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### Japanese Fresh-Cut Vegetable Market--Recent Changes and Implications

**Report Categories:**

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**Report Highlights:**

This report, covering Japan's fresh-cut vegetable market, examines the implications of sweeping changes taking place in the Japanese fresh produce market and analyzes opportunities and challenges for U.S. agricultural products.

**Executive Summary:**

Japan's fresh-cut vegetable market is growing despite the fact that the country's overall vegetable consumption continues to decline. Since the early 1980s, the food service sector's development and efforts to reduce costs have led to the growth of the cut vegetable market for industrial use. Today, a set of new factors have combined to boost new demand for cut vegetables, especially in the retail sectors. So far, the use of U.S. vegetables has been limited. However the latest developments are creating new opportunities for U.S. grown vegetables that did not exist before.

A recent expansion of the cut vegetable market is beginning to offer new potential inroads. A surge in imports of lettuce over the last few years, especially from Taiwan, underscores a new opportunity for exporters that is emerging in Japan's food processing and food service sectors, particularly in Taiwan's off season. Therefore, U.S. exporters should explore options for taking advantage of these new developments.

A series of interviews with Japanese produce importers and processors reveal that one of the products with the greatest potential is lettuce, including both iceberg and romaine. The market potential for these products has long been recognized yet the risk of fumigation has prevented U.S. exporters from being able to take full advantage of that potential. The potential is ever greater now and seeming to warrant additional efforts by the U.S. industry to try to reduce the fumigation risks.

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### I. INTRODUCTION

Although there is a demand in Japan for more and more healthy food in general, overall vegetable consumption in Japan has steadily declined over the last three decades as the Japanese diet diversifies to include more meats and dairy products. Annual per capita consumption of fresh vegetables has plummeted from 102 kg in 2000 to 88 kg by 2010, according to the Ministry of Agriculture, Forestry and Fishery (MAFF). Shrinking household incomes exacerbate this trend as consumers trying to cut down the number of purchases at grocery stores in general have largely given up fruits and vegetables relative to other products. Despite this long-term trend of buying less fresh vegetables overall, consumer demand for cut vegetable has grown, and in very recent years, the pace of growth is accelerating.

The explanation for this seemingly incongruous set of facts is that the structure of the Japanese fresh vegetable industry is changing. Traditionally, Japanese people bought whole fresh vegetables at retail markets and then prepared and consumed them at home. Today, a growing number of people of all age groups are buying pre-cut vegetables and packaged salads to eat at home. In addition, more restaurants and home meal replacement (HMR) operators are also purchasing pre-cut vegetables for their operations rather than whole produce.

As a result of these changes, many vegetables have come to be consumed in the processing and food service sectors rather than sold as fresh vegetables at retailers\*\*. This means more vegetables are being treated just like a processed food, which has led to demand for a steady supply of ingredients regardless of the season. This latest development is creating potentially new opportunities for some of U.S.-grown vegetables. In the following chapters, we will examine the key features of Japan's cut vegetable\* market and the implications for U.S. exporters.

\*Definition of Cut Vegetables: Raw vegetables cut in various ways, related to their intended purpose, or those treated generally by means such as peeling and coring, including peeled onions but not including items only cut in half or quarters.

According to Agriculture & Livestock Industries Corporation (ALIC)

\*\*See Appendix 1

A 2011 survey conducted by the Yano Research Institute, Ltd. provides historical data on the market up

to 2010. The result shows that the overall market had been flat from 2006 to 2010, reflecting the general stagnation of the economy and consumption in the wake of the 2008 economic slowdown (referred to as “Lehman Brothers Shock.” in Japan). The latest boom in retail sales started in the early 2010s.)

FIGURE 1: The Value of Cut Vegetable Sales by Sector

(Yen, in billions)

<b>Sector</b>	<b>FY2006</b>	<b>FY2007</b>	<b>FY2008</b>	<b>FY2009</b>	<b>FY2010</b>	<b>Share by Sector (FY2010)</b>
Food Services	66.3	66.6	66.5	64.0	64.0	36.7%
Supermarkets, COOPs, Convenience Stores	46.0	46.0	45.9	45.6	46.2	26.5%
Others (Institutional, HMR)	63.7	64.1	62.7	62.9	64.4	36.9%
Total	176.0	176.7	175.2	172.5	174.6	100.0%

(Source: Yano Research Institute, Ltd., Ready-to-eat Food Market 2011)

## II. MARKET SUMMARY

### A. Overview

The history of Japanese fresh-cut vegetables goes back to 1970, when a Kobe-based produce wholesaler supplied cut vegetables to pavilion operators who served salads to visitors at the Osaka Expo. In the years following, dozens of vegetable wholesalers followed suit by launching similar businesses.

