

Supplemental Deliverable

Kosovo Go To Market Crop Studies

Pristina, Kosovo
April 2010

The report has been created for USAID. Dissemination and use of the material is at the prerogative of USAID.



USAID | **KOSOVO**
FROM THE AMERICAN PEOPLE

Booz | Allen | Hamilton

Table of Contents

▶ Overview of Deliverable

▶ Go To Market Crop Studies

- Bulbs
- Asparagus
- Kiwi
- Gherkins
- Apples
- Table Grapes

The objective of this document is to provide detailed market analysis for six high value crops for Kosovo

Document Objectives

- ▶ As part of an effort to provide USAID/Kosovo with recommendations of new high-potential, high-value crops that can be grown in the country, a detailed market study was conducted for six crops. The crops studied were previously identified as being part of the optimal crop mix for Kosovo. The six crops analyzed in this study are: bulbs, asparagus, kiwi, gherkins, apples and table grapes
- ▶ The “Go-To-Market” strategy for each of the six crops involves an analysis along 5 areas: 1) key suppliers in the market; 2) major importers in the market; 3) infrastructure requirements for producing, processing and distributing the crop; 4) key varieties of the crop and specific characteristics for each; and 5) success factors that are essential for marketing the crop
- ▶ The purpose of this study is to inform USAID/Kosovo on potential future interventions in the agriculture sector and to recommend crops that Kosovo can be most successful in marketing

We interviewed a number of stakeholders and reviewed numerous studies and reports to inform our analysis

List of Interviewees & Documents Reviewed

Interviewees

- ▶ Andy Warren, Bloomz New Zealand, Owner
- ▶ Patrick Kapteijn, Hobaho Bulb Exporters, Marketing and Projection Office Head
- ▶ Lucas Boreel, International Flower Bulb Centre (IBC), Area Manager North America, UK, France, Italy, Benelux
- ▶ Günther Mahlkecht, GRIBA, Director
- ▶ Kees Koelman, Koeleman Foods International BV, Head
- ▶ Giorgio Biggi, Agribusiness Consultant
- ▶ Andriy Yarmak, Agribusiness Consultant
- ▶ Remer Lane, Booz Allen Hamilton, Agriculture Specialist
- ▶ Fernando Palmer, USDA, Fruit and Vegetable Market News Section Head

Reports Examined

- ▶ USDA/FAS, Fresh Deciduous Fruit World Markets and Trends, 2009
- ▶ USDA/FAS, World Apple Situation, 2007
- ▶ University of Illinois, College of Agriculture Sciences, Report on Fire Blight, 2007
- ▶ USAID Albanian Apple Value Chain: FSKG Case Study, 2008
- ▶ USDA, Fresh and Processed Asparagus World Situation, 2007
- ▶ University of California Agriculture Issues Center, Asparagus Commodity Profile, 2006
- ▶ Oklahoma State University Cooperative Extension Service, Asparagus Production
- ▶ California Asparagus Seed and Transplants, Inc., 2005
- ▶ UC Davis Horticulture Crops Research Laboratory, Report on Post Harvest Quality Maintenance of Table Grapes, 2007
- ▶ USAID/Macedonia AgBiz Program, Croatian Table Grape Market Report, 2009
- ▶ California Foundation of Agriculture, Table Grape Commodity Fact Sheet, 2009
- ▶ EU-27 Fresh Deciduous Fruit Annual Report, 2009
- ▶ International Flower Bulb Center, The Tulip Forcing Guide
- ▶ Netherlands Horticulture Product Board Report, 2009
- ▶ Agriculture Economics Research Review, Export of Gherkins from India, 2008
- ▶ Gherkin AEZ Karnataka, Commodity Specific Study, 2005
- ▶ Fresh Plaza Kiwi Report, 2007
- ▶ Zespri Group, 2008/2009 Annual Report

Each Go To Market case study includes five main areas of analysis: supply, demand, infrastructure, varieties, and success factors

Go To Market Analysis Factors

Supply

- ▶ Determine largest suppliers of selected crop varieties by volume
- ▶ Assess whether suppliers are increasing or decreasing quantity exported
- ▶ Analyze growing season gaps and potential to take away market share

Demand

- ▶ Determine the largest importers of selected crop varieties by volume
- ▶ Assess whether buyers are increasing or decreasing quantity demanded
- ▶ Evaluate opportunities to take advantage of seasonal prices

Infrastructure

- ▶ Determine infrastructure requirements for production, such as greenhouse capacity and irrigation networks
- ▶ Assess onsite processing and packaging requirements
- ▶ Identify distribution infrastructure needs for roads, air transport, shipping, collection centers, cold chain, etc.

Varieties

- ▶ Identify the types of varieties that exist for each crop
- ▶ Examine the unique characteristics that define each variety category
- ▶ Analyze the fluctuation in prices of crop varieties

Success Factors

- ▶ Determine the factors that are essential to successfully market a crop
- ▶ Examine success factors, such as specialized training requirements, international quality standards and marketing techniques, for marketing specific crops

The analysis revealed that Kosovo has a competitive advantage in bulbs, asparagus and kiwi, given its ability to meet demand at relatively low cost

Go To Market Overview

	Bulbs	Asparagus	Kiwi
1 Supply / Demand	<ul style="list-style-type: none"> ▶ Although Netherlands makes up 76% of the bulb export market, opportunities for market penetration exist due to low production costs. Demand for bulbs is increasing in Bulgaria, Romania and Russia 	<ul style="list-style-type: none"> ▶ Market penetration is possible, as the top European asparagus suppliers each make up a small portion of market share (6% or less). Demand has been rising in France and Netherlands 	<ul style="list-style-type: none"> ▶ Even though Italy captures 25% of market share, market penetration is possible if high quality standards are met and costs are kept low. Demand has been rising in Belgium, Spain and Netherlands
2 Infrastructure	<ul style="list-style-type: none"> ▶ Investment infrastructure is low. Bulbs can be grown in open fields or simple greenhouses and expensive equipment is not necessary ▶ Some bulbs can be transported to short distances without cold storage 	<ul style="list-style-type: none"> ▶ Investment infrastructure is low. Simple greenhouses made up of plastic tunnels can be used ▶ Complex irrigation systems not required ▶ Cold storage is required if asparagus is sent to distances over several hours 	<ul style="list-style-type: none"> ▶ Infrastructure costs are reasonable. Kiwis require trellising, drip irrigation, and hail storm net covering ▶ Cold storage is required if kiwis are distributed to distances over 500-800 km
3 Varieties	<ul style="list-style-type: none"> ▶ There are many types of bulbs, including highly valued varieties such as zantedeschia (type of lily). Zantedeschia are priced higher than other varieties at about .80-1 Euro/bulb 	<ul style="list-style-type: none"> ▶ Asparagus is generally a higher value crop. The white variety is preferred by most European consumers and is priced higher than green and purple varieties 	<ul style="list-style-type: none"> ▶ Over 80% of world production of kiwi is of the Hayward variety ▶ Producing less common varieties, such as the Hinabelle, could yield higher prices and provide market differentiation
4 Success Factors	<ul style="list-style-type: none"> ▶ Lower labor costs and producing slightly earlier than competitors in Northern Europe can allow for a competitive advantage. High quality standards and strong managers to oversee production and distribution are essential 	<ul style="list-style-type: none"> ▶ Training in crop management and quality control can ensure high yield, quality production ▶ Strong marketing campaigns and high quality standards to maintain crop freshness are essential 	<ul style="list-style-type: none"> ▶ Investing in less common varieties such as the Hinabelle can give a competitive advantage. Launching a strong marketing campaign and maintaining high quality standards are essential

▶ Kosovo has a strong competitive advantage in bulbs, given increasing regional demand, simple infrastructure, producing slightly earlier than competitors and low labor costs

▶ Kosovo has a moderate competitive advantage in asparagus, given strong EU demand, low labor costs, reasonable infrastructure requirements and presence of high value white asparagus variety

▶ Kosovo has a moderate competitive advantage in kiwi, given strong EU demand and potential to grow high value Hinabelle variety

Similarly, gherkins, apples and table grapes also have a competitive advantage, but have slightly higher infrastructure costs

Go To Market Overview

	Gherkins	Apples	Table Grapes
1 Supply / Demand	<ul style="list-style-type: none"> ▶ Although India supplies 34% of gherkins, it is possible to be competitive in this market, given low labor costs and modern technology. Serbia is a low cost producer of gherkins in the region. Top EU demand is from Russia, Germany and Spain 	<ul style="list-style-type: none"> ▶ There is EU demand, but market penetration will be difficult since high volumes of apples are produced in several countries such as China, Turkey and Poland. It is necessary to differentiate based on variety in order to be competitive 	<ul style="list-style-type: none"> ▶ There is EU demand, but Italy and Spain are well established table grape producers in the region. Since consumers prefer grapes from these countries due to their quality, high quality standards must be met
2 Infrastructure	<ul style="list-style-type: none"> ▶ Higher infrastructure requirements exist in packaging and processing (e.g. sterilization). Processing facilities must comply with stringent international quality control standards ▶ Packaging facilities are needed to can/jar gherkins 	<ul style="list-style-type: none"> ▶ Infrastructure costs can be high without government or donor support. Specifically, apples require drip irrigation, cold storage facilities and machinery for pruning and harvesting ▶ High grade apples must be packaged according to specific guidelines 	<ul style="list-style-type: none"> ▶ Higher investment costs are required for infrastructure such as drip irrigation and hail storm net covers ▶ Cold storage is necessary to keep grapes fresh if they are not sold soon after harvest
3 Varieties	<ul style="list-style-type: none"> ▶ There is a lack of high value gherkin varieties, aside from Germany's Spreewald variety, which is patent protected by the EU 	<ul style="list-style-type: none"> ▶ High value varieties such as Pink Lady apples are priced high due to patent protection. Pink Lady variety can be grown if proper licensing is acquired 	<ul style="list-style-type: none"> ▶ There are several varieties of table grapes including Italia, Red Globe and Victoria. The Victoria variety has a higher price value than the other two varieties
4 Success Factors	<ul style="list-style-type: none"> ▶ Training and significant investment in modern crop cultivation techniques and processing infrastructure is required ▶ Compliance with international quality standards is critical 	<ul style="list-style-type: none"> ▶ Cooperative agreements between small farmers are important to master growing techniques and share resources ▶ Strong marketing campaigns are necessary 	<ul style="list-style-type: none"> ▶ Market differentiation through delivering high quality grapes for lower prices is necessary ▶ Associations should develop internal market controls to make sure that all members adhere to the requirements

▶ Kosovo can develop a competitive advantage in gherkins due to low labor costs; however, higher infrastructure requirements exist

▶ Kosovo can develop a competitive advantage in apples by buying into a franchise, such as Pink Lady; infrastructure costs may be high

▶ Kosovo can develop a competitive advantage in table grapes by meeting quality standards and penetrating the regional market

Table of Contents

▶ Overview of Deliverable

▶ Go To Market Crop Studies

– Bulbs

– Asparagus

– Kiwi

– Gherkins

– Apples

– Table Grapes

Demand for bulbs is increasing in Eastern Europe, with lilies and tulips among the most popular varieties; prices for bulbs fluctuate, depending on the season



'Go To Market' Snapshot -- Bulbs

Supply

- ▶ The Netherlands, France¹, Chile and UK are the largest world suppliers of bulbs. Netherlands provides 76% of the world market for bulbs
- ▶ Kenya is the main supplier to European markets (also South Africa, Zimbabwe and Ethiopia to a smaller extent)
- ▶ South America (Colombia, Ecuador and Chile in particular) supplies North America
- ▶ New Zealand and Australia mainly supply Asia

Demand

- ▶ US and Japan are the largest import markets for bulbs, making up 17% and 8% of world imports respectively
- ▶ UK, Netherlands and France are the top EU importers
- ▶ Overall demand for bulbs has increased in Eastern European countries such as Bulgaria, Hungary, Romania and Russia in recent years
- ▶ China, India, Brazil and the Middle East are emerging as leading importers
- ▶ From October to April, prices are higher for bulbs because worldwide supply is lower; conversely, prices are lower from April-September because worldwide supply is higher

