

An Analysis of the Top 5 Fresh Fruit and Vegetable Imports in the United States

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INTRODUCTION

Every day, millions of American consumers visit the produce section of their local supermarket and purchase fresh fruits and vegetables without considering the product origin. Many of these products are imported, traveling thousands of miles by boat, air, rail, and truck to land on the retail shelves of grocery stores throughout the United States.

Often, the country origin of fresh produce available at supermarkets can shift on a weekly basis. For instance, produce supply may switch between import countries, such as a shipment of bananas from Costa Rica vs. Ecuador. The supply could also alternate between import and domestic production, such as a shipment of tomatoes from Mexico vs. Florida. This source variability in the supply of fresh fruits and vegetables impedes the ability of a customer to make informed decisions about their purchases.

This report seeks to clarify, organize, and process the available information on the importation of fresh fruits and vegetables in an effort to gain a better understanding of the supply chain. Specifically, this report examines when and where the products come from, their storage requirements, methods of shipment, and points of entry into the United States. Exhaustive graphical data analysis is included to show individual product import variability throughout the year (with comparisons to export and domestic production), as well as recent market data from 02/25/06 – 03/28/06 that show weekly source variability on a per-product basis.

For the purposes of this report, only the top 5 most imported fresh fruits and vegetables (based on quantity) will be analyzed. These are bananas, tomatoes, table grapes, melons (excl. watermelon), and pineapple.

1. BANANA

Musa acuminata

2005 U.S. Product Imports

Total: 4,089,156.9 MT

Peak Month: May

2005 Top 5 Import Countries of Origin

Guatemala	1,083,405.60 MT	26.5%
Ecuador	987,109.60 MT	24.1%
Costa Rica	831,108.40 MT	20.3%
Colombia	624,784.00 MT	15.3%
Honduras	453,671.70 MT	11.1%

Shipping and Storage Requirements

Temperature: 13-14°C for shipment and storage; 15-20°C for ripening

Relative Humidity (RH): 90-95%

Storage Duration: 2-4 weeks in air; 4+ weeks under CA storage

Ethylene: 100-150 ppm for 24-48 hours at 15-20°C for ripening

Notes: CA used during transport and storage: 2-5% O₂ and 2-5% CO₂

Bananas are very sensitive to chilling injury

Packing

Bananas are graded according to minimum tolerances for length and diameter, as well as number of individual fingers per hand. Acceptable hands are packed at 40 lbs into cartons (cardboard boxes).

Shipment into the United States

For the period 02/25/06 to 03/25/06, most banana imports were transported by boat through Delaware, southern California, New York City, New Jersey, Texas, Mississippi, and south Florida. Some shipments arrived by truck from Mexico through Texas, New Mexico, and southern California. A few shipments came by air through New York City (JFK) and Los Angeles (LAX).

2. TOMATO

Lycopersicum esculentum

2005 U.S. Product Imports

Total: 951,786.5 MT
Peak Month: March

2005 Top 5 Import Countries of Origin

Mexico	801,408.20 MT	84.2%
Canada	141,642.00 MT	14.9%
Netherlands	6,249.00 MT	0.7%
Belgium	871.50 MT	0.1%
Dominican Republic	857.00 MT	0.1%

Shipping and Storage Requirements

Temperature: 7-15°C depending on stage of ripeness

Relative Humidity (RH): 90-95%

Storage Duration: Up to 14 days at 12.5°C depending on ripeness

Ethylene: Exposure should be avoided as it induces ripening

Notes: Tomatoes are sensitive to chilling injury

Packing

Tomatoes are generally packed in 25 lb loose cartons, 20 lb 2-layer flats, or 15 lb single-layer flats. Flats are usually stacked 10 high and palletized. Fruit size classifications are based on strict tolerances that dictate measurements for small, medium, large, and extra-large.

Shipment into the United States

For the period 02/25/06 to 03/25/06, most tomato imports were transported by truck from Mexico through Arizona, Texas, and southern California. Some arrived by boat through Florida and New Jersey. Very few arrived by air through Atlanta (ATL) and Miami (MIA).