Most of them were small-scale, often operating out of local produce markets. They offered a variety of cut vegetables including cabbage, daikon, leeks, and onions along with the whole vegetables they also sold. Even today, some of these features still characterize much of the industry. At its core, it is a labor-intensive, low-margin business. Most of cut vegetable products processed for the food service sector are made-to-order, specified by each user to fit its individual menu items. As a result, major food processors produce some 600 to 900 different products, many of which are only slightly different in size, thickness, cut, etc. While they use a variety of advanced cutting and sorting machines, the process also involves plenty of manual work, especially with regards to coring, peeling, packaging (so as not to hurt fragile leaves), and placing a multiple items neatly in one bag. (Please see the images below) The industry’s initial growth paralleled that of Japan’s food service industry. That is, when the restaurant and fast food sectors saw marked rapid growth throughout the 1980’s, they tried to cut the costs of labor, food waste disposal, and procurement prices, in order to better compete. This led them to turn to more prepared fresh vegetables. However after the stagnation of the food service sector in the 1990s after the economic burst, the growth of the cut vegetable market slowed down. Over the past decade,

however, the pre-cut vegetable industry has found a new source of growth: the retail sector. Until recently, consumers generally saw cut vegetables as a temporary substitute when prices of (whole) vegetables appreciated sharply.

That pattern of only occasional use in times of high prices began to become more common around 2012, when extreme weather caused the prices of produce to sky rocket in Japan. The shortage boosted the price of vegetables, making pre-cut vegetables appear relatively cheaper because they came packaged in small sizes (A bag of one serving lettuce, cabbage, or salad mix costs less than a dollar). When vegetable prices came down weeks later, however, the sales of cut vegetables and packaged salad did not fall as much. The habit of buying cut vegetables instead of cutting them at home had set in because of the convenience, and reduced likelihood of waste. A sizable number of consumers have come to realize the value of fresh-cut vegetables.

Driven by the rapid expansion of the retail sector, the profile of the industry appears to be changing in recent years. Some of the largest operators have grown even larger, marking double-digit growth. In order to meet a growing demand from their large-scale customers, they are making new investments in processing facilities equipped with cutting-edge food safety-control systems and forming alliances with a greater number of producers. Smaller-scale processors, in contrast, are having a difficult time running low-margin business while trying to meet increasingly stricter safety standards imposed by their customers.

With this shifting market, the nation's biggest retailers have jumped on board, making the cut vegetable industry one of the hottest battlefields with players competing and launching new products in rapid succession. As they compete, the industry looks like it will continue to grow and evolve even further.

## B. Market Situation

### 1. Market Size

According to the survey published in 2013 by Agriculture & Livestock Industries Corporation (ALIC)\*, the value of the Japanese cut vegetable market is estimated to be Y190 billion at the retail level including Y60.5 billion of sales at supermarkets. The value at the processor level is estimated to be Y133 billion, and that of fresh vegetables that go into the cut vegetable industry is Y60 billion.

Chart 1: Japanese Cut Fresh Vegetable Market Size (Source: ALIC 2013)





HMR=Home Meal Replacement industry

\*The survey, the first of its kind taken by the Japanese government, was based on 113 cut-vegetable companies. Thereafter, data from the survey will be sourced as “ALIC”. Though growing rapidly, it accounts for about a few percentage of the overall fresh vegetable market. The market size is compared to Y1,288 billion of the total sales of fresh vegetables at the country’s supermarkets in 2013.

\*\*The total value of fresh vegetables produced in Japan is about 3 trillion yen.

The cut vegetable industry is marked by a preponderance of small-scale companies, i.e. those with annual sales of less than 3 million yen, plus a handful of larger, more well-known companies. One of the main cut salad producers, Delica Foods, posted strong growth in March 2014 with its cut vegetable segment growing 18.8% to 9.3 billion yen. Salad Club (owned by Kewpie and Mitsubishi Corp), a leading salad producer active in the retail market, reported sales of 20.6 billion yen, a 20.5.0% growth over the previous year and the15th year of consecutive growth since it was founded in 1999.

Figure 2: Fresh Cut Vegetable End User Breakdown (by value, based on surveys of 110 processors)

Type of Outlet	% sales by value	# of outlets
Department Stores	0.2	6
Large-Scale Retailers, Supermarkets	27.9	51
COOPs	2.8	16
Convenience Stores	6.4	29
*Bento, Sozai Vendors (Japanese-style HMR)	14.4	48
Food Services Operators	24.5	58
Institutional Meals	10.0	36
Others	13.9	25

Source: ALIC 2013

\*Bento is a takeout meal packed in a box. Sozai is a general term for takeout dishes, often eaten with rice.

## 2. Ingredients

According to the 2013 ALIC survey, the five most frequently used ingredients for cut vegetables by volume are cabbage, onion, daikon, lettuce and carrots. Shredded cabbage, used ubiquitously as a side for numerous Japanese main dishes (e.g. deep-fried pork called tonkatsu), is by far the most commonly used product. Peeled onions (counted as cut vegetables) are used for salads, but mainly by food service establishments that offer beef bowls, and curry rice. Daikon is shredded finely for what is called *tsuma*, a side for sashimi. Daikon is also used widely for mixed salads. The popularity of cabbage is due partly because of its low cost, which is nearly half of that of lettuce, and is frequently used for bagged salads

in place of lettuce.

