it is native and grows wild, it is often called creasy greens, highland creasy or creasy salad. It is not cultivated as easily as garden cress, but grows in well-drained sandy or clay loam soils with a pH of 5.8-6.5. In North Carolina, upland cress is seeded in mid-August and harvested January to March.*[16]

Watercress (Nasturtium officinale, N. microphyllum), a fast-growing, aquatic or semi-aquatic perennial plant, is a member of the family Brassicaceae. Native to Europe and Central Asia and naturalized in the U.S. and Canada, it is thought to be one of the oldest known leafy green vegetables consumed by humans.[17] *Its use can be traced back to the Persians, Greeks, and Romans.*[18] *Watercress is grown in Hawaii year-round; in Florida from November through May; and during the summer in Alabama, Tennessee and West Virginia.*[19,20]

Dandelion

Dandelion grown commercially in the U.S. are from two species, Taraxacum officinale and Cichorium intybus, both belonging to the Asteraceae family.[21] *A perennial herbaceous plant, dandelions are native to North America and grow as weeds worldwide. The thin serrated leaves grow in a rosette form and have a slightly bitter flavor that becomes milder after exposure to frost. Seeds are sown in early spring or late summer. Dandelion use as a fresh leafy green is growing in popularity, and they are grown commercially in California, Florida, and New Jersey among other states.*[22]

Endigia

Endigia is a new variety of forced red chicory that is a cross between

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13 Allan, B. and Drost, D., "Garden Cress in the Garden," Home Gardening Utah State University, 2006.
14 Wikipedia, "Garden cress." Last edited March 26, 2009.
15 "Herb seeds, herbs, heirloom herb seeds," Roguelands Heirloom Vegetable Seeds Company, 2009.
16 Sanders D., "Upland Cress – Horticulture Information Leaflet," North Carolina State University, College of Agriculture & Life Sciences, Department of Horticultural Science, 2001.
17 Wikipedia, "Watercress." Last edited May 12, 2009.
18 "The history of watercress." B&W Quality Growers, 2008.
19 "B&W Watercress Farms." B&W Quality Growers, 2008.
20 Sumida Farm, "Getting to Know Watercress." *The Food Paper*, San Francisco, 2009.
21 USDA Natural Resources Conservation Service, "Plants Profile – Cichorium intybus L. Chicory."
22 Koike S. and Bull C. "First Report of Bacterial Leaf Spot of Italian Dandelion (Cichorium Intybus) Caused by a Pseuduomonas Syringae Pathovar in California." USDA Agricultural Research Service, 2006.
http://www.ars.usda.gov/research/publications/publications.htm?SEQ_NO_115=182695

Belgian endive and two types of radicchio – Chioggia and Verona. Bred in France, it is grown along the Sacramento River in Rio Vista, California. Its smooth leaves form a small oblong head. The leaves have white, ribbed centers that taste sweet with more bitter-tasting magenta-colored tips and edges.[23]

Endive, Escarole& Belgian Endive

Endive (Cichorium endivia) is a leafy green belonging to the large Asteraceae family. There are two main varieties of endive, curly endive or frisée (var crispum) that has narrow curly leaves and escarole (var latifolia) that has broad curly leaves. In Arizona endive and escarole are grown in the fall and winter. Planting begins in September and usually ends in October. Temperatures during the growing season range between 30°F and 90°F. Grown in dry or sandy loam soil, most escarole and endive is directly seeded into beds with two rows per bed. Plants take about 3-3.5 months to mature. Leaves are harvested by hand and tied into bunches before being packed into cartons.

Belgian endive (Cichorium intybus var. foliosum), also known as witloof in the U.S., is force grown in darkness to produce a small tight head of cream-colored, non-bitter leaves.[24]

Kale

Like collards, kale is a member of the Brassica oleracea species (Acephala Group). Common varieties are green kale, red kale, red Russian kale, and Lacinto or dinosaur kale. Kale, said to be the hardiest and most nutritious vegetable grown, can tolerate almost any type of soil as long as it drains adequately. Kale is planted by direct seeding or transplanted with plugs. Kale leaves grow in a rosette form on a short stem and do not form a head.[25]

Kale grows in southern New Jersey in the spring and fall where soil ranges from light and sandy to heavy clay and silt. Spring and fall planting begins mid-April and mid-July through late August, respectively. Kale requires about two months of cool temperatures to reach harvest. At harvest, two cuttings may generally be taken from one seeding.[26]

Lettuce Crops

Lettuce (Lactuca sativa) is grown in all 50 states in the U.S. Lettuce crops

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23 Specialty Produce Co., "Endigia." 2009.
24 Wikipedia, "Chicory." Last edited March 24, 2009.
25 Wikipedia, "Kale." Last edited March 17, 2009.
26 Integrated Pest Management Centers, "Crop Profile for Kale in New Jersey," May, 2006.

include leaf lettuce varieties such as red and green leaf lettuce, baby leaf lettuce, Romaine lettuce, and head lettuce varieties. California is the nation's top lettuce producer accounting for 79 percent of the total U.S. production value. Lettuce is California's fourth largest agricultural commodity accounting for 6 percent of the state's total farm receipts.

It is a cool season crop with distinct temperature requirements. Optimal growing temperatures are 73°F during the day and 45°F at night. Growing regions in California typically have daytime temperatures in the 63° to 83°F range with nighttime temperatures ranging from 37° to 53°F. Exposure to temperatures at or below freezing can damage leaves. However, lettuce can tolerate temperatures close to freezing, but exposure to these conditions slows growth. Growth cycles for lettuce vary depending on the weather and water supply and can range from 60 to 130 days.

Lettuce may be planted by direct seeding or transplanted with plugs/seedlings. When planted by seed, the plants are thinned about 3 weeks after planting. Lettuce is sensitive to soil pH and prefers slightly acidic soils with a pH between 6.5 and 7.0. Recommended soil nutrients include nitrogen, phosphorus, and potassium. Seed germination is sensitive to excess salts, which can be caused by over-fertilization.

Most growing regions require irrigation to maintain an adequate water supply. In the desert regions of California and Arizona, most growers irrigate with sprinkler systems until seedlings emerge or transplants are established, and then switch to furrow or drip irrigation for the rest of the season. Water application, specifically the final irrigation, is a critical factor for crop yield and quality. Excess moisture favors the development of bottom rot and causes head lettuce to become enlarged and puffy – an unfavorable condition that reduces its value. Because it is highly perishable, lettuce is commonly harvested in the coolest parts of the day – early in the morning or late in the evening.