3. TABLE GRAPE

Vitis vinifera L.

2005 U.S. Product Imports

Total: 611,359.0 MT
Peak Month: February

2005 Top 5 Import Countries of Origin

Chile	439,403.60 MT	71.9%
Mexico	152,908.00 MT	25.0%
Brazil	7,452.70 MT	1.2%
Peru	5,027.50 MT	0.8%
Canada	3,535.10 MT	0.6%

Shipping and Storage Requirements

Temperature: -1-0°C

Relative Humidity (RH): 95% with 20-40 fpm forced air

Storage Duration: > 10 days, varies with cultivar and storage conditions

Ethylene: Not sensitive

Notes: SO₂ pads may be used during long-term shipping to prevent Botrytis rot

Table grapes are not sensitive to chilling injury

Packing

Table grapes are trimmed, weighed, and packed as bunches into plastic or paper bags. Individual containers are then packed at 18 lbs in a lug or carton (cardboard box).

Shipment into the United States

For the period 02/25/06 to 03/25/06, most grape imports were transported by boat from Chile through New Jersey, Los Angeles, and Delaware. Very few arrived by boat through New York and south Florida. None arrived by air or truck.

4. MELON

2005 U.S. Product Imports

Total: 608,835.1 MT
Peak Month: April

2005 Top 5 Import Countries of Origin

Guatemala	193,777.50 MT	31.8%
Costa Rica	153,956.70 MT	25.3%
Honduras	144,711.00 MT	23.8%
Mexico	95,678.80 MT	15.7%
Panama	9,037.10 MT	01.5%

4.1 HONEYDEW

Cucumis melo L. Inodorus

Shipping and Storage Requirements

Temperature: 7-10°C (2.5-5°C if pretreated with 100 ppm ethylene)

Relative Humidity (RH): 85-90%

Storage Duration: 12-15 days at 7°C

Ethylene: 100-150 ppm for 18-24 hours at 20°C for ripening of mature fruit

Notes: Extended storage can lead to chilling injury and development of mold

Packing

Honeydew melons are packed at 30 lbs in a 2/3 carton or crate (cardboard box). Grade classifications are 4s, 5s, 6s, 8s, and 9s based on the number of honeydew melons of uniform size and shape that will fit into an individual box.

Shipment into the United States

For the period 02/25/06 to 03/25/06, most honeydew imports were transported by boat through south Florida. Some arrived by boat through southern California. Few arrived by truck from Mexico through Texas and Arizona. None arrived by air.

4.2 CANTALOUPE

Cucumis melo L. var. reticulatus Naud

Shipping and Storage Requirements

Temperature: 2.2-7°C

Relative Humidity (RH): 90-95%

Storage Duration: 12-15 days at recommended temperature

Ethylene: Exposure should be avoided

Notes: Chilling injury can occur below recommended temperature range

Mold may occur during extended storage beyond recommended duration

Packing

Cantaloupe melons are packed 40 lbs in a 1/2 carton or crate (cardboard box). Grade classifications are 9s, 12s, 15s, 18s, 23s, and 30s based on the number of cantaloupe melons of uniform size and shape that will fit into an individual shipping container.

Shipment into the United States

For the period 02/25/06 to 03/25/06, most cantaloupe imports were transported by boat through south Florida, southern California, and New Jersey. Very few arrived by truck from Mexico through Texas. None arrived by air.

5. PINEAPPLE

Ananas comosus L. Merr.

2005 U.S. Product Imports

Total: 577,605.1 MT
Peak Month: May

2005 Top 5 Import Countries of Origin

Costa Rica	438,767.40 MT	76.0%
Ecuador	37,199.30 MT	6.4%
Honduras	32,987.80 MT	5.7%
Guatemala	32,491.10 MT	5.6%
Mexico	27,339.30 MT	4.7%

Shipping and Storage Requirements

Temperature: 10-13°C for partially ripe fruit; 7-10°C for ripe fruit

Relative Humidity (RH): 85-90%

Storage Duration: 2-4 weeks in air; 4-6 weeks under CA storage at 10°C

Ethylene: Exposure initiates faster degreening, but does not affect fruit quality

Notes: CA used during transport and storage: 3-5% O₂ and 5-8% CO₂

Pineapples must be picked when ripe and are sensitive to chilling injury

Packing

Pineapples are packed into cartons based on size. 2-layer cartons hold 40 lbs, contain 8 to 10 fruit, and are generally used for boat shipments. Smaller single-layer cartons hold 20 lbs, contain 5 to 6 fruit, and are generally used for air shipments.