Figure 3. The Most Frequently Used Ingredients for Cut Vegetables (by volume, Total 223,656 MT)

Vegetables used as ingredients	Volume (%)
Cabbage	30.7
Onion	17.2
Daikon (Japanese Radish)	14.3
Lettuce	12.1
Carrot	7.0
Potato	5.5
Leek	3.6
Gobo (Burdock)	2.8
Chinese Cabbage	2.4
Ginger	1.8
Other	2.6

(Source: ALIC)

### 3. Product Sources (Domestic/Import)

The degree of penetration of imported products in the pre-cut vegetable market varies sharply from one vegetable to another. Over the years, Japan's food service sector has increased its reliance on imported vegetables, both whole and fresh-cut. (Appendix 2) Their main imported items are peeled onions, carrots and burdock from China. Retailers, on the other hand, remain cautious about the use of any imported vegetables due largely to consumers' persistent preference for locally-grown products. As a result, the use of imported vegetables has been very limited in the retail sector. Given this preference, the fact that labeling the country of origin is not required in HMR and food service sector partly explains the predominance of imported vegetables in these sectors.\*

By volume, over 15% of the vegetables used as ingredients for cut vegetables are estimated to be sourced outside Japan. Onions from China (and some from the U.S.) account for more than half the imports, followed by ginger (from China and Thailand) and carrots (from China, Taiwan, Australia and New Zealand). By country, China is by far the largest exporter. Ninety percent of imported ingredients for cut vegetables are from China while those from the U.S., New Zealand, South Korea and Mexico account for the rest (Source: ALIC 2013).

While their preference for domestic supply is unchanging, Japanese consumers have shown flexibility when it comes to some popular vegetables not available locally as an ingredient for cut-vegetables. Red and yellow peppers from South Korea have been widely used in retail products, which are labeled with the country of origin. To a lesser degree, trevis (radicchio) from the U.S. has also been used. (Photo 1)



(Photo 1) Examples of labeling

(Translation)

Date of Processing 14/06/06

Expiration Date (3 day after the date of Processing is generally the norm for mixed salads) 14/06/08

Weight 242g

Lettuce (Nagano)

Cabbage (Ibaragi)

Sunny Lettuce (Nagano)

Trevis (United States.)

Pepper (South Korea)

## Contract Farmers

To secure a sufficiently high-quality supply in the Japanese market that by nature fluctuates widely, processors have increased their reliance on contract farmers across Japan. The arrangement works for farmers as they can fix sales regardless of the market conditions, including over-supply. In return for the promise of the contract, processors secure vegetables at considerably lower prices than they would in the market under a term-contract, typically on a seasonal basis. Contract prices also protect the buyers from unexpected market volatilities. Overall, the majority of ingredients for cut-vegetables (by value) are sourced from contract farmers while the rest come from local produce markets and agricultural cooperatives (JA) directly.

As securing a high-quality supply in large quantities is key to their success, competition is intensifying among large-scale processors and retailers to find and cultivate “motivated” farmers from among those who belong to JA and independent operators.

\*The labeling requirements for consumer products are one reason why processors for the retail sector are not willing to use imported vegetables for their cut vegetable products. Under the JAS law, they are required to label the country of origin of those vegetables which account for more than 50% of a cut-vegetable product. In reality, however, food processors generally disclose the origin of each ingredient, by listing the name of the country, or the name of the prefecture if it is produced in Japan, as recommended by the Consumers Affairs Agency.

## C. Market Drivers



Several factors combined to contribute to the recent expansion in the retail market for cut vegetables including demographics, the rise of private labels, and convenience store chains.

### Demographics

A key driver is demographics. The segment of the population willing to pay for the convenience of cut vegetables is on the rise. In addition to working mothers, there has been a rapid rise in the number of single family households, including the elderly. Such households accounting for over one third of the country's total, and because they cook in smaller portions, they feel that buying whole vegetables is too wasteful. Pre-cut vegetables have also proved convenient for those families whose members do not necessarily eat the same food at the same time, a trend that is increasingly common in Japan. A 2013 Japanese government survey announced in May revealed that only 56.2% of the respondents said that they have dinner with their family every day, followed by 19.9% who said they do so just 2-3 times a day. A rising preference for healthy eating is also adding to the growth.

The amount of cut-vegetable items, including packaged salads, purchased at supermarkets per 1000 shoppers has nearly doubled from 230 in 2009 to 436 in 2012. That amounts to a spending of 51,280 yen per year per 1,000 shoppers from 28,910 yen in 2009, according to alic.

Similarly, over the past 10 years, per capita annual spending on packaged salads (not limited to purchases at supermarkets) grew over 30 percent to 1,200 yen in 2013. Single-family households spend nearly three times more on salads than other (plural-member) households, according to the Ministry of Internal Affairs and Communications.

### The Rise of Generic Store Brand Labels and Affordable Prices

A recent surge in the number of private label products (also called store brand) is another major factor behind the rapid growth in the retail sector. In response to signs of growth, leading retailers including AEON, Seven & i, and Lawson are not just expanding their amount of shelf space for cut-vegetables, but also reinforcing their own private store brand product lines. The intensifying competition between private brands and national brands (also known as name brands) has resulted in the introduction of a series of new value-added products.

For example, at first bags of single-serving single-item products--such as shredded cabbage and square-cut lettuce typically sold for a dollar (100 yen) --dominated the retail market. Today, most bags of fresh-cut vegetables sold by retailers contain multiple items including cabbage, various kinds of lettuce, shredded daikon, red cabbage and red and yellow sliced onions.