In California and Arizona, the top 2 producers of lettuce in the U.S., planting and harvesting schedules are heavily regulated to ensure a constant supply of lettuce throughout the year. Monterey County, CA is the top lettuce producing area in the U.S.[27,28]

In Florida lettuce (both leaf and head lettuce) is grown in the northern and central areas from August through February, and in the south between late September and May. When planted from seed, lettuce matures in 70 to 95

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27 Integrated Pest Management Centers, "Crop Profile for Lettuce in Arizona," February, 2000.
28 Integrated Pest Management Centers, "Crop Profile for Iceberg Lettuce in California," September, 2001.

days; plantings of transplants mature more quickly. In Florida, lettuce grows in both mineral and muck soils with plant densities that range from 29,000 to over 43,000 per acre requiring one to four pounds of seed per acre. The crop is irrigated by subsurface, sprinkler or drip irrigation. In the north growers use polyethylene mulch to warm the soil and control weed growth, and in the south it is used primarily for weed control.[29]

Head Lettuce

Common varieties of head lettuce (Lactuca sativa var. capitata) grown in the U.S. are iceberg (also called crisphead) and butterhead (also called Boston, bibb, buttercrunch or Tom Thumb). Iceberg lettuce has a tightly formed dense head that resembles head cabbage while the head of butterhead lettuce is loose and less dense.

In their "Guidelines for Head Lettuce Production in Arizona," Kerns et al. describe head lettuce growth and development in detail:[30]

> *Head lettuce passes through six distinct development stages: seed, cotyledon, seedling, rosette, cupping and heading periods. The seed stage occurs from pre-planting to emergence. Once exposed to water and appropriate temperature, the seed will begin germination, usually requiring as little as 12 hours for fall planted varieties or up to 7 days for winter planted varieties. Once the plant sheds the seed coat and emerges from the soil, it enters the cotyledon stage. The cotyledon stage last until the plant is able to better establish its roots. Once the root has grown a couple of inches, the seedling begins to grow upwards and the first true leaf emerges. Emergence from the soil to the first true leaf usually requires approximately 7 days for fall planted lettuce and 20 days for winter planted lettuce. The seedling stage occurs from the first true leaf until the plant develops a distinct circular cluster of leaves known as a rosette. The rosette stage for fall planted lettuce will generally last 25 days, but may last as long as 50 days for winter planted lettuce. Cupping begins when the tips of the inner leaves begin to curl inwards on the edges. Cupping signifies that the beginning of head formation is near, and will usually last about 7 days for fall planted lettuce and 14 days for winter planted varieties. Heading begins once the cupped leaves begin to overlap and cover the growing point of the plant. Head formation will continue until the crop is ready for harvest, which generally last about 30 days for fall*

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29 Integrated Pest Management Centers, "Crop Profile for Lettuce in Florida," January, 2005.
30 Kerns D, et al., "Guidelines for Head Lettuce Production in Arizona." University of Arizona, College of Agriculture and Life Sciences, Cooperative Extension, 1999.

planted varieties and about 45 days for winter planted varieties. Fall planted lettuce may require as little as 65 days from the beginning of germination to harvest, while winter planted lettuce will require as long as 120 days.

In Arizona, head lettuce production spans the spring and fall seasons with planting-harvest cycles of August-November and December-April. From late December through early March, Arizona provides as much as 85% of the head lettuce for the U.S. market. Most Arizona head lettuce is grown in Yuma and La Paz counties along the Gila and Colorado rivers. Lettuce seed is planted in beds that are oriented north-south to minimize light differences between the two rows per bed. When plants show two true leaves, they are thinned to 10 to 14 inches apart.[27]

In California principal production areas for iceberg lettuce are the coastal counties of Monterey, San Benito, Santa Barbara, Santa Clara, San Luis Obispo and Santa Cruz. The majority of iceberg lettuce seed is planted on 40-inch raised beds with 2 seedlines per bed while a small percentage is planted on 80 inch beds with 5 seedlines per bed. Pelleted seed, planted with a precision planter, is planted in the range of 6 to 10 pounds per acre, however if conditions are too wet, more growers may use transplants instead of seeds. Direct seed and transplant plantings are ready for harvest in 70-120 and 50-90 days, respectively.[28]

Head development is the most critical point of the two-month growing cycle. Harvesting begins immediately when the heads are firm and mature. An experienced picker knows by the size of the head and the touch when lettuce is mature. If harvest is delayed even a few days beyond maturity, the heads may split and encounter field disease, such as leaf spot and downy mildew. If harvested before maturity, the yield is less and the heads are soft with a shorter shelf life.[31]

During harvesting in Arizona and California, outer leaves are stripped from the lettuce heads before boxing. Lettuce sold unprocessed as a raw commodity is boxed 24 heads to a carton - either naked or film-wrapped and shipped directly to retailers. Lettuce that will be further processed is shipped in bulk to the processing facility where it is washed, cored, shredded, and/or cut and packaged as ready-to-eat products. Head lettuce has a shelf-life of 21-28 days at 32˚F and greater than 95% relative humidity.[27,31]

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31 Cantwell, M. and Suslow, T. "Lettuce: Crisphead or iceberg," UC Davis, 2009.

Leaf Lettuce

Leaf lettuce (Lactuca sativa var. crispa) has steadily grown in popularity in the U.S. in the past 15 years. Its leaves grow from a central core in loose formation rather than a tight round head-like formation. Common leaf lettuce varieties are red leaf, green leaf and baby leaf or salad/spring mix.

In California leaf lettuce is grown in the coastal counties of Contra Costa, Monterey, Santa Barbara, San Benito, Santa Clara, San Luis Obispo and Ventura; inland in the Central Valley (Fresno, King, and Kern Counties); and in the desert south (Imperial and Riverside Counties). In California, leaf lettuce is planted in the spring, fall, and winter typically using pelleted seed and a precision planter. Seeds are planted in raised beds typically with two seedlines per bed. In California desert regions leaf lettuce grows best due to the silt loams and sandy soils with lighter textures that provide good drainage. In the central coast and Central Valley regions of California, lettuce grows in heavier clay soils. In this type of soil, measures must be taken to maintain good soil structure and adequate drainage. In California planting to harvest time for direct seeded plantings is 55 to 95 days, and 40 to 75 days for transplants. At harvest leaf lettuce is generally naked packed 24 to a carton and vacuum-cooled to 34°F before being transported to cold-room storage. Lettuce harvested at prime maturity and in prime conditions can be stored for 2 to 3 weeks at 34°F.[32,33]

Romaine Lettuce

Romaine lettuce (Lactuca sativa var. longifolia), also called Cos lettuce, has an elongated, cylindrically-hearted head of leaves that is generally more loosely packed than head lettuce, and more tightly packed than leaf lettuce. A prominent midrib runs the length of the long, upright, slightly cupped leaves.[34] *Planting and harvesting conditions are similar to that of leaf lettuce. Typically heads are mature and ready for harvest when they contain approximately 35 leaves. It has a shelf-life of about 21 days when stored at 32°F with greater than 95% relative humidity.*[35]

Mâche

Mâche (Valerianella locusta) is a small annual plant of the family Valeriancaceae. Its spoon-shaped leaves form a low rosette and are very mild in flavor. Also called corn salad, Lewiston cornsalad, lamb's lettuce,