Infrastructure

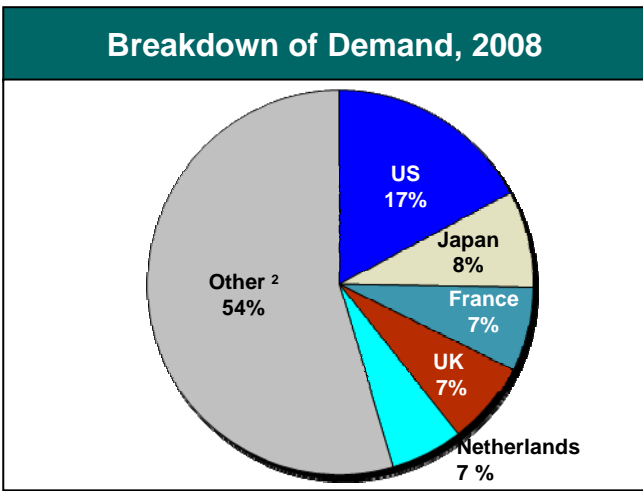
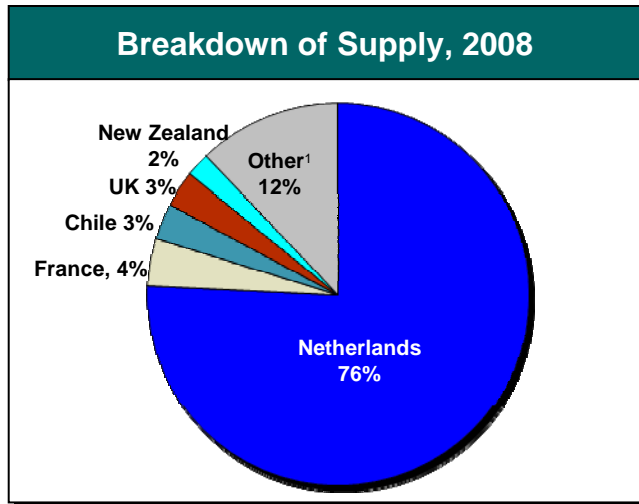
- ▶ Bulbs do not require greenhouses, as they can be grown in open fields or semi covered fields (using plastic rain covers) to protect from rain
- ▶ Either machines or hand-labor can be used for cultivating bulbs
- ▶ If machines are used, simple tractor machinery and extraction diggers are the most common
- ▶ A consistent reliable source of water is necessary, such as overhead irrigation, drip irrigation or storage tanks
- ▶ Cold storage facilities are required for bulbs

Variety Selection

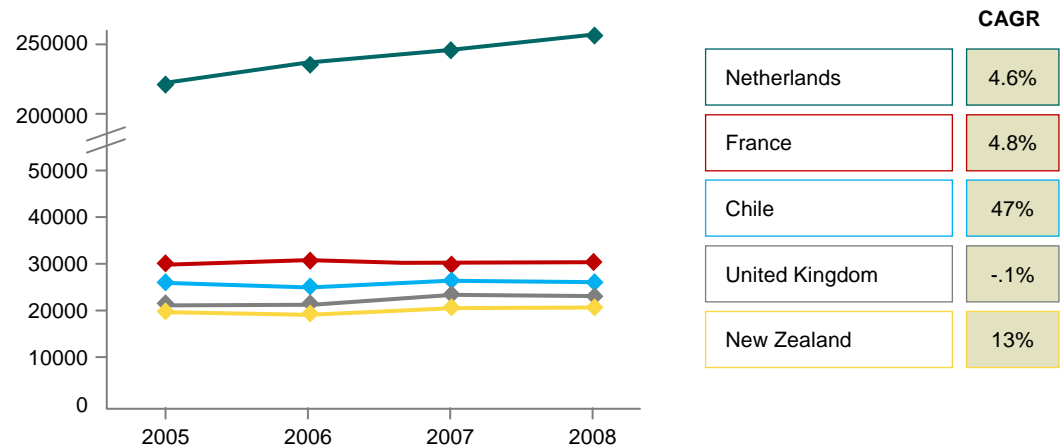
- ▶ There are several species of bulbs in the market including lily, tulip, calla lily (zantedeschia), ornithogalum, iris, begonias and gladioli
- ▶ Each species has various sub-species. For example, there are over 100 varieties of calla lilies but only 10-15 are commonly seen
- ▶ Varieties are differentiated based on color and value (price)
- ▶ Niche bulbs such as zantedeschia can be sold at higher prices (0.80-1 Euro/bulb), whereas tulips are generally .05-.10 Euro/bulb on the Dutch market

The Netherlands dominates the export market for bulbs, though other small players in Europe and South America are present

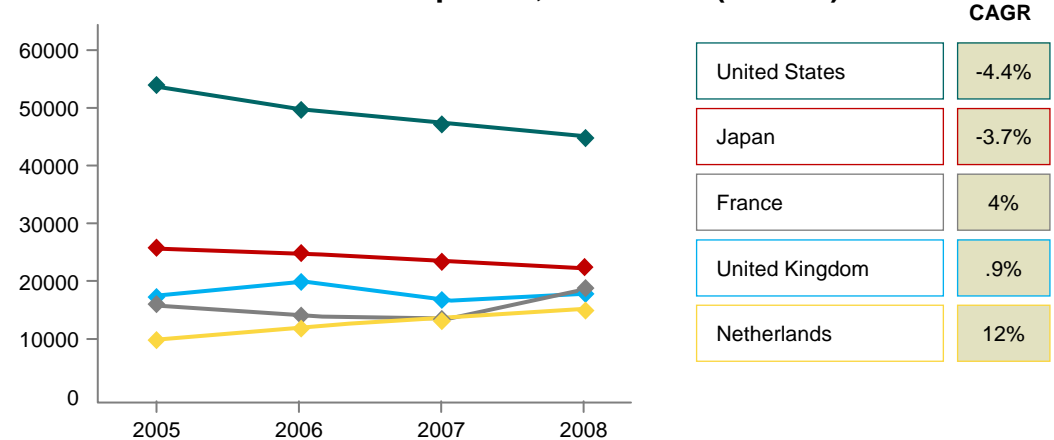
Breakdown of Supply and Demand and Related Trends



Quantities Exported, 2005-2008 (in tons)



Quantities Imported, 2005-2008 (in tons)



Note (1) : Includes supply from 62 other countries such as Israel, Brazil, US, Spain, Germany, Belgium, Canada, Poland, South Africa, China, Japan

Note (2): Includes demand from 115 other countries such as Germany, Italy, Canada, Mexico, China, Russia, Sweden, Poland, Spain, Norway

Source: TradeMap, HS Code 060110 (Dormant bulbs, tubers, tuberous roots, corms, crowns and rhizomes)

Bulbs do not require advanced infrastructure and can be produced in open fields or simple greenhouses

Infrastructure Requirements for Bulbs

Production Infrastructure

- ▶ **Irrigation:** Poor quality or scarcity of water can greatly hinder production, as bulbs must be irrigated regularly. For broader acre bulb production, long booms that can be moved overhead are used. For niche crops, ground level irrigation can be used, which conserves water. Water can be stored in plastic tanks, reservoirs or wells during the dry season. Sandy soil is ideal for bulb cultivation
- ▶ **Simple Greenhouses:** Open fields can be used to produce most types of bulbs but simple greenhouses in the form of crop covers are used to stretch the season, which can help attain more competitive prices in the market. Niche crops, such as zantedeschia, may need simple greenhouses made up of only plastic rain covers. Simple greenhouses are recommended for producers newly entering the market, as this will keep costs down
- ▶ **Equipment:** Planting can be done by hand using diggers. Several small tractors are preferable to few large tractors, in case of equipment malfunction. Cars/trucks are necessary to transport bulbs from fields to processing sheds

Processing and Packaging Infrastructure

- ▶ **Processing Facility:** Bulbs are processed during winter months. Sheds need to have a concrete area and should be insulated during winter. Hand forks and forklifts are used to shift bulbs in bins and containers during processing
- ▶ **Storage :** Flower bulbs are stored at a wide range of temperatures, depending on the type of bulb. Cold storage for lilies is usually set to 1°C, whereas zantedeschia are stored at 18°C
- ▶ **Grading:** Sophisticated grading machines are not required, as grading can be done by hand

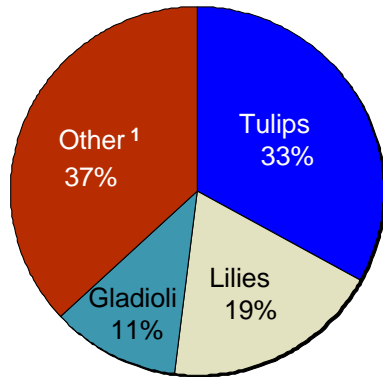
Distribution Infrastructure

- ▶ **Road Transport:** Most bulbs are placed in Dutch lily crates and transported via truck throughout Europe. For short distances, some bulbs do not require refrigeration, while others such as liliiums need to be refrigerated even for short distances
- ▶ **Air and Sea Transport:** Bulbs are more often transported via sea freight rather than air

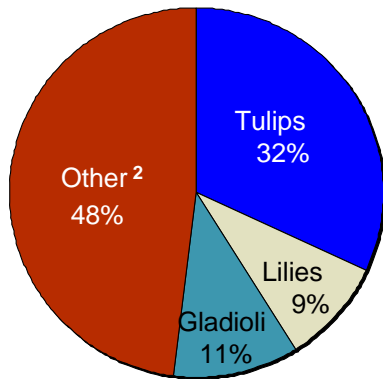
The top three varieties of bulbs are tulips, lilies and gladioli; lilies are generally priced higher than the other varieties

Bulbs Variety Overview

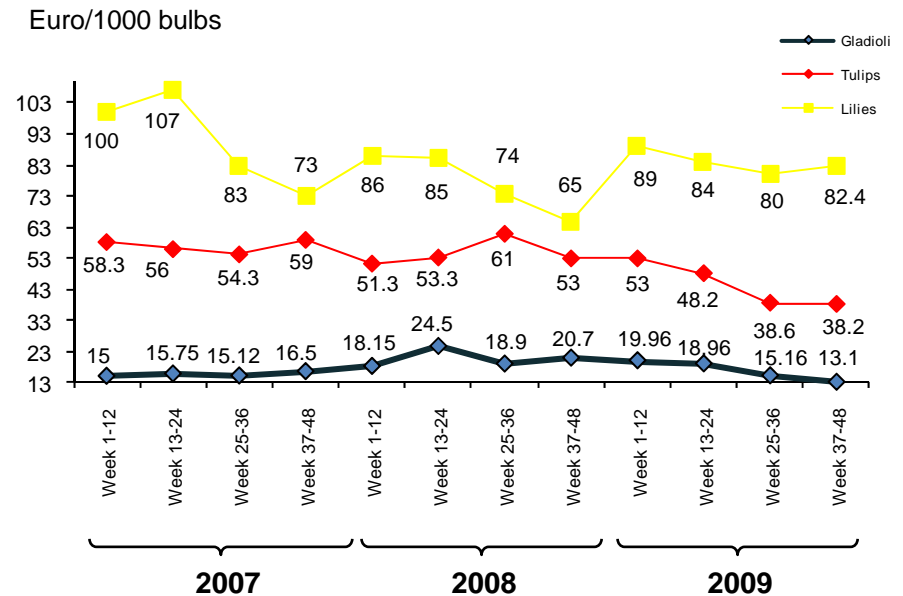
**Top Bulb Varieties
(Netherlands Exports to the World, 2009)**



**Top Bulb Varieties
(Netherlands Exports to Europe, 2009)**



**Average Bulb Prices, Netherlands³
(Euro/1000 bulbs, 2007-2009)**



Sources: Netherlands Horticulture Product Board, International Flower Bulb Center, Hobaho Trade Organization, Netherlands

Notes (1 and 2): "Other" includes iris, daffodil, begonia, dahlia, narcissus and thousands of smaller varieties

Note (3): Average bulb prices are estimates derived by taking average price indices and multiplying them by average Euro/bulb ratios, provided by a bulb trade organization in the Netherlands. Euro/bulb ratios are as follows: 50 Euro/1,000 bulbs (tulips), 100 Euro/1,000 bulbs (lilies), 15 Euro/1,000 bulbs (gladioli). For each variety, all bulb sizes and cultivars were included to find the average index

While local demand and market differentiation are critical, strong management is essential for long-term success

Success Factors for Effectively Marketing Bulbs

- 1** Identify market and develop local demand
 - ▶ Collaborate with established players, such as Netherlands, to gain knowledge on production techniques and develop the local market
 - ▶ Potential markets outside the country include China, India and Brazil
 - ▶ In addition, Russia and Middle Eastern markets are looking for alternative suppliers to the Netherlands
- 2** Establish market differentiation
 - ▶ Bulbs need to have reliable quality and competitive prices to successfully compete. Lower cost labor is an advantage
 - ▶ If there is a growing season advantage where production can take place at a slightly different time than major suppliers, market entry may be easier. With a slightly longer growing season, the Northern Hemisphere can be a target market, since the best prices are from September-May
- 3** Ensure that there is strong management
 - ▶ Labor does not need to be highly skilled, but does require extensive training
 - ▶ Strong middle management and leadership to oversee the production and distribution process is crucial to success
 - ▶ Agriculture extension programs can provide local managers with training from countries with more advanced bulb industries
- 4** Facilitate entry of foreign companies
 - ▶ New players in the bulb industry may need assistance from major bulb producers in setting up production and infrastructure. The government should minimize entry barriers to allow foreign bulb producing companies to enter the country easily
 - ▶ Financing for start up costs would help growth of the industry

Comments

- ▶ It is essential to develop a market that leverages:
 - Low labor costs
 - Slightly longer growing season than competitors in Northern Europe
- ▶ Strong managers are essential to oversee the bulb production and distribution process

Table of Contents

- ▶ Overview of Deliverable
- ▶ Go To Market Crop Studies
 - Bulbs
 - Asparagus
 - Kiwi
 - Gherkins
 - Apples
 - Table Grapes



Supply of asparagus is increasing faster than demand, causing prices to drop, although white asparagus remains to be priced higher than green asparagus