Private brands stimulate the market growth even further as their products tend to be less expensive. For example, the price of a one-serving bag of cut cabbage or lettuce has for years remained at 100 yen. Now, AEON's Top Value brand offers a similar product for just 68 yen. They also sell mixed salads with similarly competitive pricing.

The market for packaged salads (in plastic shells) has also diversified. Previously, packaged salad typically meant mashed potato salads sold by retailers along with other cooked ready meals. Today, there are dozens of various kinds of mixed salads. And the number of items included per package seems to be on the increase while the price has stayed about the same. Today, a packaged salad is typically named "10-item" or "1830-item" Fresh Salad (160g, 2-3 servings), and is sold just for 158 to

298 yen (\$1.50-2.90) .



(Photo 2) Examples of popular packaged salads with over a dozen ingredients.

#### Leading Private Labels

Retailer	Name of Private Label	Outlets
AEON	Top Value	Chain stores owned by AEON including AEON and Daiei
Seven & i	Seven & i Premium	Ito Yokado, 7-Eleven (Over 16,000 stores)
Lawson	Lawson Select	Lawson-run convenience stores (Over 10,000 stores)

#### New Outlets: Convenience Stores

The rise of fresh-cut vegetables comes as the country's major convenience store operators try to grow their customer base from mostly young single males to women and the elderly by turning their outlets into compact grocery stores. These convenience store chains, with a combined total of over 50,000 outlets nationwide, have been expanding their offerings of cut vegetables and packaged salads as a strategic way to attract these coveted customers.

Up until a few years ago, most grocery stores as well as convenience stores hesitated to carry bags of cut vegetables due to their shorter shelf life compared to whole vegetables. However, spurred by strong demand, the shelf space dedicated to cut vegetables keeps expanding, both in the ready-made meal and general produce sections of retailers at the expense of space for whole vegetables.

#### D. Prospect for Growth

The cut vegetable market is expected to expand and evolve further. Due to the following factors:

--Elderly households and single-family households are expected to surge in the years to come. In addition, a series of surveys show that younger generations as well as families have also taken to the habit of buying cut-vegetables.

--The country's top retail private brands including AEON's "Top Value", Seven & i's "Seven Premium" and Lawson's "Lawson Select" continue to invest in strengthening their fresh-cut vegetable lines of business. This includes investing in technology to maintain freshness and extend shelf life.

Simultaneously, the number of outlets that offer these products continues to multiply.

--Cut vegetables are becoming part of the ready-to-cook “meal solution” products, which is another growing market segment. Meal solutions are a set of ingredients for a family of 2-4 that are delivered home on a regular basis. The recent expansion of this meal solution home delivery service, embraced by elderly households and working mothers and boosted by e-commerce, is projected to continue.

--Notably, 66.4% of vegetable processors surveyed by ALIC said they want to expand their business whereas just 6.2% said they would like to shrink or suspend their operations. (22.1% said they would maintain their current level of activity.) And some of the biggest processors including Salad Club (Kewpie) and Delica Foods have announced plans build new plants to keep up with the growing demand. In addition, a series of new businesses have been launched in anticipation of growth. Kewpie and JA Zenno, for example, set up a joint venture in December to produce a new line of cut vegetables.

-- Comparisons with the U.S. fresh-cut market suggests there is room for further growth. Total U.S. fresh-cut sales through both food service and retail channels are estimated to be over \$ 27 billion, including fresh-cut fruit, according to a research conducted by Dr. Roberta Cook at UC Davis (2011). The figure is compared to about \$1.9 billion in Japan. She also estimated that fresh-cut produce sales of \$11 billion amounted to about 16% of total retail produce sales in the United States.

--As part of its plan to reinvigorate the nation’s agriculture, the Abe Administration has recently announced a plan to increase the production of vegetables dedicated to the processing and food service sectors by 50% in ten years. Under that strategy, the government has implemented a series of measures to help farmers grow vegetables more suitable for the cut vegetable market and become more competitive vis-a-vis imports.

### III. Best Prospects

#### A. Implications for U.S. Suppliers

The prospect for growth in the pre-cut vegetable market represents a new opportunity for U.S. exporters. A key factor is that the processing industry now more than ever before needs to secure a steady supply of ingredients throughout the year. Unstable local production, especially over the past few years due largely to extreme weather, has added to the urgency of securing a sufficient supply.

At this time there are few signs that Japanese retailers and processors are trying to use imported vegetables besides just as a complementary supply source. However, meeting the rising demand with the domestic supply alone has been difficult, especially for products whose supply volume tends to vary widely.

A series of interviews with Japanese produce importers and processors reveal that one of the products with the greatest potential is lettuce, both iceberg and romaine varieties.

##### 1. Iceberg Lettuce

## Market Size

Lettuce is one of the most frequently-used vegetables in Japan's fresh-cut market. The total usage in 2012 was 27,062 MT, or 12.1% of the total fresh cut input by volume in 2012 (ALIC). Only cabbage, onion and daikon are used more.

Because of the demand for mixed salads, the demand for cut lettuce in the retail sector has grown markedly over the last five years. Consumer spending on cut lettuce from 2009 to 2012 grew 166.7% to 4,752 yen (per 1000 shoppers at local supermarkets).