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32 Jackson L, et al., "Leaf lettuce production in California." Vegetable Research and Information Center – Vegetable Production Series, 1996.
33 Integrated Pest Management Centers, "Crop Profile for Leaf Lettuce in California," September, 2001.
34 Stephens, J., "Romaine-Lactuca sativa L." University of Florida, 2008.
35 Cantwell, M. and Suslow, T., "Lettuce: Romaine or Cos," UC Davis, 2009.

lamb's tongue, field lettuce, field salad, rapunzel and fetticus, mâche grows wild in parts of Europe, northern Africa and western Asia. It is a hardy plant that can be grown in temperatures as low as -10°F.[36,37]

Mizuna

Mizuna is a Japanese variety of the Brassica species of the family Brassicaceae. Its long thin, serrated, dark green leaves and white stems have a sweet, mildly peppery, earthy taste and are frequently included in baby leaf salad mixes such as mesclun. Cultivated mizuna has been classified both as Brassica rapa - nipposinica group, which includes varieties of other commonly known leafy greens such as napa cabbage, rapini, and tat soi, and as Brassica juncea var. japonica.[38] *Depending on the variety and growing conditions, baby leaves are harvested 21-40 days post-planting with as many as five cuttings. Optimal storage conditions are at temperatures between 34° and 41°F and a relative humidity of 90 to 95%.*[39]

Parsley

Parsley (Petroselinum crispum) is a biennial green leaf herb that is member of the family Apiaceae. In the U.S. parsley is available in two varieties – curly leaf and Italian or flat leaf. Flat leaf parsley has a stronger flavor than curly leaf parsley due to the higher levels of the essential oil, apiol.

In Arizona parsley is grown in the fall and winter with planting occurring twice: once at the beginning of August and again at the beginning of September. Planted fields are irrigated with overhead sprinkler systems until young plants are visible after which furrow irrigation is used to provide a consistent water supply. Leaves are typically harvested 70 to 90 days after seeding with fields typically harvested two to three times with maintenance of an adequate water supply.[40]

In Ohio parsley is grown in the muck soils of the northeastern Huron and Stark counties. Fields are planted in early April through May. Seeds are planted in soil with a pH of 5.5-6.0 that has been fertilized with nitrogen, phosphorus pentoxide, and potassium oxide. Parsley is harvested by cutting 1.5-2.0 inches above ground so that regrowth may occur allowing for three

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36 Wikipedia, "Corn Salad." Last edited March 21, 2009.
37 Alden, L., "Salad Greens." *The Cook's Thesaurus,* 2005.
38 Wikipedia, "Mizuna." Last edited January 21, 2009.
39 "Mizuna and Mibuna greens commercial production," State of Queensland, Department of Employment, Economic Development and Innovation, 2009.
40 Integrated Pest Management Centers, "Crop Profile for Parsley in Arizona," November, 2001.

to four cuttings per planting.[41,42]

Radicchio

Radicchio, a type of chicory (Cichorium intybus var. foliosum) is a member of the family Asteraceae. Sometimes called Italian chicory due to its Italian origins, varieties of radicchio are named after the regions of Italy from which they originate. The most common variety of radicchio found in the U.S. is Radicchio di Chioggia which has a grapefruit-sized head of white-veined purplish red leaves. Other lesser known varieties available in the U.S. are Radicchio di Treviso, Tardivo, and Radicchio di Castelfranco. In Italy radicchio is often grilled or roasted, but in the U.S. it is most often used as a colorful addition to leafy green salad mixes. In areas with an average annual minimum temperature of greater than 10°F radicchio grows best in the spring. It tolerates moderately cold climates well, and can also be grown anywhere in the fall. Radicchio is grown in California, Arizona, Florida, Oregon, and Washington. The U.S. also imports radicchio from Italy and Chile.[43] *Frequent, regular moisture applications produce the best flavored leaves with infrequent watering resulting in bitter tasting leaves. Radicchio is grown in a wide range of soil types, but prefers loose, fertile loam and muck soils that are moderately saturated with good internal drainage and a pH $\geq$ 6.5. Radicchio matures in approximately three months and will regenerate if heads are harvested above ground level. Radicchio can be stored for 2 to 3 weeks at 32°F and 98 to100% relative humidity.* [44,45]

Spinach

Spinach (Spinacia oleracea) is a hardy leafy green that is grown in all 50 states. There are several different varieties of spinach that are classified according to leaf shape and texture. Varieties include savoy which has wrinkled leaves, semi-savoy, and smooth/flat leaves. Savoy types are sold mainly for fresh market uses while smooth types are used mainly for processing.[46]

Spinach matures quickly with optimal growing temperatures of 60° to 65°F, but can grow in temperatures between 35° and 77°F. Optimal seed germination occurs at temperatures between 45° and 75°F, but can withstand temperatures between 35° and 85°F. Long days and prolonged

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41 "Parsley." Ohio Vegetable Production Guide, 2009.
42 Integrated Pest Management Centers, "Crop Profile for Parsley in Ohio," December, 1999.
43 "Harvesting Beyond the Salinas Valley," Royal Rose, LLC, 2008.
44 Wikipedia, "Radicchio." Last edited February 9, 2009.
45 "Radicchio: Cichorium intybus," Oregon State University, 2003.
46 LeStrange M, et al., "Spinach production in California," Vegetable Production Series, Vegetable Research and Information Center, UC Davis.

high temperatures induce plants to bolt; prematurely develop flower stalks and go to seed. Seedlings and mature plants do not fair well if temperatures drop below freezing, but plants in other stages of maturity can withstand temperatures as low as 15°F without much damage. Despite its deep taproot, the majority of its root system is shallow and requires a consistent supply of moisture as well as soil that drains well. In most production zones, spinach fields are irrigated.[47]

Growing seasons vary by location. In Arizona planting begins in early October and continues through February with harvesting from December through April.[48] *In California, the state with the greatest production volume, spinach is grown all year round with harvests occurring 37 to 70 days after harvest.*[49] *East coast states such as New Jersey and Delaware and southwestern states such as Oklahoma have three production seasons that occur in spring, fall and overwinter that are harvested from 2-6 months after planting depending on the season.*[50, 51,52] *In Ohio fields are seeded beginning in early April and continuing through August with harvest occurring 30-50 days post-seeding depending on growing conditions.*[53]

Spinach is most often harvested by hand, but baby spinach is often mechanically harvested at large production operations such as in Arizona and California. Spinach leaves may be cut as often as 4 times. Spinach is sold in bunches or as loose leaf in cello packaging to food service and retail outlets.[47]

Spring mix

Spring mix, sometimes referred to as mesclun, is a mixture of baby leaf lettuce and other leafy greens such as radicchio, endive, frisee, etc. whose components vary from company to company as well as season to season for any particular company's mixture.[54]

Tat soi

Tat soi (Brassica rapa var. rosularis, Narinosa group) is an Asian leafy green and a member of the Brassicaceae family. It is a small hardy plant that can withstand temperatures as low as 15°F. The dark green, spoon-

