INTRODUCTION

The purposes of the proposed National Leafy Greens Marketing Agreement (NLGMA) are: to provide a mechanism to enable handlers of fresh leafy greens 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 enhancement program; to provide for the United States Department of Agriculture (USDA) validation and verification of program compliance; to foster greater collaboration with local, state and federal regulators; and, to improve consumer confidence in fresh leafy greens. Members of the NLGMA will subject themselves to, and pay for, mandatory audits and verification processes, ensuring every possible preventative step has been taken to make certain fresh leafy greens that are put into commerce and ultimately consumed worldwide have been grown and handled according to scientifically-based best practices. This document presents the case as to why the introduction of a NLGMA would benefit consumers and all participants in the fresh leafy greens industry.

1.1 Leafy Green Crop Overview

Leafy greens are leaves from short-lived herbaceous plants that are eaten as vegetables. Leafy green vegetables grown in the United States (U.S.) are typically members of the *Brassicaceae, Asteraceae, and Amaranthaceae* families of the plant kingdom. *Leafy greens*, as used in this document, means the mature and immature fresh leafy portions of any of the following: arugula, cabbage (red, green and savoy), chard, cilantro, cress, dandelion, endigia, endive (Belgian and curly), escarole, kale, lettuce (iceberg, leaf, butterhead and romaine), mache, mizuna, parsley, radicchio, spinach (flatleaf), spring mix, tat soi, winter purslane.

In the U.S., leafy greens are eaten raw or cooked, and are naturally low in calories and fat and high in dietary fiber, protein per calorie, iron, calcium, carotenoids, Vitamin C, and folic acid. In the U.S. greatest customer demand is for lettuce (head, leaf and romaine), head cabbage and spinach. Per capita food availability as shown in Figure 1 reflects these consumption patterns.[1] In recent years, consumer demand for less commonly consumed fresh leafy greens such as dandelion and winter purslane has increased by as much as 20 percent a year.[2] These leafy green products are often referred to as "edible weeds," since many are found ubiquitously in people's yards across the country.

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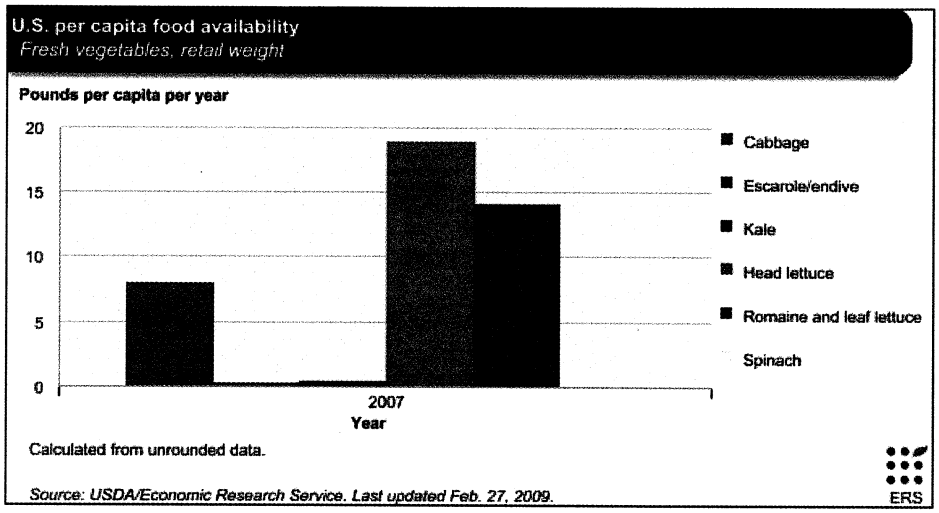
1 USDA Economic Research Service. February 27, 2009.
[2] Chaker, AM. "It's Salad Day for Weeds," *The Wall Street Journal*, May 27, 2009. http://online.wsj.com/article/SB124338226000356493.html

Ex. 8

Figure 1. U.S. per capita food availability



Fresh leafy greens grown for commercial purposes and covered in this proposed agreement include mature and immature leafy portions of any of the following: arugula, cabbage (red, green and savoy), chard, cilantro, cress, dandelion, endigia, endive (Belgian and curly), escarole, kale, lettuce (iceberg, leaf, butterhead and romaine), mache, mizuna, parsley, radicchio, spinach (flatleaf), spring mix, tat soi, winter purslane.