Figure 4: Retail Market Growth in Sales (per 1000 shoppers at supermarkets)

Items	Spending 2012(Yen)	Growth 2011-2012 (%)	Growth 2009-2012 (%)
Lettuce	4,752	25.9	166.7
Cabbage	11,078	72.4	139.4
Onions	2,848	24.0	102.1

(Source: ALIC 2013)

## Usage

In the food service sector, as in the U.S., pre-cut lettuce has been used for a variety of purposes including salads, sandwiches and burgers. Quick service restaurant and fast food chains are some of the biggest users of fresh-cut lettuce. Large-scale restaurant chains equipped with "Central Kitchen" facilities may opt for processing lettuce in-house as it does not require much labor to process compared with other vegetables such as cabbage, which requires coring.

In the retail market, lettuce is one of the hottest products. As one of the first cut products introduced in the market, a single-serving bag of pre-cut lettuce has for years been the top seller. While it remains popular, the market has become more diverse with new products, especially various kinds of mixed salads, being launched in a rapid succession.

Since 2009, the number of products that use lettuce has grown from 250 to 300 (ALIC). The growth also reflects a surge in the number of private label items.





(Photo 3) Packaged mixed salads like these use lettuce as a main ingredient. And yet, as lettuce is expensive, these salads may include more cabbage and daikon, which can cost half as much, buried on the bottom. The images also show how packaged salad making involves processing by hand.

### Sourcing

Due to sufficient supply and consumers' strong preference for locally-grown products, cut vegetable processors have used imported lettuce primarily to supplant local supply in times of short supply and often during emergencies created by some kind of supply problem.

Lettuce is produced in Japan year-round, with mid-summer to early fall being its peak season. Nagano, Ibaragi, and Gunma prefectures produce 60% of the total output. The volume of local shipment (defined as production minus those vegetables consumed by farmers and set aside for seeds) has been steady over the last decade at around 510,000MT while the acreage has shrunk by 5% to 20,900 hectares over the same period. The Japanese government's most recent data shows that the annual lettuce shipment in 2012 was 529,100 MT, up 4% from the previous year. While many varieties of lettuce are produced in Japan, the overwhelming majority is iceberg.

Figure 5: Lettuce Shipment in Japan

Volume	2002		2008	2009	2010	2011	2012
Lettuce	561,700	-	510,700	510,200	501,100	508,600	529,000
(hectares)	22,000	-	20,600	20,900	20,800	20,800	20,900
Leaf, Romaine lettuce	48,399	-	49,765	N.A.	46,615	N.A.	N.A.

(Source: Ministry of Agriculture, 2012)

While supply is available throughout the year, market prices fall during peak seasons. The amount of production tends to vary from month to month and year to year due largely to weather. For example, in 2013, when Japan saw one of the most extreme weather in recent years, the price of lettuce at Tokyo Central Produce Market (Ota) ranged from between 95 to 405 yen per kilo. That year's average price was 179 yen per kilo.

To protect themselves from these volatile price fluctuations, processors tend to procure lettuce directly from contract farmers rather than through the local produce markets. On average, nearly half of the

produce processed for cut lettuce is estimated to be procured from contract farmers. A term contract, which ranges from 3 months to a year, allows processors to secure far lower contract prices, which can be reduced by as much as 20%, depending on the buying power of processors. The average contract price during November 2012 to October 2013 was 162 yen per kilo, or 15 percent lower than the average wholesale price (ALIC).

### Use of Imported lettuce

The use of imported lettuce has been on the rise. In 2012, at least 2,320 MT of lettuce processed for cut lettuce was sourced from overseas, according to ALIC. A March 2014 survey by ALIC shows imported lettuce accounts for 20.7% of total usage in the overall food processing and service sectors. Much of that supply is sourced in Taiwan.

The growth has been driven by repeated shortages in the domestic supply over the past few years. Some large-scale fast food chains, which require a large volume of cut-lettuce, have always used imports at certain times of the year on a regular basis to hedge against the risk of shortage. In recent years, however, demand seems to be coming from a wider base of users, such as restaurants and processors.

Japanese production of leafy greens has always suffered from the effects of adverse weather in summer and winter. Processors say, however, Japan has seen more extreme weather lately. Hot summers, typhoons, and heavy snows, which hit lettuce-producing regions, are causing severe shortages. The shortage in lettuce toward the end of 2012 to early 2013 was so severe that some processors even had to procure lettuce by air from the U.S. to keep the promises they had made to their customers.

Up until now, the usage is largely limited to the food service sector, however. Only rarely have processors used imported iceberg lettuce for retail products.

### Overall Trade

Japan's imports of iceberg lettuce have grown over 657% from the recent bottom of 1,824MT in 2008 to 11,976 MT in 2013, a record high. In 2013, the import volume grew 13.6% while its value grew 30.7% to 1.4 billion yen. Much of that demand comes from the food service sector while the rest was from the processing sector to be used for cut lettuce. During this period, the market share of imports in the country's iceberg lettuce market has grown from 0.4% to 2.0% (2012).