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47 USDA Regional Integrated Pest Management Centers Information System, "Spinach profiles for AZ, CA, DE, NJ, OK, TX, VA," 2009.
48 Integrated Pest Management Centers, "Crop Profile for Spinach in Arizona," November, 2001.
49 Integrated Pest Management Centers, "Crop Profile for Spinach in California," September 28, 1999.
50 Integrated Pest Management Centers, "Crop Profile for Spinach in Delaware," September, 1999.
51 Integrated Pest Management Centers, "Crop Profile for Spinach in New Jersey," November, 2003.
52 Integrated Pest Management Centers, "Crop Profile for Spinach in Oklahoma," October 31, 2007.
53 "Spinach and Swiss Chard," Ohio Vegetable Production Guide, 2009.
54 "Spring Mix," Dole Food Co., Inc., 2008.

shaped leaves form a compact, thick rosette around the pale green stalk. Tat soi has a mild flavor comparable to bok choy and is high in beta carotene and vitamins A, C, and K. Typically planted in late spring through autumn, tat soi is ready for harvest in 45-50 days.[55,56]

Winter purslane

Winter purslane (Claytonia perfoliata) is a member of the Portulacaceae family. Also known as Cuban spinach and Miner's lettuce, winter purslane is an annual plant native to the western U.S. coastal and mountain regions.[57]

§ 970.16 Manufacture.
Manufacture is synonymous with process and means to change fresh leafy green vegetables from their natural form into fresh-cut, packaged products: *Provided,* that manufacture does not apply to leafy green vegetables packed in the field or to a retailer or foodservice distributor except to the extent that such a person is otherwise engaged in manufacturing for non-retail purposes.

§ 970.17 Manufacturer.
Manufacturer means any person who manufactures: *Provided,* that, this definition does not include a retailer, a foodservice distributor, or a broker, except to the extent that such a person is otherwise engaged in handling.

Processing of fresh leafy greens is a particular segment of handling operations. Handling includes processing operations as well as other segments of the industry such as storage, shipping, and importing. Processing fresh-cut leafy greens includes coring, washing, drying, mixing and packaging them. Processed or value-added fresh leafy greens products are then shipped either directly to retail and food service companies or to wholesale produce operations that supply a range of produce products to retail and food service companies.

§ 970.18 Packaged.
Packaged means a commodity or a unit of a product uniformly wrapped or sealed.

§ 970.19 Person.
Person means an individual, partnership, corporation, association, or any other business unit or legal entity.

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55 Wikipedia, "Tatsoi." Last edited April 13, 2009.
56 "Tatsoi," Johnny's Selected Seeds, 2009.
57 Wikipedia, "Claytonia perfoliata." Last edited May 5, 2009.

§ 970.20 Producer.
Producer is synonymous with grower and means any person engaged in a proprietary capacity in the production of leafy green vegetables for sale or delivery to a signatory of this agreement.

Producer is synonymous with grower and means any person engaged in a proprietary capacity in the production of leafy green vegetables for sale or delivery to a handler. Producers of leafy greens are farming operations that grow leafy green vegetables, and as such are primarily responsible for all production related activities including land preparation, cultivation, fertilization, irrigation, and pesticide application. Across the U.S. there are variously sized producers of leafy greens with the highest concentration of production in California and Arizona. Large producers control enough of the supply that any one large producer can have a big impact on fresh leafy green pricing nationwide.

§ 970.21 Process.
Process is synonymous with manufacture and means to change fresh leafy green vegetables from their natural form into fresh-cut, packaged products: *Provided*, that process does not apply to retailer or foodservice distributor except to the extent that such a person is otherwise engaged in processing for non-retail purposes.

§ 970.22 Process control.
Process control means an auditable step within a production, harvest, handling, manufacturing, or transportation process at which control can be applied and is essential to prevent or minimize a food safety hazard to an acceptable level.

§ 970.23 Production area.
Production area means all fifty states and the District of Columbia of the United States of America.

The proposed production area for the national marketing agreement includes the entire United States since leafy greens are grown in all 50 of the United States. While a particular type of leafy green may only be grown in a subset of states, the openness and diversity of the U.S. agricultural market ensures that handlers, processors, retailers and ultimately consumers will purchase fresh leafy greens from multiple growers, handlers and processing facilities from many states. Because of the diverse and open

market, fresh leafy greens may be produced in one state, processed in another state, and ultimately shipped to many states for consumption.

§ 970.24 Retailer.
Retailer means an individual or entity that sells leafy green vegetables direct to the consumer: *Provided*, that retailer does not include direct sales from a producer to a consumer.

§ 970.25 Secretary.
Secretary means the Secretary of Agriculture of the United States or any officer or employee of the United States Department of Agriculture who is, or who may hereafter be, authorized to act in his or her stead.

§ 970.26 Signatory.
Signatory means a handler who is party to this agreement.

Signatories of the NLGMA are handlers of leafy green vegetables. By signing the agreement, signatories agree to handle leafy green vegetables identified in the agreement that are verified by an official audit as meeting the provisions of the marketing agreement.

Handling, as used in the proposed NLGMA, means to receive, acquire, clean, sell, consign, or import leafy green vegetables in their natural form. In terms of products handled, there are generally two types of handlers: those that deal in raw leafy green commodities and those that turn raw leafy greens into fresh cut, value-added products. Presently there are three companies that supply 70 percent of the value-added market. Handlers link producers with consumer outlets on the farm-to-fork continuum. They represent the value-added segment of the industry that process, ship, sell, consign and import leafy greens. Distributors, packers, processors/manufacturers, shippers, and wholesalers are handlers. For the purposes of the NLGMA, agents and brokers are not considered handlers because they serve as intermediaries between buyers and sellers of leafy greens without ever taking control of the actual product.

There are first handlers and handlers that are not first handlers (called "second handlers" for the purpose of this document). First handlers take possession of leafy greens in their natural form from the producer/grower with the intent to sell them to retail or other handlers. First handlers may also supply/hire the harvesting crews to harvest the crop. However,

handling generally begins when the harvested crop leaves the fields/production area and is in the possession of the handler. Typically they are responsible for transporting the product from the field to the processing plant or storage facility. Second handlers buy from first handlers and not directly from the grower/producer.

Handlers influence producer operations on issues such as crop selection, acreage dedicated to a particular crop, and food safety programs. As signatories of a marketing agreement, handlers are responsible to ensure that grower/producers are following the best practices outlined in the agreement.

§ **970.27 USDA.**
USDA means the United States Department of Agriculture, including any officer, employee, service, program or branch of the Department of Agriculture, or any other person acting as the Secretary's agent or representative in connection with any provisions of this part.

§ **970.28 Zone.**
Zone means the applicable one of the following described subdivisions of the production area or such other subdivision as recommended by the Committee and approved by the Secretary:

(a)
Zone 1 shall include the states of California, Washington, Oregon, Hawaii, and Alaska.

(b)
Zone 2 shall include the states of Arizona, Montana, North Dakota, Wyoming, South Dakota, Idaho, Nevada, and Utah.