Most leafy greens are grown in raised beds that are either directly seeded or transplanted with plugs. Growing cycles range from 1 to 6 months depending on the seasons. Optimal growing climates for leafy greens vary somewhat, but generally grow best in cool weather with well-drained loam soil and a plentiful water supply. Optimal daytime growing temperatures are 60° to 65°F. Most leafy greens are hardy vegetables that can tolerate a light frost. Prolonged exposure to high temperatures and long days induces bolting in many leafy green vegetables. Production areas in most regions require irrigation because of inadequate rainfall for growing conditions. Typically overhead irrigation systems are used to irrigate seeded fields and sprouted fields are generally irrigated with drip or furrow irrigation. Soil amenities used in the production of leafy greens include nitrogen, phosphorus, potassium, and zinc.[3]

Leafy greens grown for fresh market production are harvested either as single leaves or as whole plants. Harvesting is usually done by hand, but recently, with the invention of better machines, mechanical harvesting has become more common. When hand harvested, both head and leaf varieties are harvested by bending the head to the side and cutting it off the stem with a very sharp knife. The timing of harvesting is critical especially for head varieties. A delay of a few days can result in split heads and increased incidence of field disease. For head varieties, a few leaves are often kept on the stalk to act as protection for transport. Fields of some types of leafy greens such as chard, kale, mizuna, and baby leaf lettuce may be harvested more than once. Harvested leafy greens are placed in storage containers such as bags, boxes, cartons or bins and cooled as soon as possible to 32 to 36°F at 95 to 100% relative humidity. The next stop is the packing facility where leafy green products are cleaned, sorted, and packed. In some major production areas such as California,

3 National Information Center for the USDA Regional Integrated Pest Management Centers. Crop Profiles· Last updated May 13, 2009.

harvested leafy greens marketed as raw commodities may be sorted and bagged in the fields with the assistance of harvesting aids such as a conveyor equipped often self-propelled harvesting machine that integrates and automates most of the harvesting and packing functions into a single unit.[4]

Fresh-cut leafy greens are usually transported to a storage facility in refrigerated or open trailers. Some production operations place the leafy greens under modified atmosphere (e.g. reduced oxygen atmosphere) for shipment to processing plants. The timeframe from harvesting to entering a storage/processing facility is variable depending on when the product is removed from the production site, the distance from production site to the storage facility, and wait time for unloading at the storage/processing facility. Because they are highly perishable, leafy greens are routinely cooled immediately after harvest by either forced-air cooling, vacuum cooling or spray-vacuum (hydrovac) cooling.

At the processing or packing facility, some fresh leafy greens are further processed into value-added products. They are generally held in refrigerated conditions between 32° and 45°F at 95 to 100% relative humidity.[3] During processing, leafy greens are washed in one or more vigorous washings. They may be shredded, cut and/or blended with other types of fresh-cut leafy greens before they are packaged. After processing, fresh leafy greens are transported in refrigerated trucks directly to retail markets or to distribution centers that sell to retail markets. Leafy greens harvested at prime maturity with no major defects vary in the amount of time they can be held in refrigerated storage. Greens such as lettuce and spinach are the most delicate and may be held in ideal refrigerated storage for 2-3 weeks. Other hardier leafy greens such as cabbage may be held in cold storage for 2-3 months.[4]

An example of field to market schedule for iceberg lettuce from Salinas or Santa Maria, CA, is given below:

Table 11. Field to market schedule for iceberg lettuce in Salinas, CA

Day 1	▪ Harvest ▪ Transport to packing facility and cooling (1 - 4 hrs)
Day 2-5	Shipping within the U.S. – from Salinas/Santa Maria to: ▪ Seattle – 1 day ▪ Denver – 2 days ▪ Chicago – 3 days ▪ New York/Boston – 4 days ▪ Japan – 12-14 days
Day 3-6	From receiving dock to supermarket – 1 day

Source: Integrated Pest Management Centers, "Crop Profile for Iceberg Lettuce in California," September, 2001.

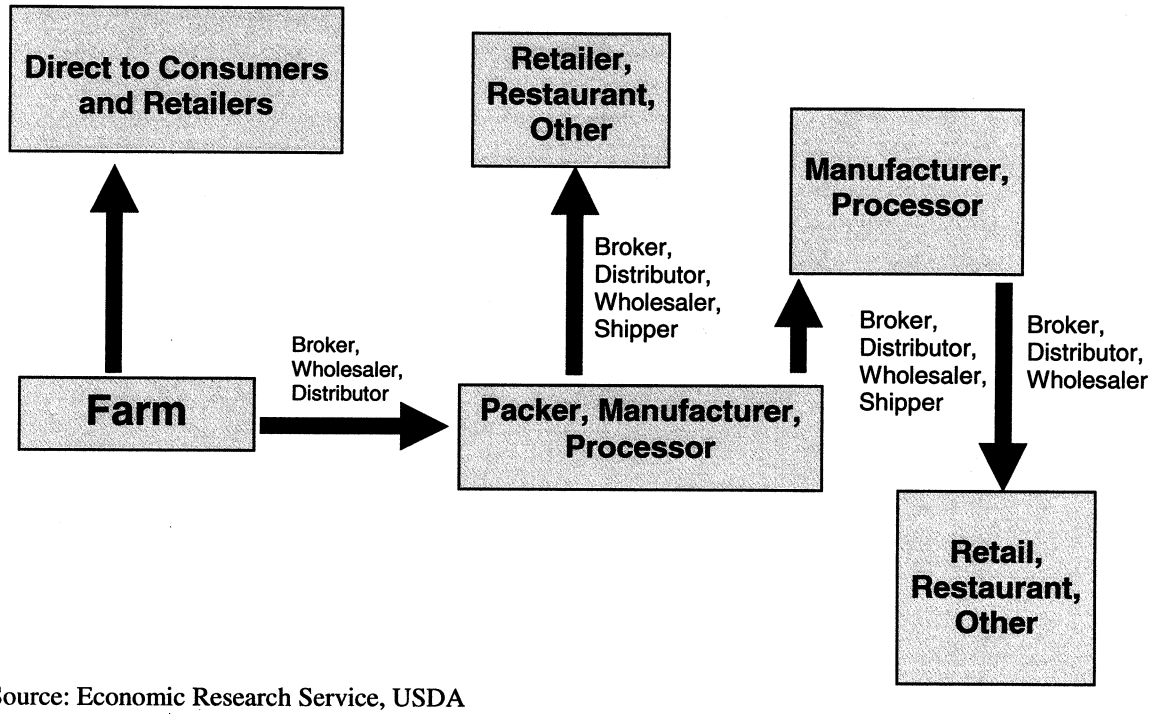
1.2 Overview of the Fresh Leafy Green Industry Structure