### Volume of Iceberg Lettuce Imports to Japan

Japan Import Statistics								
Commodity: 070511, Head Lettuce (Cabbage Lettuce), Fresh Or Chilled								
Annual Series: 2008 – 2013								
Partner Country	Unit	Quantity						Unit Price (Yen)
		2008	2009	2010	2011	2012	2013	
World	T	1824	3034	5720	6177	10545	11976	

Taiwan	T	1168	1999	2658	3087	6062	8998	103
United States	T	655	1035	3061	3072	4240	2635	130
China	T	0	0	0	16	243	344	295
Korea South	T	0	0	0	2	0	0	0
Netherlands	T	0	0	1	0	0	0	0

#### Monthly Quantity Data, Japanese Imports

Japan Import Statistics													
Commodity: 070511, Head Lettuce (Cabbage Lettuce), Fresh Or Chilled													
Partner Country	Unit	Quantity						Quantity					
		06/13	07/13	08/13	09/13	10/13	11/13	12/13	01/14	02/14	03/14	04/14	05/14
World	T	110	134	245	533	234	498	2805	3078	2309	1498	467	186
Taiwan	T	0	0	0	0	0	255	2463	2838	2138	1453	408	0
United States	T	89	102	183	488	211	221	333	184	161	25	51	178
China	T	21	32	62	45	23	21	8	56	11	20	8	8

Partner Country	Unit	Quantity											
		06/12	07/12	08/12	09/12	10/12	11/12	12/12	01/13	02/13	03/13	04/13	05/13
World	T	310	327	622	701	334	135	1392	2335	2847	1591	420	224
Taiwan	T							1001	1768	2593	1563	348	7
United States	T	294	306	590	686	312	114	363	525	228	13	51	191
China	T	16	21	32	15	21	21	28	43	26	16	21	26

(Source: Japan Customs)

#### Unit Price of Imported Lettuce

Japan Import Statistics							
Commodity: 070511, Head Lettuce (Cabbage Lettuce), Fresh Or Chilled							
Annual Series: 2008 – 2013							
Partner Country	Unit	Unit Value(United States Dollars)					
		2008	2009	2010	2011	2012	2013
World	T	1,373.60	1,119.00	1,229.43	1,278.63	1,242.40	1,194.44
Taiwan	T	1,075.27	1,107.19	1,122.38	1,119.84	1,111.27	1,078.77
United States	T	1,905.47	1,141.82	1,321.39	1,419.43	1,273.77	1,351.16
China	T	0	0	0	4,368.65	3,962.63	3,020.45
Korea South	T	0	0	0	5,598.95	0	0
Netherlands	T	0	0	5,615.21	0	0	0

#### Value of Imported Lettuce

Japan Import Statistics						
Commodity: 070511, Head Lettuce (Cabbage Lettuce), Fresh Or Chilled						
Annual Series: 2008 - 2013						
Partner Country	United States Dollars					
	2008	2009	2010	2011	2012	2013
World	2,505,238	3,395,362	7,031,803	7,898,534	13,101,271	14,304,579
Taiwan	1,256,417	2,213,683	2,982,928	3,457,179	6,736,353	9,706,269

United States	1,248,820	1,181,679	4,045,085	4,360,857	5,400,810	3,559,642
China	0	0	0	69,199	964,109	1,038,667
Korea South	0	0	0	11299	0	0
Netherlands	0	0	3790	0	0	0

(Source of Data: Japan Customs)

### Impediments to Growth for U.S. Suppliers

The U.S. used to be the dominant exporter of fresh lettuce to Japan, shipping over 8,000 MT in the early 2000s and enjoying a market share of over 90%. Lower costs, high-quality, and year-round availability were and continue to be a U.S. strength.

U.S. exports, however, shrank steadily due mainly to the high risk of fumigation upon arrival, which often renders the lettuce unsuitable for use. Iceberg lettuce is especially vulnerable to fumigation compared with romaine lettuce. Over the years, Japanese importers became hesitant to import U.S. lettuce after repeatedly incurring losses when pests were detected. Today, only a few major importers are willing to regularly buy U.S. lettuce (mainly to supply designated users in the food service.) For others, the risk has simply become too high.

Meanwhile, market dynamics have shifted dramatically. Japanese traders worked to cultivate suppliers over the past decade, targeting Taiwan. Taiwan's import volume grew 7.7 times over the last five years and its Taiwan market share grew from a mere 5% in 2003 to more than 75%, eroding the U.S. share to 22% by 2013.

Behind the rise of Taiwan lettuce are three factors. The first is the improving quality. Since the early 2000's (after Taiwan joined the WTO), Japanese importers have cultivated the Taiwanese market, specifically for the Japanese food service and processing markets. The quality is said to have improved as they tried to meet the demands of Japanese customers, and now Japanese importers say there are hardly any differences in quality between U.S.-grown and Taiwan-grown lettuce. Just as those produced in the U.S., Taiwanese lettuce is tightly layered, resulting in high yields. The chance of incurring fumigation at the port has been reduced, say two importers.

The second factor is the cost. Combined with its shorter distance for shipping, Taiwanese lettuce is 15-25% less expensive than U.S. lettuce. In 2013, Taiwan's average cost per kilo was 103 yen compared with the U.S.'s 130 yen.

While the cost advantage is undoubtedly significant, the crucial difference that explains the surge in imports seems to be the limited risk of fumigation Japanese importers would incur. As they develop ties with Taiwan suppliers, some of the Japanese importers have come to buy lettuce with an agreement to "ship back" containers if they become subject to fumigation upon port arrival. The "shipback" is an insurance against that risk, which allows Japanese buyers to avoid incurring any losses.