(c)
Zone 3 shall include the states of New Mexico, Colorado, Nebraska, Minnesota, Iowa, Kansas, Oklahoma, Texas, Missouri, Arkansas, and Louisiana.

(d)
Zone 4 shall include the states of Wisconsin, Michigan, Ohio, Illinois, Indiana, Kentucky, Tennessee, Mississippi, Alabama, and Georgia.

(e)
Zone 5 shall include the states of Maine, New Hampshire, Vermont, New York, Connecticut, Massachusetts, Pennsylvania, New Jersey, West Virginia, Virginia, Maryland, Delaware, Rhode Island, North Carolina, South Carolina, Florida, and the District of Columbia.

Zones are created strictly for the establishment of an administrative committee. They were developed based on the volume of production that was attributable to the states in each Zone. While leafy greens can be produced in all 50 states in the production area California and Arizona account for approximately 90 % of the United States total production of leafy greens. California and Arizona are separated and fall into Zones 1 and 2 respectively and while they have more seats on the administrative committee they do not have a majority nor is it a guarantee that all seats in those Zones would be filled by California and Arizona handlers/growers. Zones 1 and 2 together account for 10 of the 23 seats on the Administrative Committee and Zones 3, 4 and 5 account for 9 of the 23 seats. Based on western volumes this was felt to be an equitable split in which no clear majority was held by any region.

PURPOSE
§ 970.35 Purpose
The purposes of this marketing agreement are: to provide a mechanism to enable leafy green handlers to organize; to enhance the quality of fresh leafy green vegetable products available in the marketplace through the application of good agricultural production and handling practices; to implement a uniform, auditable, science-based food quality verification program; to provide for USDA validation and verification of program compliance; to foster greater collaboration with local, state and federal regulators; and, to improve consumer confidence in leafy green vegetables.

The proposed national leafy green marketing agreement (NLGMA) program would be a voluntary program that would provide a clear and logical framework for signatory handlers to improve the quality of U.S. and imported leafy green products. A national leafy greens marketing agreement would empower industry representatives to engage proactively with USDA, the US Food and Drug Administration (FDA), and others in the development of production and handling practices (best practices, or

metrics). Formation of these best practices within the agreement framework would ensure the adoption of science-based, scalable, and regionally flexible metrics in conformance with the FDA's Good Agricultural Practices (GAPs), Good Handling Practices (GHPs) and Good Manufacturing Practices (GMPs). Coupled with a corresponding audit-based verification program, these best practices would minimize microbial contamination of fresh leafy green vegetables in the growing and handling processes, enhance the overall quality of fresh product in the marketplace, and boost public confidence in these commodities. Ultimately, an agreement would support the marketability of fresh leafy green vegetables and overall stability of the industry.

Therefore, the proposed marketing agreement would:

- *Provide a mechanism to enable leafy green handlers to organize;*
- *Enhance the quality of fresh leafy green vegetable products available in the marketplace through the application of good agricultural production and handling practices;*
- *Implement a uniform, auditable, science-based food quality enhancement program;*
- *Provide for USDA validation and verification of program compliance;*
- *Foster greater collaboration with local, state and federal regulators;*
- *Improve consumer confidence in leafy greens.*

What problem is the proposal designed to address? Explain/quantify.

The proposed program is designed to minimize microbial contamination in the production and handling of leafy green vegetables placed in the marketplace for fresh human consumption. In recent years, microbial contamination of food products in the marketplace has led to public and industry concern for food safety, a drop in consumer confidence of products related with food safety events, and severe economic consequences for producers and handlers of those products affected. The proposed program is designed to develop a system to fortify the leafy green vegetable industry's ability to proactively engage in the improvement of product quality and consumer confidence through the development of production and handling best practices.

History of Foodborne Illness Related to Leafy Greens in the U.S.

More than 10,000 foodborne disease outbreaks were reported to the Centers for Disease Control and Prevention (CDC) foodborne disease outbreak surveillance system from 1973 – 2006. Researchers there discovered that approximately 5 percent of those foodborne outbreaks were linked to consumption of leafy greens. Ten percent of the leafy greens-related outbreaks were caused by salmonella and nine percent were caused by E. coli. At the 2008 International Conference on Emerging Infectious Diseases, Michael Lynch of the Centers for Disease Control and Prevention (CDC) reported on the research:

> *"Consumption of leafy greens has increased over the years, but it does not completely explain the increase in the proportion of foodborne outbreaks due to leafy green consumption...During the 1986-1995 period U.S. leafy green consumption increased 17 percent from the previous decade. During the same period, the proportion of all foodborne disease outbreaks due to leafy greens increased 60 percent. Likewise during 1996-2005 leafy green consumption increased 9 percent and leafy green-associated outbreaks increased 39 percent."*

He went on to note that because some of the outbreaks were widespread, the contamination quite possibly occurred early in the production process – either at the farm level or the processing plant.

Although there are more outbreaks of foodborne illness caused by seafood, more people get sick when produce is the source of contamination. The average number of foodborne illness cases per outbreak event in produce exceeds illness caused by microbial contamination of poultry, beef, or seafood. This phenomenon is also true for cases of foodborne illness caused by E. coli contamination in particular.[58]

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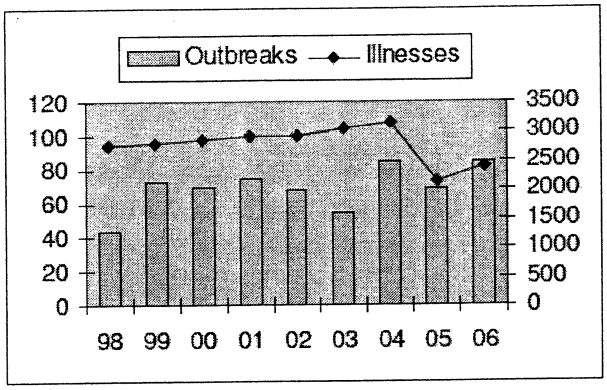
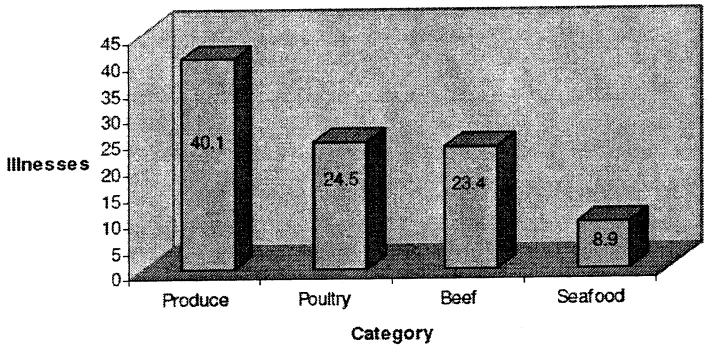
58 Center for Science in the Public Interest. "CSPI Outbreak Alert Data: Info on Produce Outbreaks," August 29, 2008.