'Go To Market' Snapshot—Asparagus

Supply

- ▶ The largest exporter of fresh asparagus is Peru, which exported 90,000 tons in 2008. Mexico, the second largest exporter of fresh asparagus, supplied about 60,000 tons. The US exported about 23,000 tons in the same year
- ▶ China is the leading exporter of processed white asparagus that is canned or jarred. Spain, Germany, Netherlands and France are major buyers of China's white asparagus, accounting for 80% of China's total asparagus exports in 2008

Demand

- ▶ The top asparagus importers are the US, Germany, Canada and Netherlands. In 2008, the US accounted for 35% of asparagus imports and Germany made up 11%
- ▶ Consumer demand is based on freshness, length and diameter of the stalks, color of spears, tightness of the spear tips, and the extent of bruising
- ▶ World demand is growing slower than supply in many markets, causing prices to drop. Peruvian asparagus producers have already experienced falling prices in the US and Europe

Infrastructure

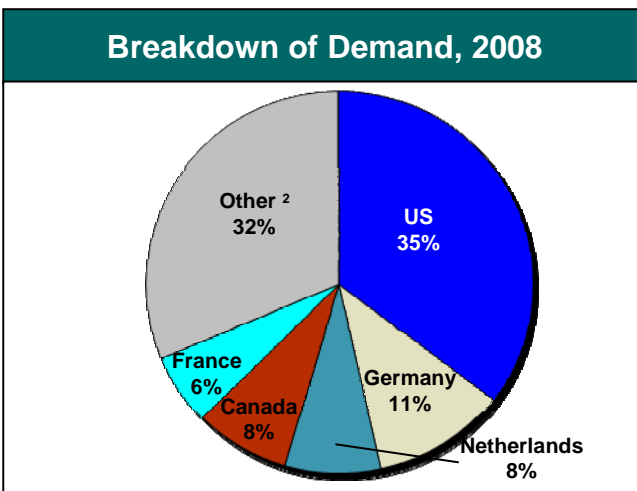
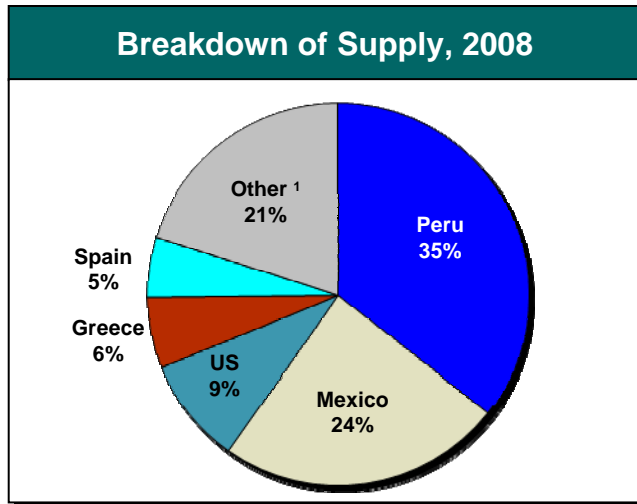
- ▶ Asparagus is highly perishable and requires a cold chain system. Asparagus is partially cooled during washing, selection, and packing, and then hydro-cooled to near 0°C after packing
- ▶ Processing of asparagus for pickling can bring growers a price premium and can be sold in winter months when prices are higher given lower supply
- ▶ Asparagus needs to be blanched and sterilized before being placed in cans

Variety Selection

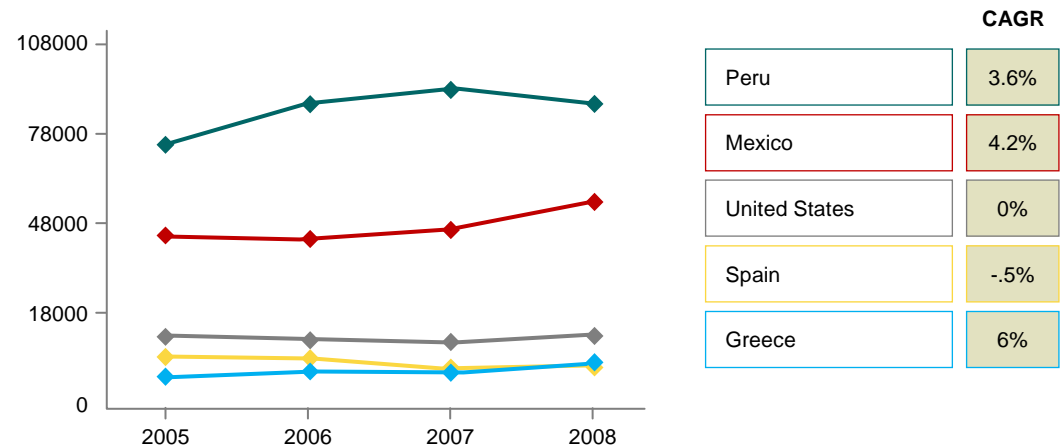
- ▶ The three varieties of asparagus in the marketplace are white, green and purple. Purple asparagus is not as common as the other two varieties and is distinguished for its sweet taste
- ▶ White asparagus is generally canned/jarred; green and purple asparagus are either sold fresh or frozen/chilled
- ▶ About 40% of asparagus grown in Peru is green and shipped to the U.S. market, while the rest is white, which is processed and sent to the EU market
- ▶ White asparagus is widely used in Europe and Asia, while green asparagus is popular in the US
- ▶ Green asparagus can be sold at 5-6 Euro/kg in early spring. White asparagus is generally priced 2-3 times higher than green asparagus because of limited supply and higher production costs

Peru continues to lead world exports of fresh asparagus, while North America and the EU are the main importers

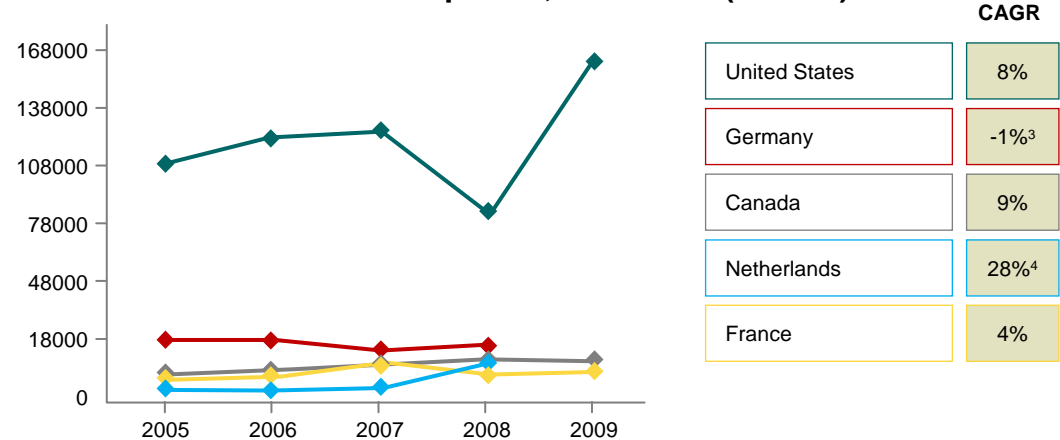
Breakdown of Supply and Demand and Related Trends



Quantities Exported, 2005-2008 (in tons)



Quantities Imported, 2005-2009 (in tons)



Note (1) : Includes supply from 55 other countries such as Netherlands, France, Australia, Hungary, Italy, Germany, Morocco and Belgium. China is not listed as a leading exporter because the above only shows data for fresh asparagus and China mainly exports processed asparagus
 Note (2): Includes demand from 99 other countries such as Japan, Spain, UK, Switzerland, Italy, Belgium, Austria, Australia and Denmark
 Notes (3&4): 2009 data not available from Netherlands and Germany
 Source: TradeMap, HS Code 070920 (Asparagus, fresh or chilled)

Asparagus does not require advanced infrastructure; however complex greenhouses and processing technology can increase quality and competitiveness

Infrastructure Requirements for Asparagus

Production Infrastructure

- ▶ **Simple Greenhouses:** Green asparagus is grown in open fields in transparent plastic tunnels that are 2-2 1/2 meters high. Plastic tunnels have to be replaced every 4-5 years. White asparagus is grown in the absence of light under black plastic covers
- ▶ **Complex Greenhouses:** Investing in greenhouses can allow early production so asparagus can be sold at more competitive prices a few weeks before other growers start selling in early spring. Since asparagus seeds remains productive for up to 20 years, investment in greenhouses is recommended
- ▶ **Irrigation System:** Sophisticated irrigation systems are not required for asparagus. Soft plastic pipes can be used to irrigate. Because asparagus is deep rooted, it can withstand dry weather and can survive for longer intervals between irrigation applications
- ▶ **Harvesting:** Asparagus is generally harvested by hand, making it a very labor intensive crop. A special blade needs to be used to cut the spears 3-4 cm below the ground. For large fields (12-16 acres), harvesting machinery can be used

Processing and Packaging Infrastructure

- ▶ **Cooling System:** Asparagus is highly perishable and must be cooled immediately after harvest to 0°C to 2°C, which yields 14-21 days of storage-life. Asparagus is typically partially cooled during washing, selection, and packing, and then hydro-cooled to near 0°C after packing
- ▶ **Processing:** Canning asparagus can increase storage life for up to one year. Canned asparagus is placed in brine to be preserved. White asparagus is often jarred and sent mainly to European markets. Asparagus is also sold frozen or processed into soup
- ▶ **Packaging :** Fresh asparagus needs to be moved to market as quickly as possible. Asparagus is sold in one pound bunches or in 25-pound crates for bulk or wholesale deliveries

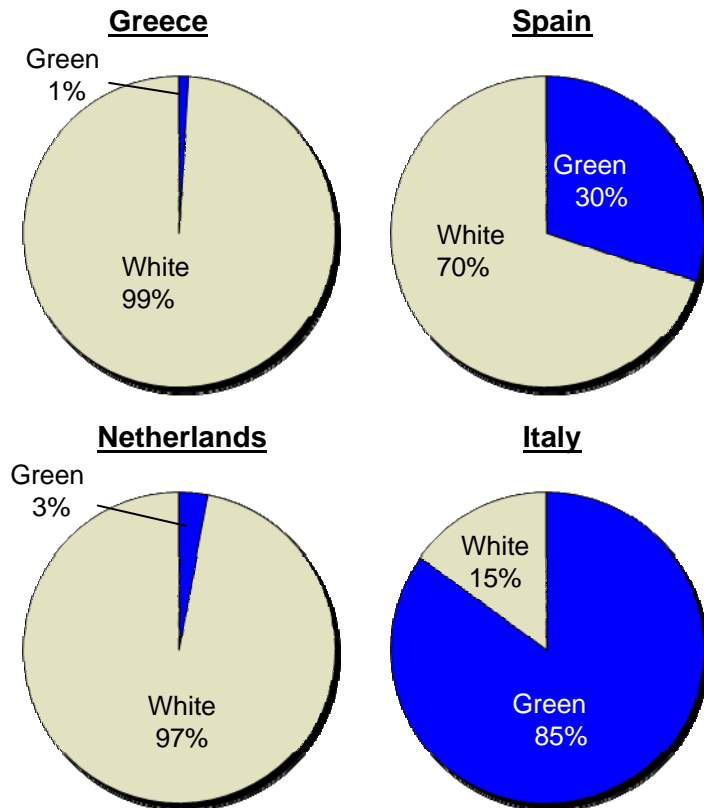
Distribution Infrastructure

- ▶ **Road Transport:** Asparagus is shipped in crates or cartons with water-saturated pads to maintain high relative humidity and prevent moisture loss. Space is left at the top to allow for elongation of spears which continue to grow. Excessive free water at elevated storage or shipping temperatures may lead to increased decay. Refrigerators are required for trucks if distances are over several hours
- ▶ **Air Transport:** Fresh asparagus requires cold storage when being shipped via sea or air

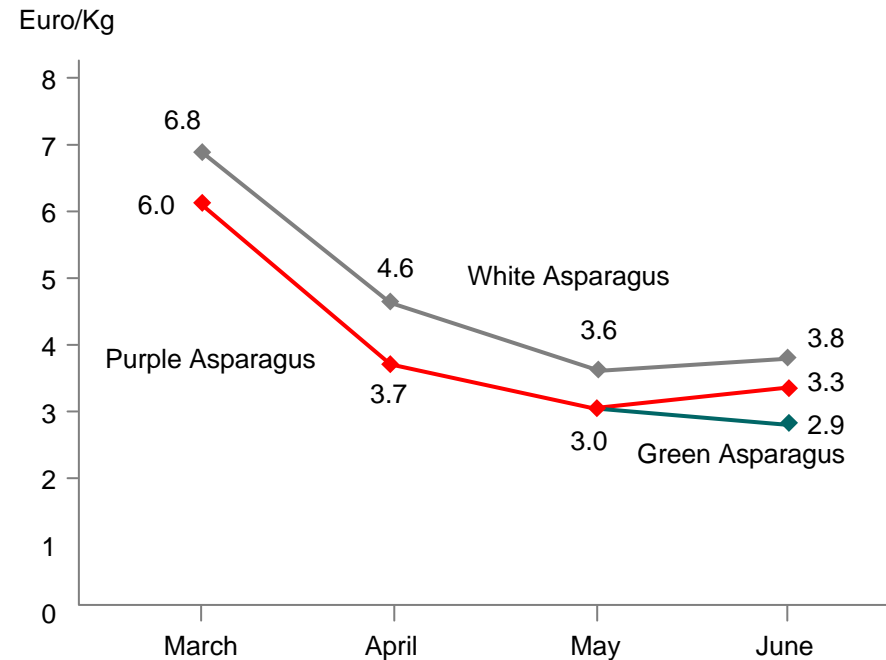
White asparagus is priced higher than green and purple asparagus and is the primary variety produced in Europe, with the exception of Italy