Shipment into the United States

For the period 02/25/06 to 03/25/06, most pineapple imports were transported by boat through New Jersey, Delaware, south Florida, southern California, and Connecticut. Some were shipped by truck from Mexico through Texas. Very few arrived by air through Los Angeles (LAX).

REFERENCES

- 1) USDA Fruit and Vegetable Market News Portal
<http://www.ams.usda.gov/fv/mktnews.html>
- 2) USDA Fruit and Vegetable Market News Website
<http://marketnews.usda.gov/portal/fv>
- 3) USDA Fruit and Vegetable Market News Reports
<http://www.ams.usda.gov/fv/mnrcs/>
- 4) USDA Fruit and Vegetable Market News Text Reports
<http://www.ams.usda.gov/fv/mnrcs/fvwires.htm>
- 5) USDA Archive of Fruit and Vegetable Shipment, Trend and Truck Rate Reports
<http://www.ams.usda.gov/fv/mnmovement.htm>
- 6) USDA Current Truck, Air, Boat, and Import Shipments for Fruits and Vegetables
http://www.ams.usda.gov/mnreports/wa_fv171.txt
- 7) USDA Weekly Shipment Reports by Commodity
<http://www.ams.usda.gov/fv/mnrcs/weekship.htm>
- 8) USDA Agricultural Marketing Service Search Archive
<http://www.ams.usda.gov/search/index.htm>
- 9) USDA Fruit and Vegetable Market News Users Guide
<http://www.ams.usda.gov/fv/pdfpubs/mnuserguide.pdf>
- 10) USDA Foreign Agriculture Service U.S. Trade Internet System
<http://www.fas.usda.gov/ustrade/>
- 11) USDA Agricultural Handbook Number 66
<http://usna.usda.gov/hb66/contents.html>
- 12) UC Davis Postharvest Produce Facts
<http://postharvest.ucdavis.edu/produce/producefacts/>

METHODOLOGY

Data were obtained through the following websites as indicated.

“2005 U.S. Product Imports Total”

Website: <http://www.fas.usda.gov/ustrade/>

Data: Imports HS-6

Countries: World Total

HS 6-Digit Codes: [Product name; e.g. Bananas]

Submit Request:

From: 2005 – 01

To: 2005 – 12

Statistic: Quantity

[all other inputs default value]

Examine output for 2005 world total.

“2005 U.S. Product Imports Peak Month”

Website: <http://www.fas.usda.gov/ustrade/>

Data: Imports HS-6

Countries: World Total

HS 6-Digit Codes: [Product name; e.g. Bananas]

Submit Request:

From: 2005 – 01

To: 2005 – 12

Format: Monthly

Statistic: Quantity

[all other inputs default value]

Examine output for peak month.

“2005 Top 5 Import Countries of Origin”

Website: <http://www.fas.usda.gov/ustrade/>

Data: Imports HS-6

Countries: Select All Countries

HS 6-Digit Codes: [Product name; e.g. Bananas]

Submit Request:

From: 2005 – 01

To: 2005 – 12

Format: BICO

Order: Cmdty/Cntry

Include: Top 10

Statistic: Quantity

[all other inputs default value]

Examine output for top 5 countries. Calculate percentages.

“Shipping and Storage Requirements” + “Packing”

USDA Agricultural Handbook Number 66

<http://usna.usda.gov/hb66/contents.html>

UC Davis Postharvest Produce Facts

<http://postharvest.ucdavis.edu/produce/producefacts/>

“Shipment into the United States”

Website: <http://marketnews.usda.gov/portal/fv>

Select: Movement by Commodity

On next page:

Commodity: Select your commodity; e.g. Bananas

Aggregate: Daily

Locations: All

Dates: Enter date range

Examine output for shipment methods and ports of entry.