Figure 1: Food borne illness related to fresh produce



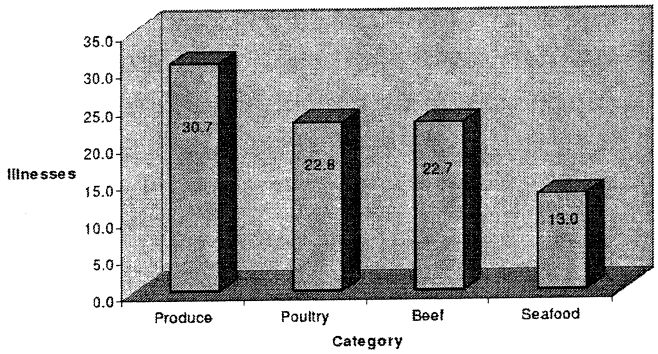
Source: Center for Science in the Public Interest

Figure 2: Average Illnesses per Outbreak by Category 1998-2006



Source: Center for Science in the Public Interest

Figure 3: Average Illnesses of E. Coli Outbreaks by Category 1998-2006

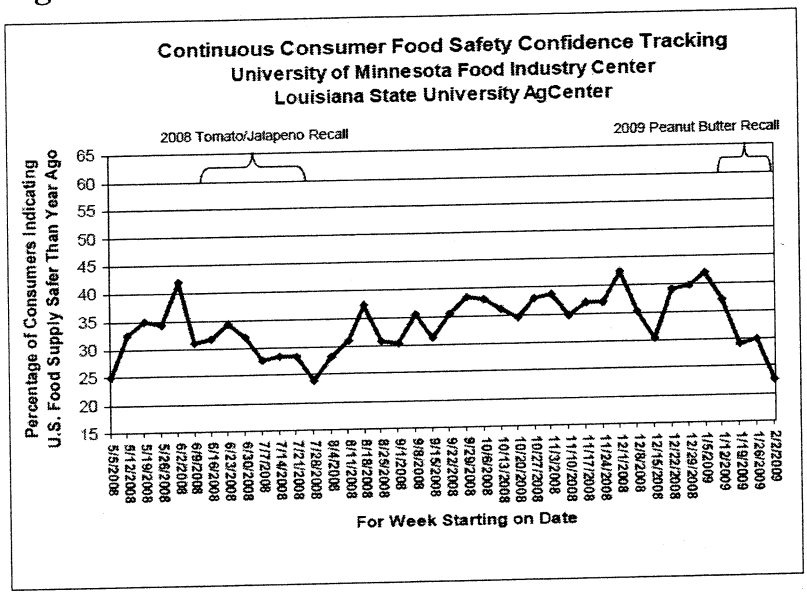


Source: Center for Science in the Public Interest

Public Sentiment/Perception - Food Safety

U.S. consumers are conscious of leafy greens quality and safety. A national study conducted by the Harvard School of Public Health found that many Americans lack confidence in particular parts of our food safety system, both for domestic foodstuffs and exported. Thirty-seven percent thought that food produced in the U.S. was very safe while 58 and four percent thought that it was somewhat safe or unsafe, respectively. "With growing globalization of the food supply, Americans are likely to worry more about the safety of the food they eat. At the moment, many are not confident that the system for protecting their food is working as well as it should," said Robert J. Blendon, professor of Health Policy and Political Analysis at the Harvard School of Public Health.

Figure 4: Consumer Confidence in Safety of Food



Source: The Food Industry Center at the University of Minnesota and the Louisiana State University AgCenter.

Public perception of food safety often decreases after an outbreak incident. A new continuous study tracking consumer opinion on food safety is being conducted jointly by the Food Industry Center at the University of Minnesota and Louisiana State University AgCenter. Findings released in February 2009 following the Salmonella outbreak linked to peanut butter paste in January 2009, showed that consumer confidence in the ongoing safety of the U.S. food supply fell 22.5%. As indicated by the chart below, a

similar phenomenon happened in late summer of 2008 following the tomato/jalapeno recall - the result of a Salmonella outbreak.

LEAFY GREEN VEGETABLE ADMINISTRATIVE COMMITTEE

§ 970.40 Establishment and membership.

A National Leafy Green Vegetable Administrative Committee (hereinafter referred to as Committee) is hereby established to administer the terms and provisions of this agreement.

(a) Such Committee shall consist of twenty-three members, each of whom shall have an alternate who shall have the same qualifications as the member for whom he or she is an alternate. Committee membership shall be allocated as follows:

(1) Four handlers and two producers from Zone 1;
(2) Three handlers and one producer from Zone 2;
(3) Two handlers and one producer from Zone 3;
(4) Two handlers and one producer from Zone 4;
(5) Two handlers and one producer from Zone 5;
(6) One retail representative from the production area;
(7) One foodservice representative from the production area;
(8) One public member from the production area; and,
(9) One importer from the production area.

(b) A majority of the producer members of the Committee shall not otherwise be engaged in the handling of leafy green vegetables or the manufacturing of fresh-cut, packaged leafy green products, and two producers must be small producers as defined in the rules and regulations. Furthermore, at least four handler members must be engaged in the manufacturing of fresh-cut leafy green products.

(c) The Secretary, upon recommendation of the Committee, may reapportion members among zones, may change the number of members and alternates, and may change the composition by changing the ratio of members, including their alternates. In recommending any such changes, the following shall be considered:

(1) Shifts in production within zones during recent years;
(2) The importance of new production in its relation to existing zones;
(3) The equitable relationship between membership and zones;
(4) Economies to result in promoting efficient administration due to rezoning or reapportionment of membership among the zones; and,
(5) Other relevant factors.

A clear distinction of the proposal for a national leafy greens marketing agreement is the recognition by proponents that growers should have a direct say in the administration of the agreement. Even though they are not the regulated party (handlers are) it was a common theme in comments to the ANPR and it was felt important to give producers voice in the process. Each Zone – as just described consists of representatives from both the handler and produce segments of the industry. In addition, to ensure that smaller growers are represented as well at least 2 of the 6 producer members must be "small" producers. There is also diversity of handlers required in that at least 4 handlers must be "processors or manufacturers".

While we have attempted to propose an administrative committee that is equitable, balanced and takes into account the diverse perspectives of the supply chain we have left the Committee and Secretary discretion to re-apportion the Committee to better reflect the needs of the industry should they deem it necessary.

§ 970.41 Eligibility.
(a) Each producer or handler member of the Committee and their alternate member shall be, at the time of his or her selection and throughout his or her term of office, a producer or a handler, or an officer or employee of a producer or handler in the zone for which selected.
(b) All handler members and their alternates must be signatories.
(c) The retail, foodservice, and public members and their alternate members may not be engaged in the production or handling of leafy green vegetables. The retail and foodservice members and alternates shall be, at the time of their selection and throughout their term of office, an owner, officer or employee for the seat selected.