Asparagus Variety Overview

Asparagus Production by Variety in Top EU Producing Countries (Greece, Spain, Netherlands, Italy, 2005)¹



Average Wholesale Prices, France²
(Euro/kg, March-June, 2009)



Note (1): Data not available for purple asparagus

Note (2): Grower's prices not available for asparagus. Wholesale prices are derived by adding transportation, shipping and packaging costs to the grower's price

Note (3): Data for March and April not available for green asparagus

Sources: California Asparagus Seed and Transplants, Inc, USDA Agricultural Marketing Service, BAH Analysis

Acquiring technical knowledge and following international quality standards are essential for successfully marketing asparagus

Success Factors for Effectively Marketing Asparagus

1

Provide adequate technical training

- ▶ Cultivation of asparagus requires specialized knowledge because it is a long-term producing species and needs to be grown underground
- ▶ Extension service programs led by experienced technicians can train farmers on cultivation, processing and cold chain storage methods

2

Ensure international standards and certifications are achieved

- ▶ It is essential that the supplier is perceived as selling superior quality produce
- ▶ GlobalGAP certification and HACCP requirements must be met
- ▶ Labs for pesticide testing must have EU Pesticide Residue certification. South Africa and Morocco have among the best labs in the world and can serve as models

3

Implement strong marketing campaigns

- ▶ Entry into the asparagus market requires strong marketing. European Fruit Magazine and Fresh Produce Journal are major European publications that feature stories about crops, which can increase recognition in the EU market

Comments

- ▶ Training is necessary to ensure high quality and high yield production that is demanded in world markets
- ▶ International certifications such as HACCP and GlobalGAP are critical to entering the market
- ▶ White asparagus is priced higher than other varieties and is preferred by EU consumers

Table of Contents

- ▶ Overview of Deliverable
- ▶ Go To Market Crop Studies
 - Bulbs
 - Asparagus
 - Kiwi
 - Gherkins
 - Apples
 - Table Grapes



New Zealand and Italy are the leading world suppliers of kiwis and mainly export the Hayward variety

'Go To Market' Snapshot—Kiwis

Supply

- ▶ In 2008, New Zealand was the leading exporter of kiwis in the world, followed by Italy and Chile. The three countries exported 34%, 25% and 13% of kiwis respectively
- ▶ China, Chile, France, Greece, Japan and the US are also significant producers
- ▶ In 2007, New Zealand exported 60% of its kiwis to Europe and 30% to Asia, mainly to Japan
- ▶ About 70% of Italy's kiwis are exported, mostly to other EU countries
- ▶ Continued growth in world kiwi production, together with improved storage facilities, have allowed kiwi sales in the northern and southern hemispheres to overlap, resulting in declining export prices

Demand

- ▶ The top importers of kiwis in the world are Belgium, Spain, Germany, Netherlands and Japan, making up 12%, 10%, 9%, 5% and 5% of imports respectively
- ▶ EU countries are primarily supplied by the top EU exporters (Italy, France and Greece). Europe is also a significant market for Chile, as 60% of Chilean kiwis were imported by Europe in 2006
- ▶ Japan and the US are also a key importers of Chilean kiwis. The US also imports from New Zealand

Infrastructure

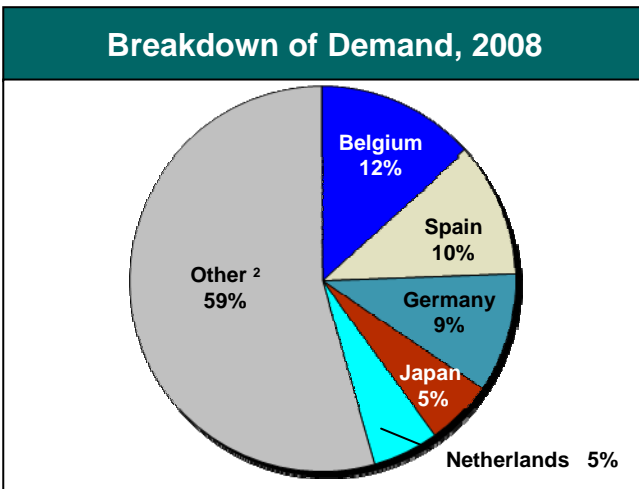
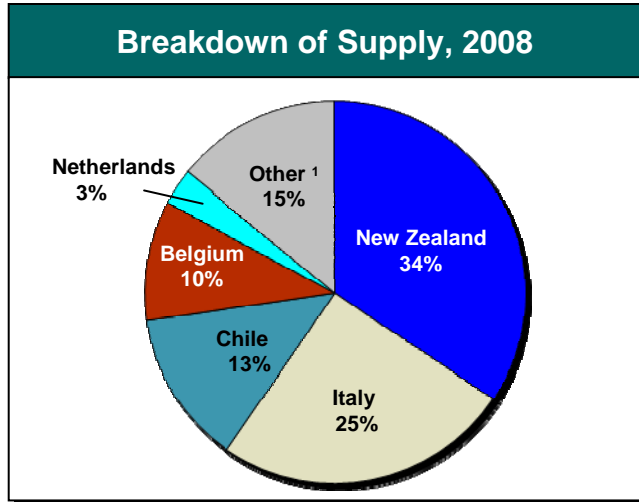
- ▶ Frequent irrigation is required for kiwis, either through a drip, minisprinkler or under-vine sprinkler system. Kiwifruit vines need more irrigation than grapes or fruit trees under similar soil and weather conditions
- ▶ Kiwis are carried in field boxes to packing stations. The fruits are mechanically conveyed across a brushing machine that removes the hairs
- ▶ Kiwis are packed in a fiberboard or wooden boxes
- ▶ Kiwis are placed in cold storage for up to one year at 0°C to maximize their storage life

Variety Selection

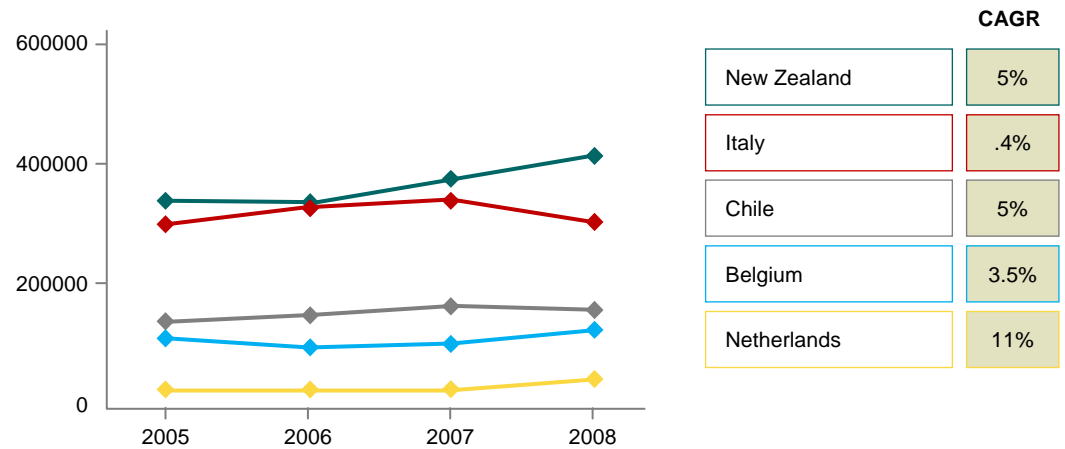
- ▶ The most common varieties of kiwi are: Hayward, (green flesh, fuzzy skin) Hort 16A, Chico, Saanichton 12, and Hinabelle
- ▶ 95% of Italian kiwis are of the Hayward variety. Hayward is also the dominant variety grown in New Zealand and Chile
- ▶ The Hinabelle variety has golden pulp and is generally priced higher than the other varieties
- ▶ New Zealand's Zespri Group is the world's largest marketer of kiwis and has trademarked the Zespri Gold, Green and Organic varieties. Zespri Gold is considered a difficult product because it has a shorter selling season than the Green variety. 17-18% of New Zealand's kiwi exports were of the Zespri Gold variety in 2007

Imports and exports of kiwi have been steady from 2005-2008

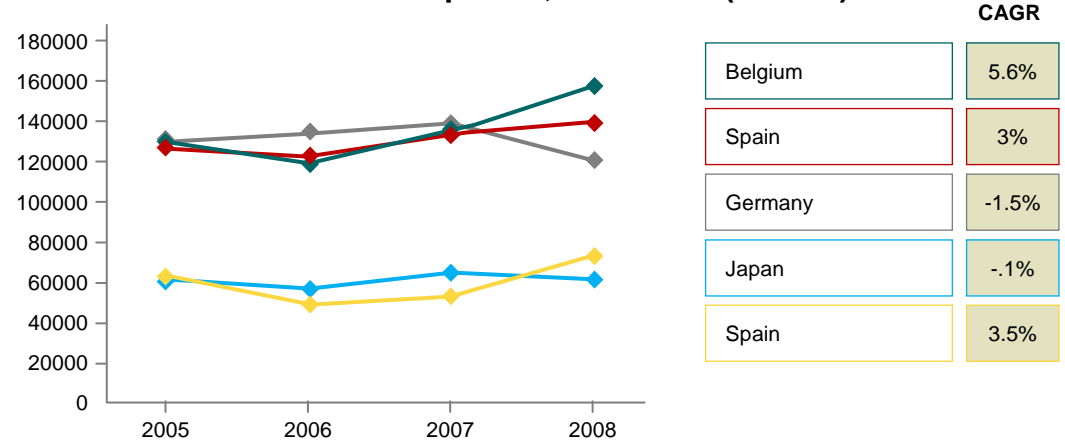
Breakdown of Supply and Demand and Related Trends



Quantities Exported, 2005-2008 (in tons)



Quantities Imported, 2005-2008 (in tons)



Note (1) : Includes supply from 59 other countries such as France, Greece, US, Germany, Spain, Lithuania, Iran, Poland, Portugal

Note (2) : Includes demand from 139 other countries such as Russia, Italy, France, US, UK, Poland, Korea, Canada, China, Ukraine

Source: TradeMap; HS Code 081050 (Fresh Kiwifruit)

Kiwis require some investments in production infrastructure and cold storage facilities

Infrastructure Requirements for Kiwis

Production Infrastructure

- ▶ **Trellises:** Kiwifruit plants need a substantial trellis, patio cover, or other permanent place to grow on. For the trellis system, either a single wire or T-bar system can be installed. If canopies are used to control vegetative growth of kiwifruit shoots, it is important that they allow adequate light through
- ▶ **Irrigation:** Drip irrigation is typically used for younger plants that do not require as much water. As plants mature, growers tend to use under-vine minisprinkler systems, which can irrigate a greater area. They are easy to install and plug less frequently than drip emitters. Overhead impact sprinklers use more water than drip or mini-sprinklers, but are most commonly used for frost protection
- ▶ **Hail Storm Net Cover:** In areas where hail storms are frequent, net covers need to be placed above kiwis for protection
- ▶ **Equipment:** Tractors, a chemical and weed sprayer and motorized harvester are needed for kiwi production

Processing and Packaging Infrastructure

- ▶ **Grading:** Once picked, kiwis are carried in field boxes to packing plants, where the fruits are mechanically conveyed across a brushing machine that removes the hairs and, in some plants, also the styles and sepals. The fruits are graded for size (25 to 54 per flat)
- ▶ **Packing:** For shipment, about 3 1/4 kg of fruits are arranged in a plastic tray covered with perforated polyethylene and packed in a fiberboard or wooden box
- ▶ **Cooling Storage System:** Kiwifruit should be stored as near to 0°C as possible and under 90-95% relative humidity. The Hayward variety can be stored for up to one year, whereas the Hort16A variety can be stored for up to 12-16 weeks at 1.5°C. For long-term storage of the Hayward variety, controlled atmosphere storage has been effective to retain fruit firmness and reduce incidence of disease

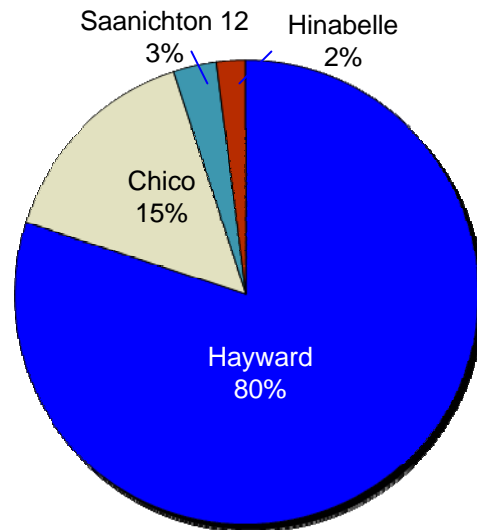
Distribution Infrastructure

- ▶ **Road Transport:** Kiwis are transported in trucks for short to medium distances (500-800km) without requiring cold storage. Kiwis travelling longer distances require refrigeration
- ▶ **Air and Sea Transport:** For shipments via air or sea, kiwis require cold storage containers or facilities around 5°C