“Graph: Trade by Month”

Imports Value:

Website: <http://www.fas.usda.gov/ustrade/>

Data: Imports HS-6

Countries: World Total

HS 6-Digit Codes: [Product name; e.g. Bananas]

Submit Request:

From: 2005 – 01

To: 2005 – 12

Format: Monthly

Statistic: Value

Value: Dollars

[all other inputs default value]

Imports Quantity:

Website: <http://www.fas.usda.gov/ustrade/>

Data: Imports HS-6

Countries: World Total

HS 6-Digit Codes: [Product name; e.g. Bananas]

Submit Request:

From: 2005 – 01

To: 2005 – 12

Format: Monthly

Statistic: Quantity

[all other inputs default value]

Exports Value:

Website: <http://www.fas.usda.gov/ustrade/>

Data: Exports HS-6

Countries: World Total

HS 6-Digit Codes: [Product name; e.g. Bananas]

Submit Request:

From: 2005 – 01

To: 2005 – 12

Format: Monthly

Statistic: Value

Value: Dollars

[all other inputs default value]

Exports Quantity:

Website: <http://www.fas.usda.gov/ustrade/>

Data: Exports HS-6

Countries: World Total

HS 6-Digit Codes: [Product name; e.g. Bananas]

Submit Request:

From: 2005 – 01

To: 2005 – 12

Format: Monthly

Statistic: Quantity

[all other inputs default value]

Domestic Quantity:

Website: <http://www.ams.usda.gov/fv/mnmovement.htm>

Table: Weekly Shipment Reports (by Commodity)

Lookup the product code in question; e.g. Banana is WA_FV405.

Go to: <http://www.ams.usda.gov/search/index.htm>

Enter your query: [Search term; e.g. WA_FV405]

Where to search: Market News Archive

[all other values default]

Find domestic production (“US TOTAL”) for all market reports during 2005, for each product in question. This is done by analyzing individual reports for each week during the year. There is no database.

Example:

http://www.ams.usda.gov/mnarchive/2005/jul/07-12-2005/wa_fv422.txt

“Graph: Top 5 Import Sources by Month”

Website: <http://www.fas.usda.gov/ustrade/>

Data: Imports HS-6

Countries: Select All Countries

HS 6-Digit Codes: [Product name; e.g. Bananas]

Submit Request:

From: 2005 – 01

To: 2005 – 12

Format: Monthly

Order: Cmdty/Cntry

Include: Top 10

Statistic: Quantity

[all other inputs default value]

Examine output for top 5 countries and their quantity import values. Plug values into an appropriate Excel spreadsheet to generate graphs.

“Graph: Weekly Import Shipments”

Website: <http://www.ams.usda.gov/fv/mnmovement.htm>

Table: Weekly Shipment Reports (by Commodity)

Lookup the product code in question; e.g. Banana is WA_FV405.

Go to: <http://www.ams.usda.gov/search/index.htm>

Enter your query: [Search term; e.g. WA_FV405]

Where to search: Market News Archive

[all other values default]

Examine individual reports in the date ranges that you desire for the import countries and product quantity. Convert as necessary to Metric Tons (MT), since values are given in shipment units such as 10,000 lbs.

Example report:

http://www.ams.usda.gov/mnarchive/2006/apr/04-25-2006/wa_fv405.txt

NOTES

Most of the data presented in the charts and graphs were obtained by manual queries of several U.S. government databases as well as through data mining hundreds of individual market reports. Due to the different reporting methods used by various agencies, any other attempt to replicate the data sets presented here may show slight variations depending on the source. However, general trends should be the same.

Since most reporting agencies seem to standardize on metric tons (MT), differing units of measurement were duly converted as necessary. The standard conversion was 10,000 pounds = 4.5359237 metric tons. When there were conflicting reports of data values, the most recent data were assumed to be the most accurate (generally this applies to the individual market reports).