§ 970.42 Term of office.
Members and alternate members of the Committee shall serve for terms of two (2) years beginning on April 1 and ending on March 31. Each member and alternate member shall continue to serve until a successor is selected and has qualified. Members shall not serve more than three (3) consecutive two-year terms of office or for a total of six (6) consecutive years.

§ 970.43 Nominations.

Nomination of Committee members and alternates shall follow the procedure set forth in this section or as may be changed as recommended by the Committee and approved by the Secretary.

(a)

Initial members. Nominations for each of the initial producer and handler members and alternate members of the Committee shall be conducted by the Secretary by means of meetings of producer and handler representatives, by mail, or by any other form of electronically verifiable communication. Once selected and appointed by the Secretary, the producer and handler members shall nominate the retail, foodservice, importer and public members and alternate members, subject to final selection and appointment by the Secretary.

(b)

Successor members. Subsequent to the nomination and selection of the initial committee members and alternate members, nomination and selection of committee members and alternate members shall be pursuant to procedures recommended by the Committee and approved by the Secretary: *Provided,* that such procedures include the following:

(1)

Only persons eligible to serve on the Committee shall be eligible to nominate and vote for committee members and alternate members;

(2)

Committee producer and handler members and alternate members shall be nominated by zone;

(3)

Each producer or handler shall have but one vote, and may vote in only one zone in which he or she is a producer or handler;

(4)

All producer and handler member and alternate member nominations shall be certified by the Committee to the Secretary prior to the beginning of each two-year term of office, together with all necessary data and other information deemed by the Committee to be pertinent or requested by the

Secretary. From these nominations, the Secretary shall select the producer and handler members and alternate members of the Committee; and

(5)
The producer and handler members of the Committee shall nominate the retail, foodservice, importer and public members and alternate members.

(6)
The Committee shall prescribe such additional qualifications, administrative rules and procedures for selection and voting for each candidate as it deems necessary and as the Secretary approves.

(c)
Acceptance. Each person to be selected by the Secretary as a member or as an alternate member of the Committee shall, prior to such selection, qualify by advising the Secretary that if selected, such person agrees to serve in the position for which that nomination has been made.

(d)
Failure to nominate. If nominations are not made within the time and manner specified in this part, the Secretary may, without regard to nominations, select the Committee members and alternate members on the basis of the representation provided for in § 970.40.

(e)
Vacancies. To fill a vacancy on the Committee occasioned by the failure of any person selected as member or alternate member to qualify, or in the event of the death, removal, resignation, or disqualification of any member or alternate member, a successor for the unexpired term of such member or alternate member shall be nominated and selected in the manner specified in paragraphs (b) and (c) of this section. If the names of nominees to fill any such vacancy are not made available to the Secretary within a reasonable time after such vacancy occurs, the Secretary may fill such vacancy without regard to nominations on the basis of representation provided for in § 970.40.

§ 970.44 Alternate members.
An alternate for a member shall act in the place and stead of such member during the member's absence, or in the event of the member's removal, resignation, disqualification or death, until a successor for such member's

unexpired term has been selected and has qualified. In the event both a member and his/her alternate are unable to attend a meeting, the member or the Committee members of that group and zone present may designate any other alternate to serve in such member's place and stead.

§ 970.45 Technical Review Board.

A Technical Review Board is hereby established for the purpose of assisting the Committee in developing audit metrics in § 970.67 and any other function that the Committee may recommend and the Secretary approve. The Technical Review Board shall consist of 13 members as follows: 1 representative from each zone who is elected by the Committee producer and handler members from the corresponding zone; 1 produce food safety expert from a land grant university within each zone elected by the producer and handler members from the corresponding zone; 1 representative from USDA Natural Resources Conservation Service (NRCS) appointed by the Secretary; 1 representative of the US Environmental Protection Agency (EPA) designated by the Administrator, and 2 representatives from FDA designated by the Commissioner. The Technical Review Board may appoint subcommittees as necessary to facilitate input and review from regions throughout the production area. Subcommittees may consist of producers, handlers, and other interested parties as deemed appropriate by the Technical Review Board.

The Technical Review Board is critically important as this body is charged with actually developing the audit metrics that will be utilized by the marketing agreement. There is much interest in the metrics as these best practices can have great impact on the costs of food safety programs, other agricultural operations, the impact on surrounding environments as well as environmental features, wildlife, domestic animals and workers. It is important that science and technical experience from a variety of disciplines be incorporated and considered in the development of audit metrics. It is important that metrics are tailored to varying production practices and regions so that they enhance safety without adversely impacting smaller growers, handlers or the environments in which they operate.

The Technical Review Board was designed to bring this varying expertise together in one body and to have the flexibility to add regional or technical expertise as necessary to develop practical and protective standards and corresponding audit metrics.

§ 970.46 Market Review Board.
A Market Review Board is hereby established for the purpose of providing advice to the Committee on retail, food service, and consumer issues that should be addressed to maximize consumer confidence through market acceptance and recognition of the program. The Market Review Board shall be appointed by the Committee and shall consist of 9 non-voting members as follows: 2 representatives of retail grocers; 2 representatives from food service companies; 3 consumers, and 2 representatives from land grant universities with expertise in fresh vegetable marketing, economics, or consumer acceptance. The Committee may additionally appoint representatives from consumer, retail, or foodservice organizations.

The Marketing Review Board has been set up to assist in the promotion and acceptance of a national marketing agreement. It is anticipated that this Board will work to extend the marketing agreement up and down the supply chain as well as advise on how to best communicate its benefits to consumers. The Board is anticipated to be a fundamental driver for acceptance and thus minimization of the need for discrete audit metrics and buyer specifications.

§ 970.47 Compensation and expenses.
All committee members, alternate members, and subcommittee members shall serve without compensation, but shall be reimbursed for necessary and reasonable expenses incurred in the performance of their duties under this part.

§ 970.48 Procedure.
(a) A majority of all the members of the Committee shall constitute a quorum: *Provided*, that each zone shall be represented by at least one member or his or her alternate at any meeting of the full Committee. Committee action shall require the concurrence of a majority of the members except that acceptance of Good Agricultural, Handling and Manufacturing Practices; assessment rates and termination of the agreement must be approved by a 2/3 majority of the Committee.

(b) In the event that a member of the Committee and alternate are unable to attend the meeting, the member or the Committee may designate any other

alternate from the same zone or group (handler, producer) who is present at the meeting to serve in the member's place.

(c)The Committee shall give to the Secretary the same notice of each meeting that is given to the members of the Committee.

(d) The Committee may vote by telephone or other means of communication and any votes so cast shall be confirmed promptly in writing: *Provided*, that if an assembled meeting is held, all votes shall be cast in person. A videoconference shall be considered an assembled meeting and all votes shall be considered as cast in person.