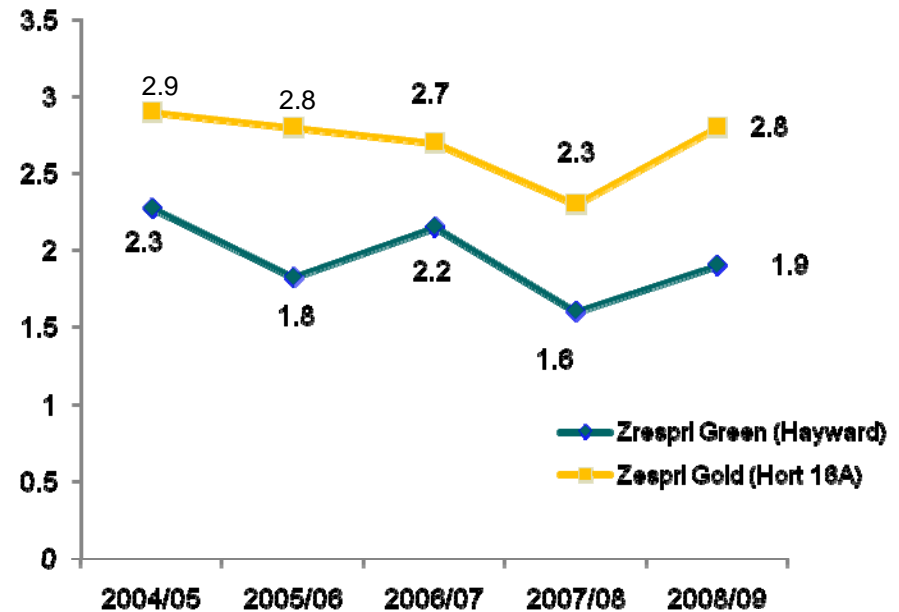
The world market for kiwis is saturated by the green Hayward variety; however, the gold variety is priced higher

Kiwi Variety Overview

Approximate Breakdown of Top Kiwi Varieties Worldwide, 2009



Orchard Gate Returns, New Zealand¹
(Per Tray Submitted, in Euro, Marketing Year 2004-2009)



Source: Interview with leading agronomist, Zespri 2008/2009 Annual Report

Note (1): New Zealand prices are shown because price information by variety was not available for Italy or other EU producers, as production is dominated by the green Hayward variety. New Zealand's Zespri Group has branded Hayward kiwis and markets them as Zespri Green. Zespri Green has earned a price premium over Hayward varieties in other countries due to the strict standards that are required by the Zespri Group. The Hort 16A variety is marketed as Zespri Gold in New Zealand. The Hinabelle is another variety of gold kiwi that is priced higher than the Hayward variety, however, price information was not available for the Hinabelle

To successfully market kiwis, product differentiation needs to be established and targeted to the local market

Success Factors for Effectively Marketing Kiwi

- 1**

Establish knowledge of the kiwi industry

 - ▶ There is a general lack of awareness about kiwi production and there is a misperception that it can only be grown in tropical areas; however, kiwi has very similar production and packaging infrastructure requirements as table grapes
 - ▶ Study tours to top kiwi producing countries such as Italy can provide information about production and cold storage requirements
- 2**

Ensure the product can be differentiated from other kiwis in the market

 - ▶ The market is saturated by the Hayward variety. However, the new Hinabelle variety is highly attractive and offers an opportunity for market differentiation
 - ▶ The Hinabelle variety has gold pulp, as opposed to the traditional green flesh of the Hayward. Hinabelle has slightly higher prices than the other varieties
- 3**

Enable farmers to establish strong ties with marketing operators

 - ▶ Marketing operators have the most current information on highly productive varieties and customer preferences, which is valuable to farmers
 - ▶ Farmers must also be closely linked to marketing operators to sell their products

Comments

- ▶ High prices of imported kiwis from Italy can be brought down by producing kiwis domestically
- ▶ Investing in varieties such as the Hinabelle and launching a strong marketing campaign are essential



Table of Contents

- ▶ Overview of Deliverable
- ▶ Go To Market Crop Studies
 - Bulbs
 - Asparagus
 - Kiwi
 - Gherkins
 - Apples
 - Table Grapes



Because gherkins are highly labor intensive, production is being moved to India and Serbia

'Go To Market' Snapshot—Gherkins

Supply

- ▶ India, Germany and Turkey are the top three exporters of gherkins in the world and make up 34%, 16% and 14%¹ of exports respectively
- ▶ Due to its labor-intensive nature, gherkin production is being moved to countries such as Serbia and India, where labor is relatively cheap
- ▶ In India, gherkins are a 100% export commodity. To promote exports, gherkins have been marketed as the “produce of India” mainly to Russian and other European markets

Demand

- ▶ Russia, Germany, the US and Canada are the largest importers of gherkins, making up 26%, 9%, 7% and 5%² of world imports respectively in 2008
- ▶ Consumption of gherkins has remained stable and generally remains consistent year-round
- ▶ Gherkins are commonly consumed in Europe and North America in fast food hamburgers
- ▶ Consumers of gherkins tend to be mostly driven by price, but flavor and texture are also important attributes

Infrastructure

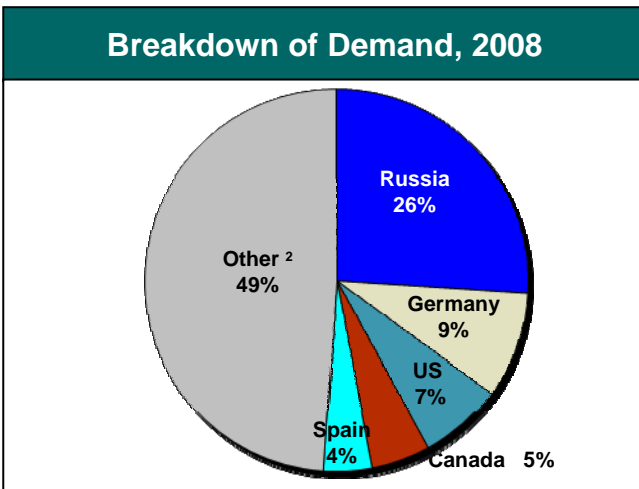
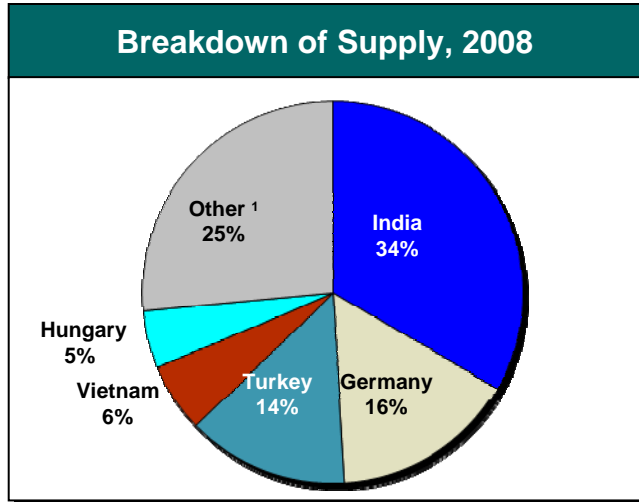
- ▶ Gherkins are grown in either open field or greenhouses. Drip irrigation supplies nutrients and water to each plant
- ▶ Gherkins are very labor intensive, as they have to be hand-picked and growing and maintaining them requires craftsmanship and crop knowledge
- ▶ Gherkins must be packed in a jar within 20 hours to maintain freshness

Variety Selection

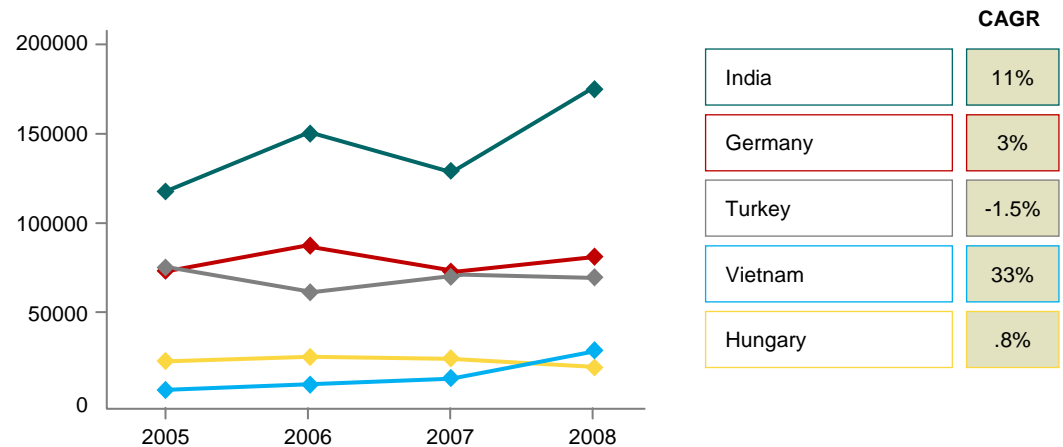
- ▶ Gherkins are a species of cucumber that are picked when they grow 3-8 cm in length
- ▶ Common fresh gherkin varieties produced in India include Ajax, Calypso and Calypsoplus. These varieties are further processed before reaching the market
- ▶ The two main methods of processing are prepared/preserved and provisionally preserved
- ▶ Spreewald gherkins are specialty gherkins grown in Germany and are trademark protected by the EU. Spreewald gherkins are distinguished for their sour, spicy taste. A jar of Spreewald gherkins is typically 0.99 Euros, compared to 0.79 Euros for a jar of conventional gherkins

India is the largest supplier of gherkins although a number of smaller countries comprise almost 1/3 of the market

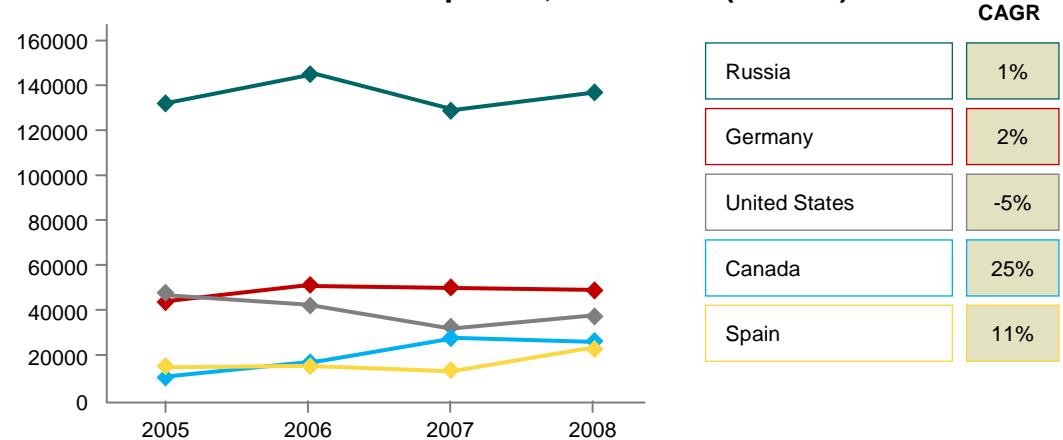
Breakdown of Supply and Demand and Related Trends



Quantities Exported, 2005-2008 (in tons)



Quantities Imported, 2005-2008 (in tons)



Note (1) : Includes supply from 76 other countries such as Belgium, Poland, US, Ukraine, Sri Lanka, Netherlands, Uzbekistan, Czech Republic
 Note (2): Includes demand from 148 other countries such as France, Belgium, UK, Netherlands, Czech Republic, Austria, Romania, Switzerland
 Source: TradeMap, HS Code 200110 (Cucumbers and gherkins, prepared or preserved by vinegar or acetic acid)

Gherkins require the same production infrastructure as cucumbers and can be preserved in brine, vinegar or acetic acid

Infrastructure Requirements for Gherkins

Production Infrastructure

- ▶ **Trellises:** Gherkins require the same climate and soil as cucumbers. Gherkins should be grown vertically rather than horizontally on trellises that are about 2 meters high. Plants are trailed along the trellises by stretching jute wires or ropes. Vertical growth allows gherkins to grow straight, which is preferred in the market. Trellising also improves crop quality, increases yields and prevents diseases. Gherkins are currently grown horizontally in the Balkans
- ▶ **Irrigation:** Drip irrigation is ideal for gherkins because these crops cannot tolerate water stress or water stagnation. Fertilizer can also be mixed into the drip irrigation system. Gherkins are irrigated during the day and grow during the night
- ▶ **Collection:** Harvested gherkins are collected in bamboo baskets and packed in burlap or netted bags and transported via trucks to factories for brining within 24 hours. Leaving fruits overnight without processing can diminish quality