The produce industry, and fresh leafy green industry in particular, is described as a farm to fork industry. Businesses in the farm to fork continuum include growers/producers, handlers (processors, shippers, packers) wholesalers/distributors, agents/brokers, exporters/importers,

4 Boyette, M., et al., "Postharvest Cooling and Handling of Cabbage and Leafy Greens," North Carolina Agricultural Extension Service, 1992.

retail outlets such as grocery stores and food service providers.[5] Farms, especially small to medium-sized operations, may sell directly to consumers at farm markets and through Community Supported Agriculture (CSA) programs as well as to retailers. Large operations usually sell their leafy green crops to handlers or directly to retailers at wholesale produce auctions. First handlers may process and package fresh leafy greens into value-added products before selling to other handlers or retailers. A fresh leafy green product may change hands as many as three times before reaching its final destination. Most interim handlers between farm and fork take possession of the product; however, brokers do not typically take possession of the product, but negotiate with producers or handlers on behalf of their customers.

Figure 7: Fresh Leafy Green Industry



Source: Economic Research Service, USDA

1.2.1 Producers

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.

5 Source: Economic Research Service, USDA.

1.2.2 Handlers

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.

1.2.3 Processors

A *processor* is an entity that is engaged in the business of processing or manufacturing fresh leafy green vegetables. *Processing* means to change fresh leafy green vegetables from their natural form into fresh-cut packaged products. 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.

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

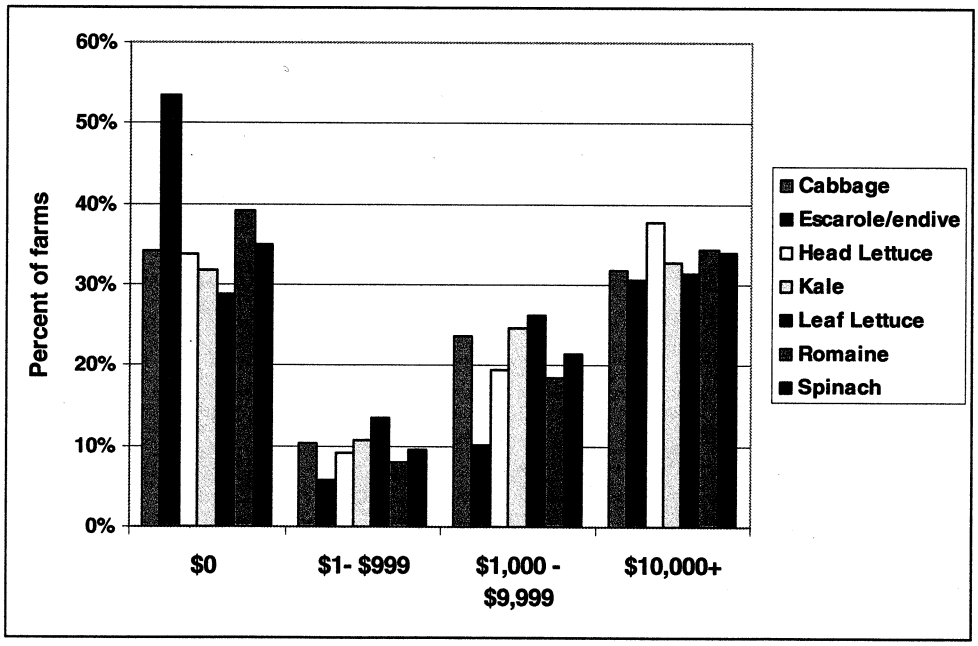
large handlers have all three types of contracts in their portfolios to hedge the risks associated with product supply.

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 they sell their products directly to consumers.[6]

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



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