Every effort was made to ensure the accuracy of this report. If you find any errors, or have questions, please do not hesitate to send a message to me@bengarland.com

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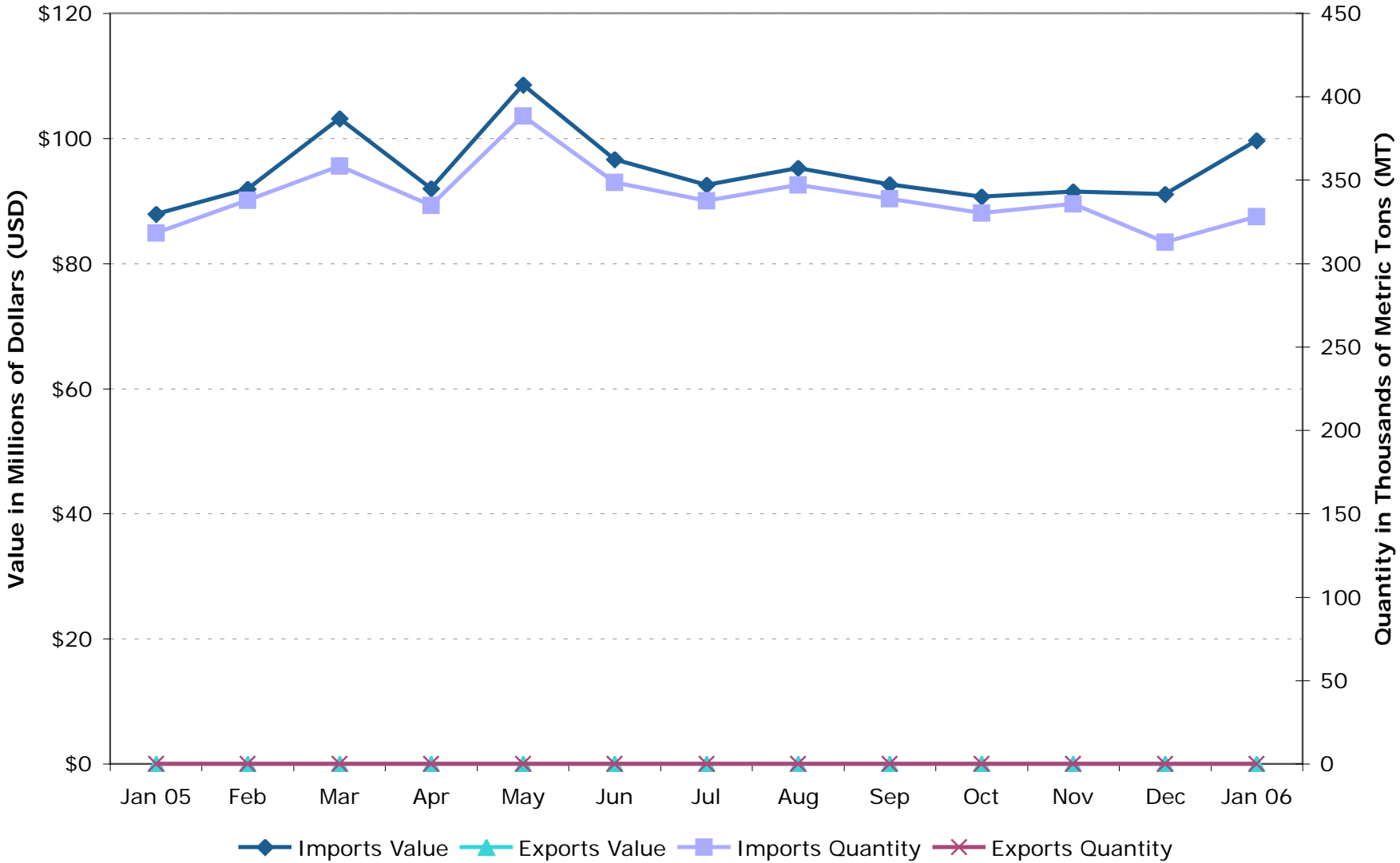
Gary Lucier – Agricultural Economist (Vegetables), ERS, USDA.