Processing and Packaging Infrastructure

- ▶ **Preserving:** Within 24 hours of picking, gherkins are placed in a solution in large tanks where salt is added, creating brine stock. Brined gherkins can last up to three years under special care, but average storage is usually less than a year. Gherkins can also be preserved in vinegar or acetic acid
- ▶ **Grading:** Gherkins can be either manually or mechanically graded based on size. The ideal gherkin has a length to diameter ratio of 3:1 with the ideal length being 4-8 cm. Smaller gherkins are graded higher and receive a premium price
- ▶ **Packaging:** Gherkins are packaged in tins/cans or bottled jars for sale to consumers. Bulk gherkins are packed in Food Grade High Molecular Weight High Density Polyethylene (HMHDPE) barrels

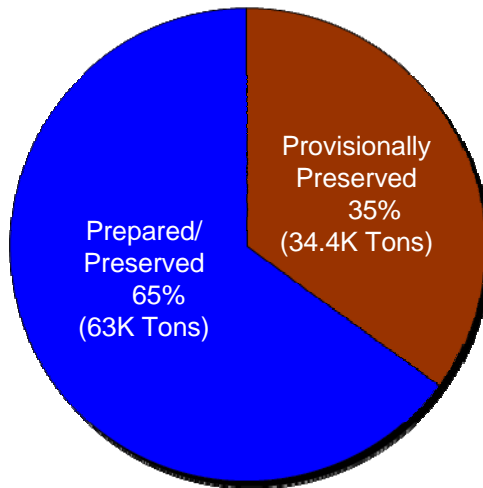
Distribution Infrastructure

- ▶ **Road Transport:** Gherkins are generally transported via trucks from Germany, Turkey, Romania and Macedonia. Cold storage is not required since they are preserved
- ▶ **Air/Sea Transport:** Gherkins exported from India are shipped via air or sea. Cold storage is not required since they are preserved

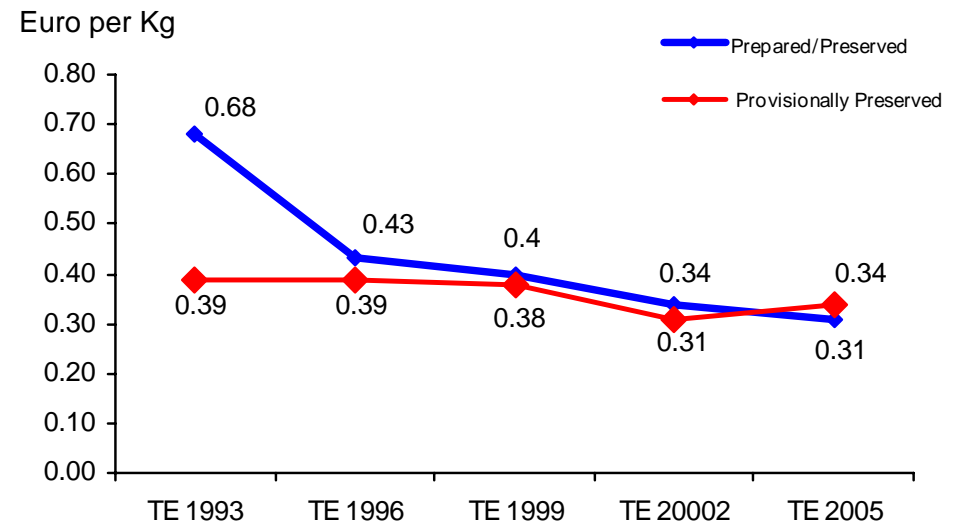
India exports two main varieties of processed gherkins known as prepared/preserved and provisionally preserved; historically, prepared gherkins have had slightly higher unit prices

Gherkins Variety Overview

Processed Gherkin Varieties¹ Exported by India
(TE 2005)²



Average Price of Processed Gherkins, India³
(Price in Euro/Kg, TE 1993-2005)



Source: Agricultural Economic Research Review, 2009

Note: (1) Since producers grow fresh gherkins specifically for processing, we refer to the different types of processing as the main processed varieties that are being sold in the marketplace

Note: (2) Data is presented in TE, or triennium ending, which represents a period of three years

Note: (3) India is used as a proxy, as 34% of the world's supply of processed gherkins comes from India

Note: Provisionally prepared gherkins are unsuitable for immediate consumption and need to be processed further, whereas prepared gherkins are ready for consumption

Both the cultivation and processing stages of gherkins require specialized skills

Success Factors for Effectively Marketing Gherkins

1

Adopt new methods to increase yields and ensure that workers in processing facilities are well trained

- ▶ Gherkin growers in the Balkans do not use up-to-date techniques (such as drip irrigation and trellising) for growing gherkins, leading to lower yields
- ▶ Gherkins require modern processing facilities that have the capacity to properly preserve gherkins in brine, vinegar and acetic acid. Sterilization is also important
- ▶ Extension programs or study tours to train farmers on issues such as proper climate conditions, cultivation procedures and processing methods are necessary

2

Attain international quality standards

- ▶ Since gherkins require extensive processing, quality and safety certifications must be met, including:
 - Hazard Analysis and Critical Control Points (HACCP) certification
 - US FDA certification
 - ISO 9001 certification
 - International Food Standard certification

3

Connect farmers through cooperatives and associations

- ▶ Small farmers are able to be more competitive by organizing themselves in cooperatives. They can buy seeds together with other small farmers and combine yields, allowing them to reach scale

Comments

- ▶ Low labor costs and proximity to importing markets will allow for competitive advantage in marketing gherkins
- ▶ Vertical growth of gherkins through trellising can also give competitive edge over regional competitors
- ▶ Training is essential for production and processing



Table of Contents

- ▶ Overview of Deliverable
- ▶ Go To Market Crop Studies
 - Bulbs
 - Asparagus
 - Kiwi
 - Gherkins
 - Apples
 - Table Grapes



Global apple exports and imports are increasing, with China as the leading world supplier

'Go To Market' Snapshot—Apples

Supply

- ▶ China is the largest exporter of apples, supplying the world with 1.5 million tons in 2008/09; China's exports are forecast to surge more than 15% due to new plantings in the northwest provinces and increased demand from Asia and Middle East
- ▶ The US and Chile are the second and third largest exporters, supplying the world with 13% and 9% respectively in 2008
- ▶ Poland, Italy and France are the top three EU producers of apples
- ▶ Global apple exports have jumped 15% in the past 3 years mainly due to growth in China and the EU apple markets, favorable weather and improved management

Demand

- ▶ Russia is the world's largest importer of apples, importing 1.1 billion tons in 2008/09, 4% more than the previous year
- ▶ Overall world imports of apples are forecast up 20% due to strong demand for high quality fruit from the US and from Chile and other Southern Hemisphere countries during their off-season. World demand has also expanded for healthy snack and off-season fruit
- ▶ Consumers tend to buy apples based on color, though color does not affect taste or texture

Infrastructure

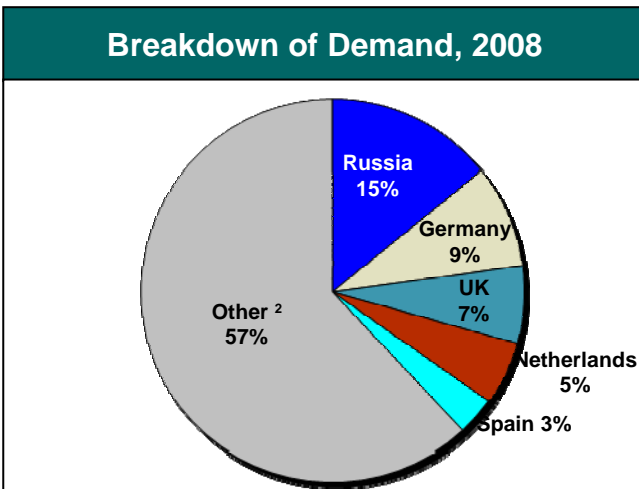
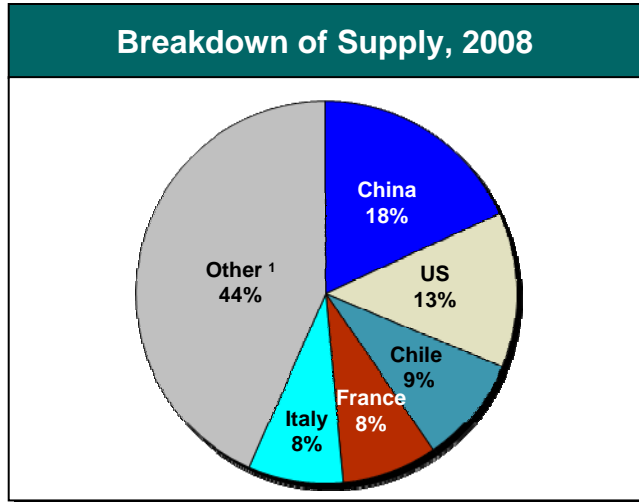
- ▶ Drip irrigation system is generally used for apples
- ▶ Ultra-Low Oxygen (ULO) cold storage facilities can keep apples fresh for 4-5 months. Producers may decide to store apples until the off-season, when they can sell them for higher prices
- ▶ Apples to be sold fresh into the marketplace should be harvested at a later maturity than apples that are pre-destined for long-term storage

Variety Selection

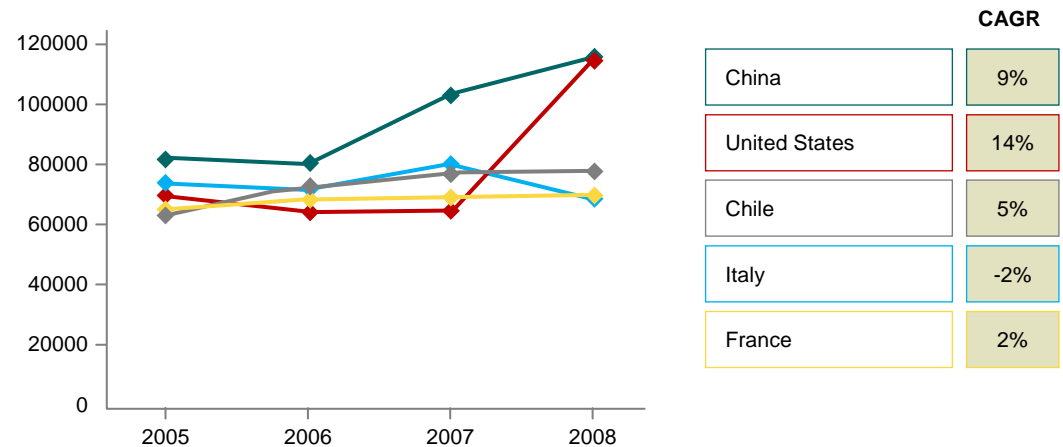
- ▶ Common varieties include Gala, Golden Delicious, Granny Smith, Liberty, Red Delicious, Fuji, Jonagold, Bradburn and Pink Lady
- ▶ Liberty apples are grown commonly in Belarus, Germany, Italy and Latvia
- ▶ Jonagold apples are popular in Europe, Japan and Canada. They are typically the lowest priced apples
- ▶ Pink Lady apples are the highest priced apples because they are patent protected
- ▶ Gala apples are becoming increasingly popular in Europe because they are considered to be high quality

China is the leading exporter of apples worldwide, while Russia is the main importer of apples

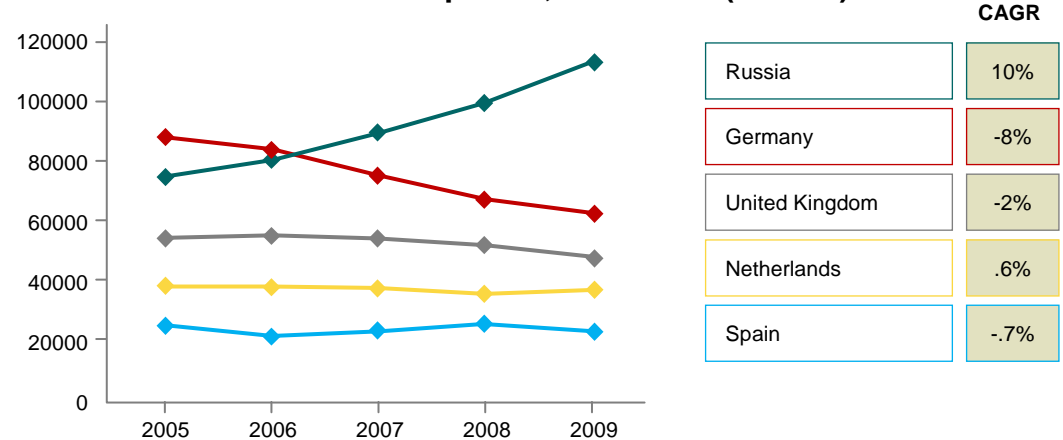
Breakdown of Supply and Demand and Related Trends



Quantities Exported, 2005-2008 (in tons)



Quantities Imported, 2005-2009 (in tons)



Note (1) : "Other" includes 104 countries such as Poland, Netherlands, South Africa, New Zealand, Belgium, Argentina, Lithuania, Syria