The short distance between Taiwanese and Japanese ports makes the "ship back" feasible in the first place. (Whereas it takes at least 14 days to ship lettuce from a port in California to Japan, it takes just 5 days to ship from Taiwan.)



As a result of mutual efforts between Taiwanese suppliers and some Japanese importers, Taiwan has increasingly penetrated in the Japanese food processing sector as well as the food service sector, positioning itself as an important part of the supply chain.

However, Taiwan's season is limited to just the winter and spring. The situation provides a potential opportunity for other suppliers with different seasons to expand their market share.

Table 1: Strengths and Weaknesses

<b>Iceberg Lettuce</b>	<b>Japan</b>	<b>U.S.</b>	<b>Taiwan</b>
Unit Price (kg)	Y95-405* Y179 (Av)	Y130**	Y103**
Availability	Year-round	Year-round	Dec-April
Shipping from Farm to Store/Port	N.A.	14 days	5 days
Quality	High	High	High
Yields	60%	60-65%	60-65%
Risk		Fumigation	(Fumigation)
	*2013 Tokyo (Ota Market)	**2013 (Japan Customs)	

(Source: MAFF, ATO's interviews)

The Japanese Agricultural Ministry has issued the following guidance for domestic farmers on the desirable qualities of several vegetables as ingredients for cut-vegetables or processing. The guidance aims to help them to be better equipped for the growth market.

<http://www.jgha.com/files/kakouyasai/10kakou-guide-lettuce.pdf>

Qualities for lettuce:

1. Large-size.
2. Crispy texture, thick leaves (less vulnerable during washing and sterilizing). Alternatively, loosely layered heads (resulting in lower yields) and ripened ones (flavor affected) are not favored.
3. The weight per case stays consistent, which increases their efficiency.
4. Utmost Freshness

## 2. Romaine Lettuce

In Japan, Romaine lettuce has been used as an ingredient for cut lettuce both for the food service and the retail sectors, but only on a limited basis. While it has become more popular than iceberg in the U.S., that is not yet the case in Japan. Iceberg lettuce is by far the dominant variety in the Japanese market, and "romaine" is not even a household name. It is available at some of the upscale supermarkets but not so common otherwise. Other types of leafy greens are more readily available.

There are, however, signs of change. As processors fiercely compete and try to differentiate themselves, romaine lettuce appears to be gaining some traction.

There is a growing demand for uncommon ingredients for packaged salads and romaine lettuce seems to fit well. Today, it can be found in packaged salads called 10-item or 15- item mixed salads (Photo 3), though the usage of romaine is still fairly minimal. That is not surprising since its production in Japan is less than one tenth of that of iceberg lettuce.

Even so, amid the rapid pace of product development, one of the first cut vegetables that featured romaine lettuce went for sale recently under Seven & i's private label and became available at its Ito-Yokado and 7-Eleven convenience stores nationwide.



(Photo 4) A bag of cut romaine lettuce sold for 200 yen (1 serving) at the nation's 12,000 7-Eleven outlets as well as Ito-Yokado stores.

The steady increase in the use of local romaine lettuce in cut-lettuce products comes as U.S. exports to Japan have been gaining momentum. Over the last five years, exports of romaine lettuce have grown fivefold to 900MT, up 233MT or 34.9% from the previous year. Much of that demand has been created by Dole, which has offered packaged salads using U.S.-grown romaine as well as romaine hearts for the retail market. Unlike iceberg lettuce, which is widely available locally and identical to U.S. lettuce, U.S.-grown romaine lettuce has distinct features (e.g. darker color, firmer in texture) which have been regarded as an advantage.

Despite that, the risk of fumigation has kept many Japanese processors, who would otherwise be interested, from using U.S.-grown romaine lettuce.

#### Romaine Lettuce

Japan Import Statistics							
Commodity: 070519, Lettuce (Lactuca Sativa), Except Head Lettuce, Fresh Or Chilled							
Annual Series: 2008 – 2013							
Partner Country	Unit	Quantity					
		2008	2009	2010	2011	2012	2013
World	T	249	185	270	495	988	1120
United States	T	249	185	249	415	667	900
Mexico	T	0	0	21	71	250	188
Taiwan	T	0	0	0	0	71	26
China	T	0	0	0	5	0	6
Korea South	T	0	0	0	4	0	0
Canada	T	0	0	0	0	0	0

Source of Data: Japan Customs					
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### Conclusion: Implications for U.S. Exporters

A surge in imports of lettuce over the last few years, especially from Taiwan, underscores a new opportunity for exporters that is emerging in Japan's food processing and food service sectors (both as fresh-cut and whole vegetables). Taiwan's rise as an exporter in the winter and spring seasons suggests that the preference for only local demand has been changing and that a similar scale of potential demand for imported lettuce exists during the rest of the year.

So far the demand for imported iceberg lettuce is largely limited to the food processing sector. Still, it is sizable. The overall value of the market for (imported) iceberg lettuce alone grew from \$2.5 million to \$14.3 million in recent years, of which Taiwan accounts for 67.8% and the U.S. 24.9%.