Leslie Colburn – Agricultural Statistician, NASS, USDA.

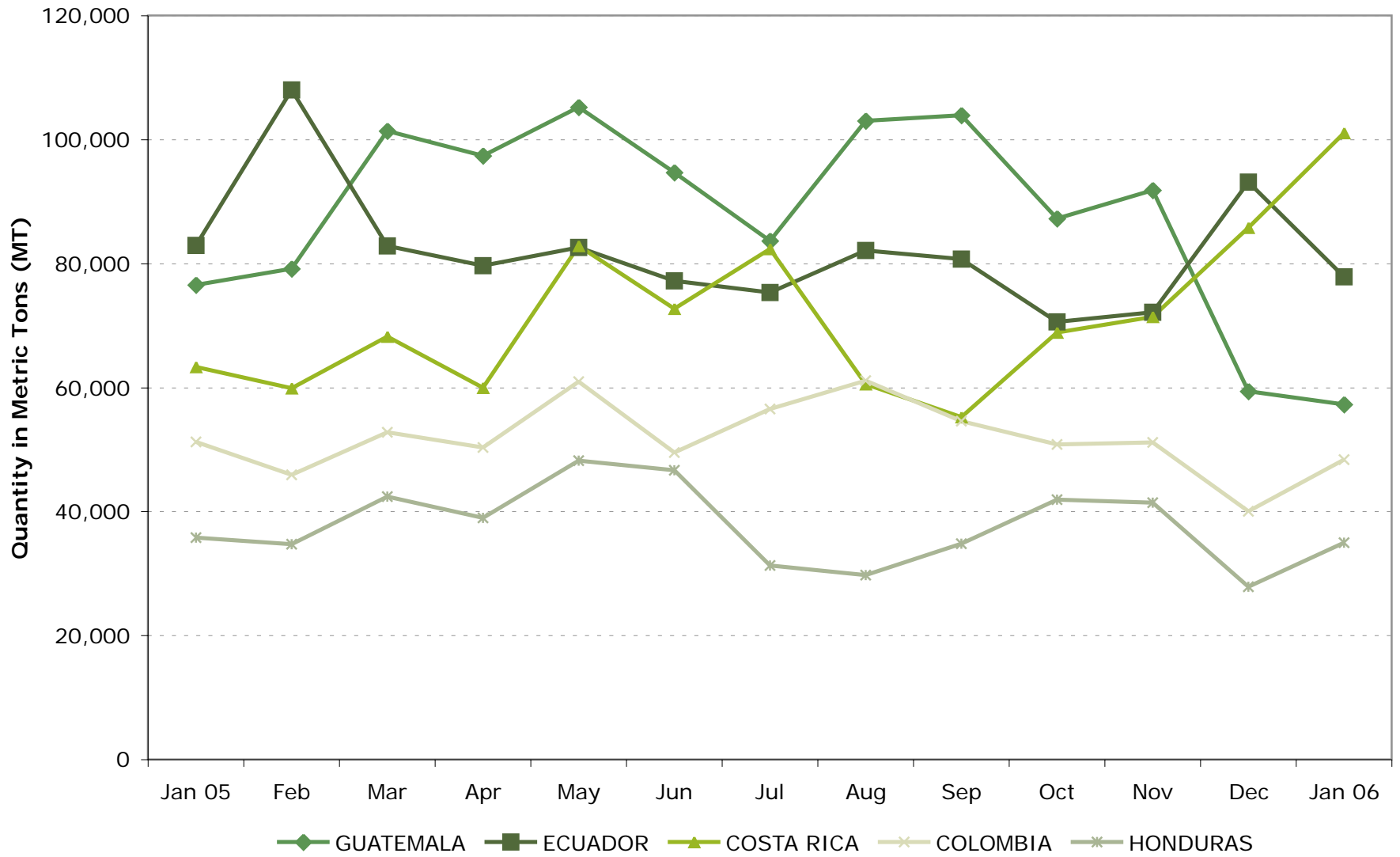
Susan Pollack – Senior Agricultural Economist, ERS, USDA.