Note (2): "Other" includes 193 other countries such as US, Mexico, Belgium, Ukraine, Lithuania, Canada, Saudi Arabia, UAE. Totals do not add up to 100% due to rounding

Source: Trade Map, HS Code 080810 (Fresh Apples)

Apples require significant investments in drip irrigation, harvesting equipment and cold storage facilities

Infrastructure Requirements for Apples

Production Infrastructure

- ▶ **Orchard style:** Smaller sized trees rather than large trees are optimal, as light is able to go through smaller trees and they are easier to fertilize. Orchards with smaller trees on more densely planted areas can yield quicker harvest at a lower cost
- ▶ **Irrigation:** Drip irrigation is essential to grow apples. Apples need to be frequently irrigated during dry months, and a reliable water source such as wells or channels needs to be identified. Fertilizer can be dissolved in water and added to the drip irrigation line. Overhead sprinklers must be used to prevent frost damage
- ▶ **Hail Storm Net Cover:** Hail net covers are not required during the first year of apple orchard development, but are essential after the first year as the apples grow in size. Hail storm net covers are supported by poles and wires
- ▶ **Equipment:** Tractors, mulchers for grass cutting, spraying machines and semi-automatic harvesters are necessary. Apples are collected in plastic boxes and transported via trucks to packing sheds to be sorted, graded and stored. Plastic boxes can hold 320-350 kilos of apples

Processing and Packaging Infrastructure

- ▶ **Sorting and Grading:** Apples are cleaned and damaged fruit are discarded. Apples are sorted into fresh-market and processing fruit. Apples are graded for size, color and damage
- ▶ **Cooling System:** Apples must be cooled as quickly as possible after harvest, using forced air or hydro-cooling. Controlled Atmosphere (CA) or Ultra-Low Oxygen (ULO) cold storage facilities can be used for apples to maximize storage life
- ▶ **Packaging:** The type of packaging depends on the quality of the apple. Premium apples are packaged in carton boxes on one line with a label, whereas medium to low grade apples are packaged in wooden boxes. Lowest quality apples are placed in plastic net packaging

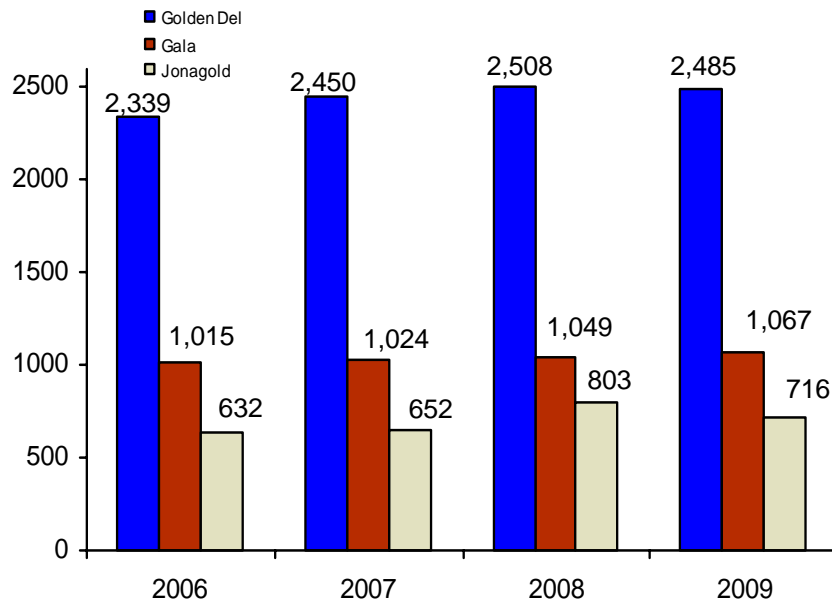
Distribution Infrastructure

- ▶ **Road/Rail:** 85-90% of apples are transported via cooled trucks or rail. For large shipments that are traveling distances of 3,000km or more, apples are generally placed in wooden boxes. High price distributors may request apples to be delivered in carton boxes on one line
- ▶ **Sea/Air:** Apples are less commonly distributed via air and sea to maintain freshness

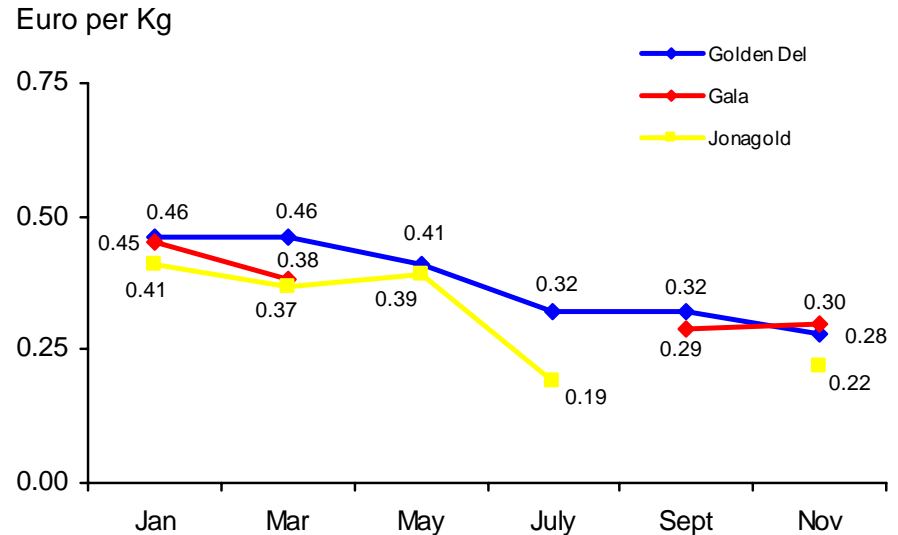
Golden Delicious, Gala and Jonagold are the three top varieties of apples produced in the EU; Golden Delicious apples are priced slightly higher than the other two varieties

Apple Variety Overview

Top Apple Varieties Produced in the EU
(In Tons, 2006-2009)



Estimated Grower's Price, South Tyrol, Italy¹
(Price in Euro/Kg, 2009)



Sources: EU Crop Forecast, 2009, GRIBA Consulting Services, Italy

Note (1): Price data was only available for Italy, which is one of the top apple suppliers in the EU. Grower's prices were derived by subtracting 0.20 Euro from the wholesale prices reported by cooperatives in South Tyrol, Italy. 0.20 Euro represents the average sorting, storing and packing expenses for cooperatives. Variation of around 0.10 Euro can be expected from province to province, with South Tyrol apples being priced slightly higher than apples from other provinces. For Gala variety, data was not available for May and July, 2009. For Jonagold variety, data was not available for September 2009

Fire blight is a highly contagious disease that can have a devastating impact on apple orchards

Fire Blight in Apples

Background of Disease

- ▶ **Cause:** Fire blight is caused by the bacterium *Erwinia amylovora*, which uses the apple tree as a host
- ▶ **Symptoms of Disease:** The most common type of infection in apples is blossom blight. Infected blossoms become water-soaked and darker green. Within 4-5 days, fruiting spurs may begin to collapse, turning dark brown to black. The leaves wilt, die, and turn dark brown to black. Infected tissues contain small droplets of a milky-white ooze or fine, hair-like strands. Barks and limbs develop cankers and become discolored
- ▶ **Spread of Bacteria:** Dried bacterial ooze remains infectious for more than one year if it is not treated. Containers that are taken into orchards for fruit picking may spread infection. Insects that are attracted to the ooze also disperse the bacteria throughout the orchard. Wind and rain can also spread the bacteria to other trees

Impact on Apple Orchards

- ▶ **Possible losses from fire blight include:**
 - Death or severe damage to trees in the nursery or orchard
 - Infected fruit become black and shriveled
 - Delay of bearing in young trees due to infection of shoots and limbs



Disease Control

Proactive Disease Control:

- ▶ **Apple Variety Selection:** Delicious and Liberty varieties are considered to be more resistant to fire blight, whereas Gala and Fuji varieties are considered highly susceptible
- ▶ **Soil Draining:** Trees are more susceptible to fire blight in poorly drained sites. Drainage can often be improved by tiling
- ▶ **Pruning and Fertilization:** Avoid nitrogen containing fertilizer and do not heavily prune, which promotes vigorous growth and increases susceptibility. For bearing trees, if the growth is more than 12 inches, do not apply fertilizer until shoot growth is reduced to less than 6 inches. Remove infected shoots during dormant season in order to avoid spreading infection to healthy shoots

Reactive Disease Control:

- ▶ **Bactericide spray:** Streptomycin is the most effective herbicide for controlling fire blight. Most effective when applied before appearance of symptoms

Successful marketing of apples requires cooperation between farmers and identification of appropriate varieties

Success Factors for Effectively Marketing Apples

1

Initially focus on marketing to the domestic and regional market

- ▶ Marketing to regional markets, such as Montenegro and Albania, will be more effective in the short-term than marketing internationally because there are already well established suppliers in the world market, like China, Turkey and Poland
- ▶ Once initial market entry has been established, additional markets in the EU such as Germany, UK and Netherlands can be pursued

2

Identify and focus on a specific variety

- ▶ Red varieties require more variation in night and day temperatures than green and yellow varieties
- ▶ Granny Smith apples are the easiest to grow and are popular in Russia. Golden apples are a high yield fruit
- ▶ Specialized varieties such as Pink Lady apples are priced high due to patent protection. Pink Lady variety can be grown if proper licensing is acquired

3

Organize small growers into cooperatives to achieve cost savings

- ▶ Cold storage facilities and grading/sorting machinery can be very expensive.¹ Small growers organized into cooperatives can share such resources
- ▶ Small farmers should only grow 1-2 varieties of apples so that they can master techniques specific to those apples

Comments

- ▶ Germany, UK and Netherlands are large markets in the EU. There are also many regional markets including Montenegro and Albania
- ▶ Proper varieties of apples should be selected based on factors such as climate, demand, yield and ease of cultivation



Table of Contents

- ▶ Overview of Deliverable
- ▶ Go To Market Crop Studies
 - Bulbs
 - Asparagus
 - Kiwi
 - Gherkins
 - Apples
 - Table Grapes

Chile and the US are the leading table grape suppliers in the world; high quality requirements must be met for table grapes to be successfully marketed



'Go To Market' Snapshot—Table Grape

Supply

- ▶ Chile is the largest world supplier of fresh table grapes, exporting 850,000 tons in 2008/09; the US is the second largest supplier, exporting 336,045 tons in 2008/09, followed by Italy
- ▶ Southern hemisphere exporters are expected to continue expanding exports due to demand by northern hemisphere consumers for off-season fruit
- ▶ China is the largest producer, but a small exporter due to poor quality of grapes
- ▶ Macedonia, Montenegro and Bosnia are large suppliers of table grapes to Eastern Europe

Demand

- ▶ The US, Russia and Western Europe are the top table grape importers
- ▶ The EU accounts for about 1/3 of world imports but the economic crisis is expected to reduce EU imports by 4% in 2009/10
- ▶ Lack of decay, cracked berries, stem browning, shriveling, sunburn and insect damage are important factors for consumer acceptance; high consumer acceptance is also attained for fruit with high Soluble Solids Concentration (SSC) ratio
- ▶ Croatian customers prefer table grape varieties with big berries, such as those imported from Italy, Spain, South Africa and Chile. Macedonian grapes are considered to be lower quality

Infrastructure

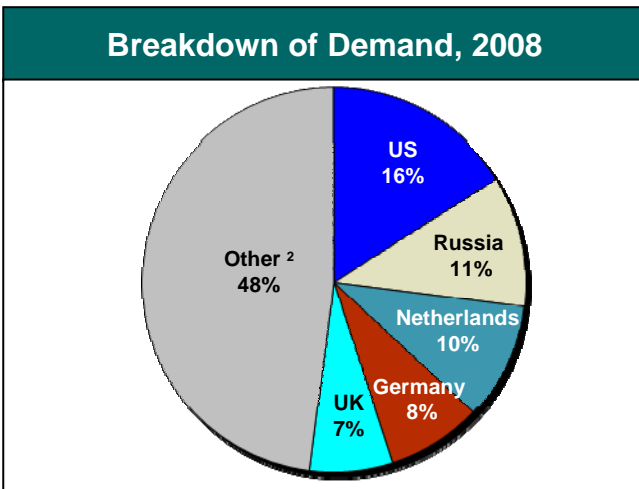
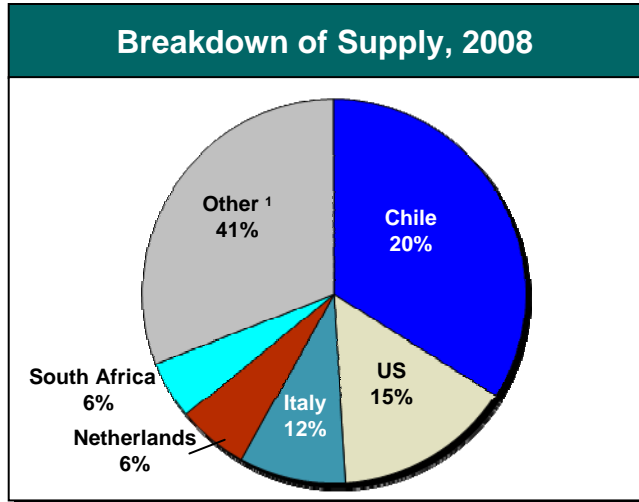
- ▶ Chilean and South African grapes are shed packed because they tend to be sent to distant markets, whereas most grapes from the US are field packed
- ▶ Table grapes should be quickly stored in a cold storage facility after harvest
- ▶ Table grapes typically require a hot, dry climate, deep well-drained soil and a large amount of irrigation water
- ▶ Because of their high quality requirements at the point of sale, table grapes demand hand labor, technical knowledge and experience