U.S.-grown iceberg lettuce may not be able to compete with Taiwan's lower cost during its peak season (December to April). However, for the rest of the year, U.S.-grown lettuce would be in a good position to increase its market share.

By nature, leafy greens are more susceptible to weather problems than other vegetables, and an unexpected shortage in supply has to be hedged, since retailers have to fill up the shelf space of fresh-cut vegetables and restaurants have to serve green salads they put on their menus.

Amid the increasingly unpredictable weather, securing a stable supply of high-quality lettuce year-round has become a growing concern shared by vegetable processors. A series of recent FAS interviews reveals their renewed interest in U.S.-grown lettuce as an alternative source, as they expect the market to grow further while also anticipating a periodic acute shortage in supply. "A periodical shortage of local lettuce has become increasingly unavoidable. And we have to assume that the situation will stay with us [and we need to prepare for that]," says Yoshikuni Anzai, Chairperson of Sun Grove Food, Inc., a leading importer and processor.

Meanwhile, imports of U.S. romaine lettuce have also been on the rise. Notably, this increase has been driven by the retail sector, which indicates a growing acceptance by consumers of imported lettuce.

While most of the imports are handled and processed by Dole, romaine's unique quality is generating interest among some other Japanese processors who are trying to expand their product lines. But they almost always stress one condition. "We would be interested in developing new packaged products featuring U.S.-grown romaine lettuce, were it not for the risk of fumigation," they say.

The potential demand is not limited to romaine lettuce, however. Some importers also point to a pent-up demand for iceberg lettuce. They say a more stable year-round supply of lettuce, supported partially by U.S.-grown product, would help expand the local cut lettuce market further. If a stable low-cost supply from the U.S. were to become available without the risk of fumigation, they say, that would stimulate the development of more products using lettuce. "After all, consumers like lettuce. There is a plenty of potential demand for lettuce products", says Anzai.

Additionally, the overall market expansion in Japan is beginning to have a positive impact on imported products more broadly. There are signs that the retail market may be more amenable to them compared to the past. Seven & i, known for its highly strict food safety standards, has recently launched a cut-vegetable product under its private label, 1-serving celery sticks using U.S.-grown supplies to be sold at its nationwide 7-Eleven convenience stores. It is notable as the retailer generally touts locally sourced vegetables in their cut vegetables.

Over the years, there have been numerous attempts by importers to try to reduce the risk of fumigation with varying successes. Some shippers have removed outside leaves and shipped smaller hearts. Some have tried removing the core of lettuce prior to shipping. That process however would render leaves less firm, thus compromising the very quality buyers valued in the first place. Others have tried to ship bags of green leaves by air to limit the risk of fumigation. This approach, however, has several drawbacks, including the high cost of shipping and the difficulty of keeping the cold chain from breaking once these bags arrive in Japan. The importer would have to accept the risk that the product would have a very short shelf life not suitable for distribution. The size of packages for use in the food service sector would also be an issue as Japanese processors require small packaging.

U.S. shippers are encouraged to do something to take advantage of this opportunity before the demand is filled by other local and foreign suppliers. It might be time to explore an alternative to fumigation, such as a systems approach for shipping lettuce from the United States to Japan, in order to avoid fumigation.

#### IV: POST CONTACT AND FURTHER INFORMATION

If you have any questions or comments regarding this report or need assistance with exporting to Japan, please contact the U.S. Agricultural Trade Offices in Tokyo or Osaka at the following addresses:

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Tokyo (U.S. Agricultural Trade Office)  
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#### APPENDIX 1: The Structure of the Japanese Produce Market: The percentage of the vegetables used by the processing and food service sectors

Overall, nearly 60% of the demand for vegetables comes from the processing and food service sectors. (2010)

Vegetables	%
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Carrots	64
Tomatoes	62
Leeks	62
Daikon (White Radish)	60
Onions	59
Lettuce	58
Taro (Satoimo)	55
Chinese Cabbage	52
Cabbage	50
Spinach	48
Cucumber	46
Green Pepper	44
Eggplant	43

(Source: Policy Research Institute, MAFF)

#### APPENDIX 2: The percentage of locally-grown vegetables used in the food service and retail sectors (%)

<b>% of Locally-grown Whole Vegetables</b>	<b>1990</b>	<b>2000</b>	<b>2005</b>	<b>2010</b>
Food Service/Processing	88.0	74.0	68.0	70.0
Retail	99.5	98.0	98.0	98.0

(Source: Policy Research Institute, MAFF)

#### APPENDIX 3: Japanese import of fresh vegetables

Japan's overall imports of vegetables of all types (fresh, frozen and dried) have been on the increase over the last several years. Due largely to the country's persistent unstable weather that resulted in acute shortages in Japan, the level of imports grew from 603K MT in 2008 to 947K MT in 2012. While the import of fresh vegetables fell 10% in 2013 due to a bumper crop, it has reversed course in the first 4 months of 2014.

Table Growth in Imported Fresh Vegetables

<b>Year</b>	<b>Import Volume (MT)</b>	<b>Growth</b>
2008	603,000	83.9%
2009	615,000	10.0%
2010	821,000	132.0%
2011	915,000	111.4%
2012	947,000	103.5%
2013	854,057	90.1%

(Source: MAFF, Ministry of Finance)