§ 970.49 Powers.
The Committee shall have the following powers:

(a)
To administer the agreement in accordance with its terms and provisions;

(b)
To make such rules and regulations, with the approval of the Secretary, as may be necessary to effectuate the terms and provisions of the agreement;

(c)
To adopt, with the approval of the Secretary after notice and comment, audit metrics to administer the terms and provisions in §§ 970.9, 970.10, 970.66, and 970.67;

(d)
To collaborate with existing state boards, commissions and agreements through memorandum of understanding to affect the purposes of the agreement;

(e)
To receive, investigate, and report to the Secretary complaints of violation of the provisions of the agreement; and,

(f)
To recommend to the Secretary amendments to the agreement.

§ **970.50 Duties.**
The Committee shall have, among others, the following duties:

(a)
To act as intermediary between the Secretary and any signatory with respect to the operations of the agreement;

(b)
To select from among its members a chairperson and such other officers as may be necessary, and to define the duties of such officers;

(c)
To establish subcommittees and advisory boards to aid the Committee in the performance of its duties under the agreement;

(d)
To adopt such bylaws for the conduct of its business as it may deem advisable;

(e)
To keep minutes, books, and records which clearly reflect all the acts and transactions of the Committee and subcommittees, and these shall be subject to examination by the Secretary at any time;

(f)
To appoint such employees or agents as it may deem necessary, and to determine the compensation and define the duties of each;

(g)
To cause its financial statements to be audited by a certified public accountant at least once each crop year and at such other times as the Committee may deem necessary or as the Secretary may request. Such audit shall include an examination of the receipt of assessments and the disbursement of all funds. The Committee shall provide the Secretary with a copy of all audits and shall make copies of such audits, after the removal of any confidential information that may be contained in them, available for examination at the offices of the Committee;

(h)
To investigate the production, handling and marketing of leafy green vegetables and to assemble data in connection therewith; and,

(i)
To furnish such available information as may be deemed pertinent or as requested by the Secretary.

So in summary for the parts of the draft agreement that I have discussed

Signatories

Signatories of the NLGMA are handlers of leafy green vegetables. By signing the agreement, signatories agree to handle leafy green vegetables identified in the agreement that are verified by an official audit as meeting the provisions of the marketing agreement.

Zones

The United States, as the production area will be subdivided into five zones. Proposed zones are as follows:

- *Zone 1 - California, Washington, Oregon, Hawaii, and Alaska.*
- *Zone 2 - Arizona, Montana, North Dakota, Wyoming, South Dakota, Idaho, Nevada, and Utah.*
- *Zone 3 - New Mexico, Colorado, Nebraska, Minnesota, Iowa, Kansas, Oklahoma, Texas, Missouri, Arkansas, and Louisiana.*
- *Zone 4 - Wisconsin, Michigan, Ohio, Illinois, Indiana, Kentucky, Tennessee, Mississippi, Alabama, and Georgia.*
- *Zone 5 - Maine, New Hampshire, Vermont, New York, Connecticut, Massachusetts, Pennsylvania, New Jersey, West Virginia, Virginia, Maryland, Delaware, Rhode Island, North Carolina, South Carolina, Florida, and the District of Columbia.*

Administration

The terms and provisions of a national marketing agreement would be administered by a National Leafy Greens Administrative Committee that would consist of twenty-three members, each of whom shall have an alternate. The alternate will have the same qualifications as the member

for whom he or she is an alternate. Committee membership shall be allocated as follows:

(1) Four handlers and two producers from Zone 1;
(2) Three handlers and one producer from Zone 2;
(3) Two handlers and one producer from Zone 3;
(4) Two handlers and one producer from Zone 4;
(5) Two handlers and one producer from Zone 5;
(6) One retail representative from the production area;
(7) One foodservice representative from the production area;
(8) One public member from the production area; and,
(9) One importer from the production area.

A majority of the six producers on the committee must not be involved in the handling or processing business, two of the producers on the committee must be small farmers and at least four of the handler committee members must be manufacturers of fresh-cut leafy green products. The retail, foodservice, importer, and public members as well as their alternates may not be engaged in the production or handling of leafy greens in a proprietary capacity. Upon recommendation by the committee, the USDA Secretary has the authority to reapportion committee members among the zones, change the number of members and alternates, and change the composition by changing the ratio of members, including their alternates. Alternate members will act in the place of a member if that member is absent, resigns, or is removed until a successor is selected.

In order to be eligible for a committee position, one must be serving as a handler, producer, retailer, importer, or a food service personnel at the time of their appointment and throughout his or her term of office. Both members and their alternates will serve two year terms with no more than three consecutive two-year terms. Producer and handler members of the initial committee will be selected by the USDA Secretary. Subsequent producer and handler committee members will be nominated by zone with selection by vote with the voting population comprised of all individuals that are eligible themselves to serve on the committee. All persons eligible to vote get only one vote even if they have business operations in more than one zone. Producer and handler members will nominate the retail, foodservice, importer, and public members and alternate members.

In addition a technical review board and a market review board will

assist the administrative committee with developing audit metrics and addressing retail, food service and consumer issues respectively.

The administrative committee will make decisions by quorum with a simple majority of the members constituting the quorum and a required one voting member per zone. Decisions affecting assessment rates, termination of the agreement, and/or good agricultural, handling and manufacturing practices will require a two thirds majority of the committee. Committee meetings may take place at a designated geographical location with votes cast in person or committee members may meet and vote by videoconference, phone or other means of communication with confirmation provided in writing. The administrative committee will have the following powers:

- *To administer the agreement in accordance with its terms and provisions;*
- *To make rules and regulations, with the approval of the USDA Secretary, as may be necessary to effectuate the terms and provisions of the agreement;*
- *To adopt, with the approval of the USDA Secretary after notice and comment, audit metrics to administer the terms and provisions of the agreement;*
- *To collaborate with existing state boards, commissions and agreements through memorandum of understanding to affect the purposes of the agreement;*
- *To receive, investigate, and report to the USDA Secretary complaints of violation of the provisions of the agreement; and,*
- *To recommend to the USDA Secretary amendments to the agreement.*

The administrative committee will have the following duties:

- *To act as intermediary between the USDA Secretary and any signatory with respect to the operations of the agreement;*
- *To select from among its members a chairperson and other officers as necessary, and to define the duties of these officers;*
- *To establish subcommittees and advisory boards to aid the administrative committee in the performance of its duties under the agreement;*

- *To adopt bylaws for the conduct of its business as it deems advisable;*
- *To keep minutes, books, and records which clearly reflect all the acts and transactions of the administrative committee and subcommittees with these subject to examination by the USDA Secretary at any time;*
- *To appoint such employees or agents as it deems necessary, and to determine the compensation and define the duties of each;*
- *To have its financial statements audited by a certified public accountant at least once each crop year and at any other time the administrative committee deems necessary or as the USDA Secretary requests. Audits will include an examination of the receipt of assessments and the disbursement of all funds. The administrative committee will provide the USDA Secretary with a copy of all audits and will make copies of these audits available for examination at the offices of the administrative committee after the removal of any confidential individual or handler information contained therein;*
- *To investigate the production, handling and marketing of leafy green vegetables and to assemble data in connection therewith; and,*
- *To furnish available information as deemed pertinent or as requested by the USDA Secretary.*