Variety Selection

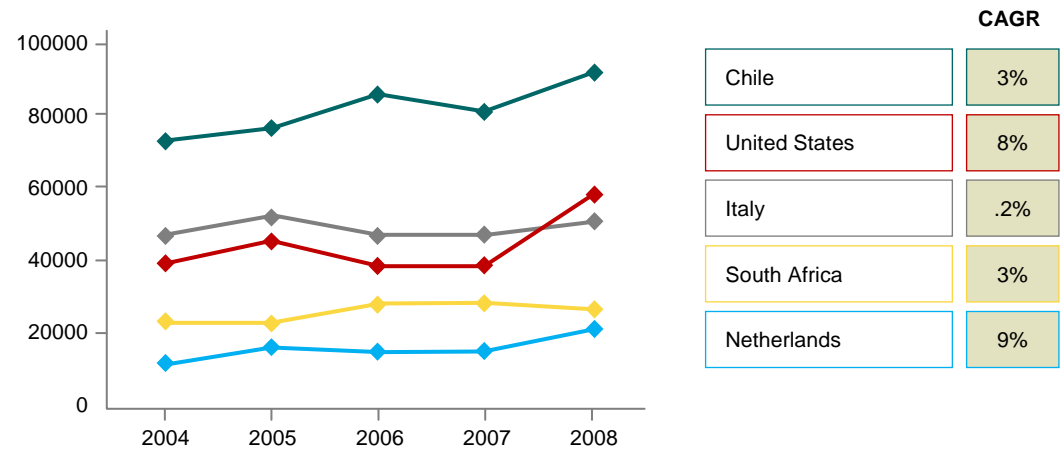
- ▶ The more than 60 varieties of table grapes are grouped into three categories: red, black, green (also called white)
- ▶ Thompson Seedless grapes (green) are one of the most commonly grown grapes in the US and Chile. These grapes are popular because they are seedless, have thin skin and crisp texture
- ▶ While green grapes are commonly consumed in the US, red grapes are more popular in Europe. Italia, Victoria, Domingo and Napoleon are some varieties of seeded grapes produced in Europe

Russia is the second largest importer of table grapes in the world, and demand has been rising since 2005

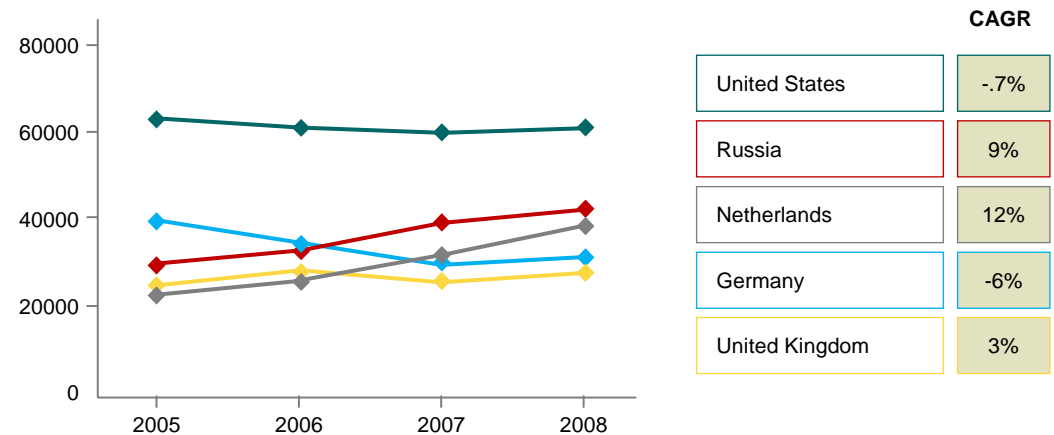
Breakdown of Supply and Demand and Related Trends



Quantities Exported, 2004-2008 (in tons)



Quantities Imported, 2005-2008 (in tons)



Note (1) : Includes supply from 86 other countries such as Turkey, Egypt, Mexico, Spain, India, Brazil, Greece, Argentina, China, Hong Kong
 Note (2): Includes demand from 136 other countries such as Canada, France, Poland, Hong Kong, Mexico, Belgium, Ukraine, Czech Republic
 Source: TradeMap; HS Code 080610 (Fresh Grapes)

A drip irrigation system is needed for table grapes and cold storage facilities can extend storage life

Infrastructure Requirements for Table Grapes

Production Infrastructure

- ▶ **Drip Irrigation System:** A typical irrigation system for table grapes includes pumps, filters, and pipes. The type of catching pump depends on the area of grapes to be irrigated with the system (e.g. larger pump is required for larger areas of land). Water quality determines the type of filters required (e.g. river water with algae requires a different filter than underground water with sand). Typically use plastic pipes for the primary and secondary distribution lines. Primary lines must be in place prior to planting during soil preparation while secondary lines must be put in before trees start to sprout. Drip or spray sprinklers can be used. Injectors distribute fertilizer throughout system
- ▶ **Hail Storm Net Cover:** Assemble during the year of first grape harvest or earlier in the life of the tree if hail storms occur once per year on average. Hail storm net is positioned 3-4 meters over the grape trees. Quality plastic nets last approximately 10-12 years. Will need to replace one time since the grape system lasts around 25 years
- ▶ **Factory Shed:** Storage facility required for harvesting equipment, tractor, sprayer, rotary tiller, forklift, carriage to transport to collection center

Processing and Packaging Infrastructure

- ▶ **Cooling System:** Required if don't pack and sell grapes immediately 1-2 days after harvest. Grapes can be stored up to 3-4 months. Cooling system has two main components: pre-cooling chamber and cold chamber. Grapes enter the pre-cooling chamber right after harvest and are moved to the cold chamber (around 5°C) after a few days. Each cooling system has a capacity of 25 metric tons and stores up to 100 metric tons of fruit per year
- ▶ **In/Out Weighing System:** Capable of weighing up to 20 ton trucks. In the packaging line, 1 weighing system is required for every 10 workers packaging and weighing boxes
- ▶ Outside of packaging, no other processing occurs for table grapes

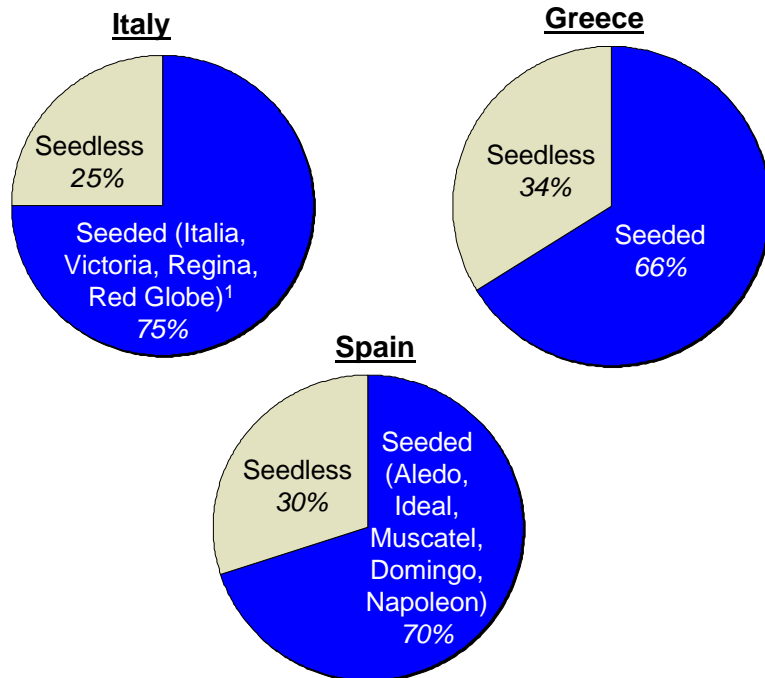
Distribution Infrastructure

- ▶ **Road Transport:** Table grapes are typically delivered by road since they can be expensive to transport long distances. Use refrigerated trucks at around 5°C
- ▶ **Air and Sea Transport:** Requires cold storage containers or facilities around 5°C
- ▶ **Distribution Center:** A center typically has a receiving storage chamber, cold storage facilities, and cold trucks of varying sizes according to business capacity

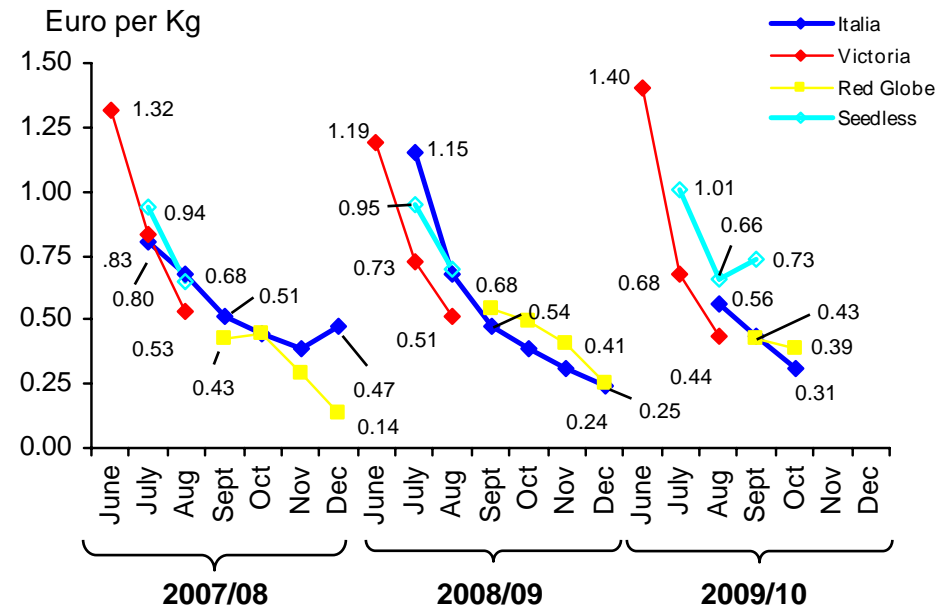
Seeded grapes continue to be the main variety of table grapes produced by the EU; prices for the Italia variety have been dropping in the past few years due to limited demand

Table Grapes Variety Overview

Table Grape Varieties of EU's Top Three Producers (Italy, Spain, Greece, 2007-2009)



Average Grower's Price, Italy² (Price in Euro/Kg, Marketing Year 2007-2010)



Source: USDA Foreign Agricultural Service, GAIN Report, EU-27 Fresh Deciduous Fruit Annual, 2009

Note (1): Production of seedless grapes in Italy continues to be marginal, due to lower profitability, particularly in terms of yields, although their prices are higher than seeded grapes
 Note (2) Italian growers' prices are used as a proxy because Italy produced 63.5% of all table grapes produced in the EU market. Prices of Italia during the current marketing year have decreased by 21% in October 2009 compared to the previous year, and 31% lower than two years ago. This is a result of the limited demand from both domestic and export markets. Greece has been experiencing a partially similar situation, with producer prices averaging well below last year's levels. An additional factor in Greece and for seedless table grapes in Spain is the strong Euro exchange rate, compared to the British pound and other currencies

A number of success factors exist for marketing table grapes, all of which require a concerted strategy among producers

Success Factors for Effectively Marketing Table Grapes

- 1**

Identify retailers, importers and distributors of grapes in each target market

 - ▶ Contact retailers about buying fresh grapes from the exporting country
 - ▶ Partner with designated distributors for delivery of fresh grapes from exporting country
- 2**

Implement and refine quality control and packaging requirements

 - ▶ Implement plans through associations and producers to enforce certifications including GlobalGAP, BRC, IFS
 - ▶ Develop optimal packaging requirements such as grape bunches in punett, breathable bag, etc.
 - ▶ Enforce sanitary inspections so that Pesticide Residue Analyses for shipments meet target market requirements
- 3**

Design marketing program to launch Fresh Grapes Campaign

 - ▶ Develop fund for marketing events to attract attention and recognition of *Fresh Grapes* from export country
 - ▶ Develop targeted, strategic marketing efforts for specific countries and regions, as in the case of Chilean blueberries in London
- 4**

Launch ad campaigns in target markets touting the quality and freshness of grapes

 - ▶ Market entry will not be immediate as the table grape market has established producers and exporters
 - Countries entering the market will need to differentiate themselves by delivering high quality for better prices

Comments

- ▶ None of these steps will be successful unless all the fresh grape producers are on the same page and support a unified strategy
- ▶ Associations should develop internal market controls to make sure that all members adhere to the program and produce table grapes that meet a certain level of quality and freshness