Debra Pumphrey – Senior Agricultural Economist, FAS, USDA.

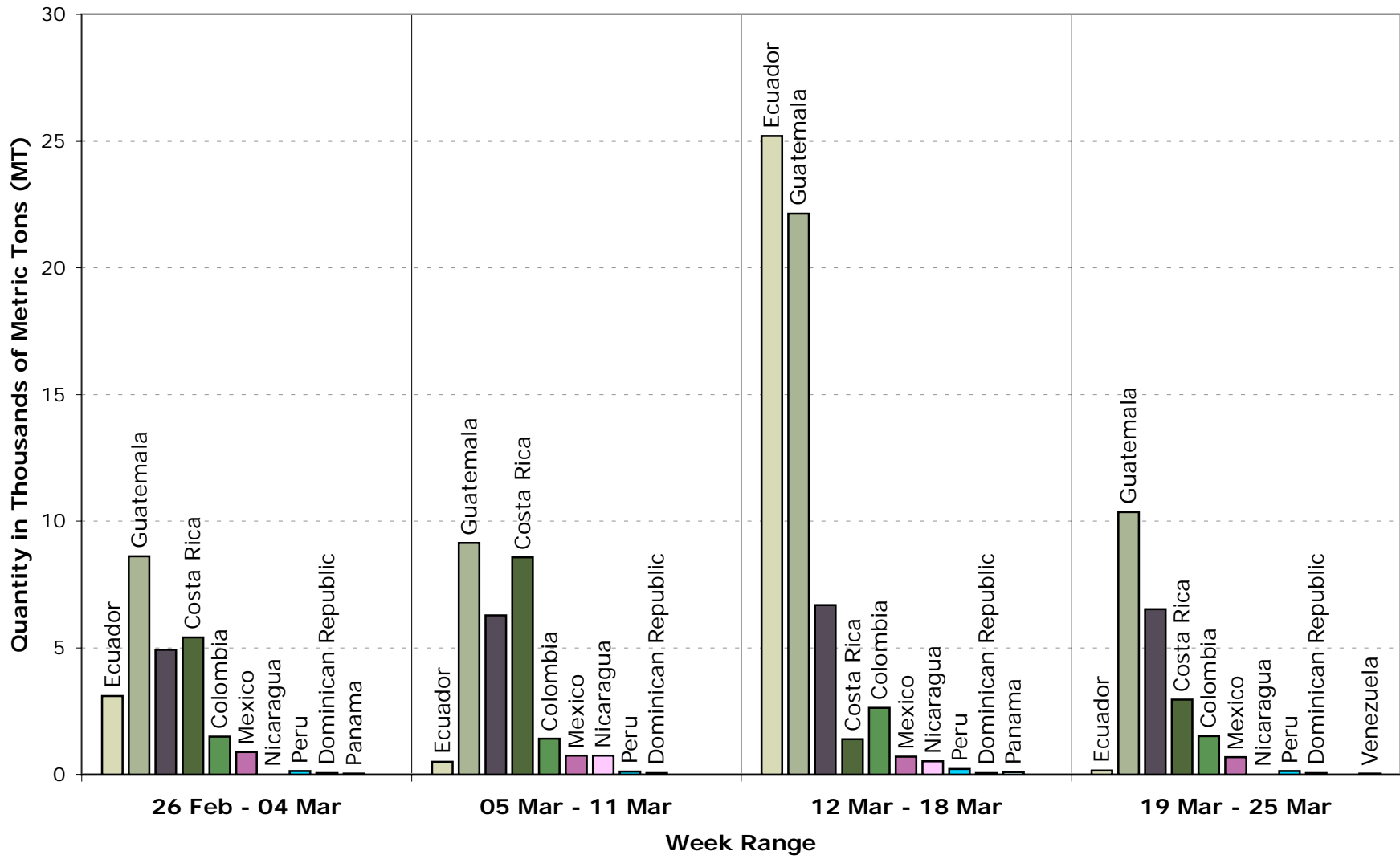
Banana Trade 2005 By Month



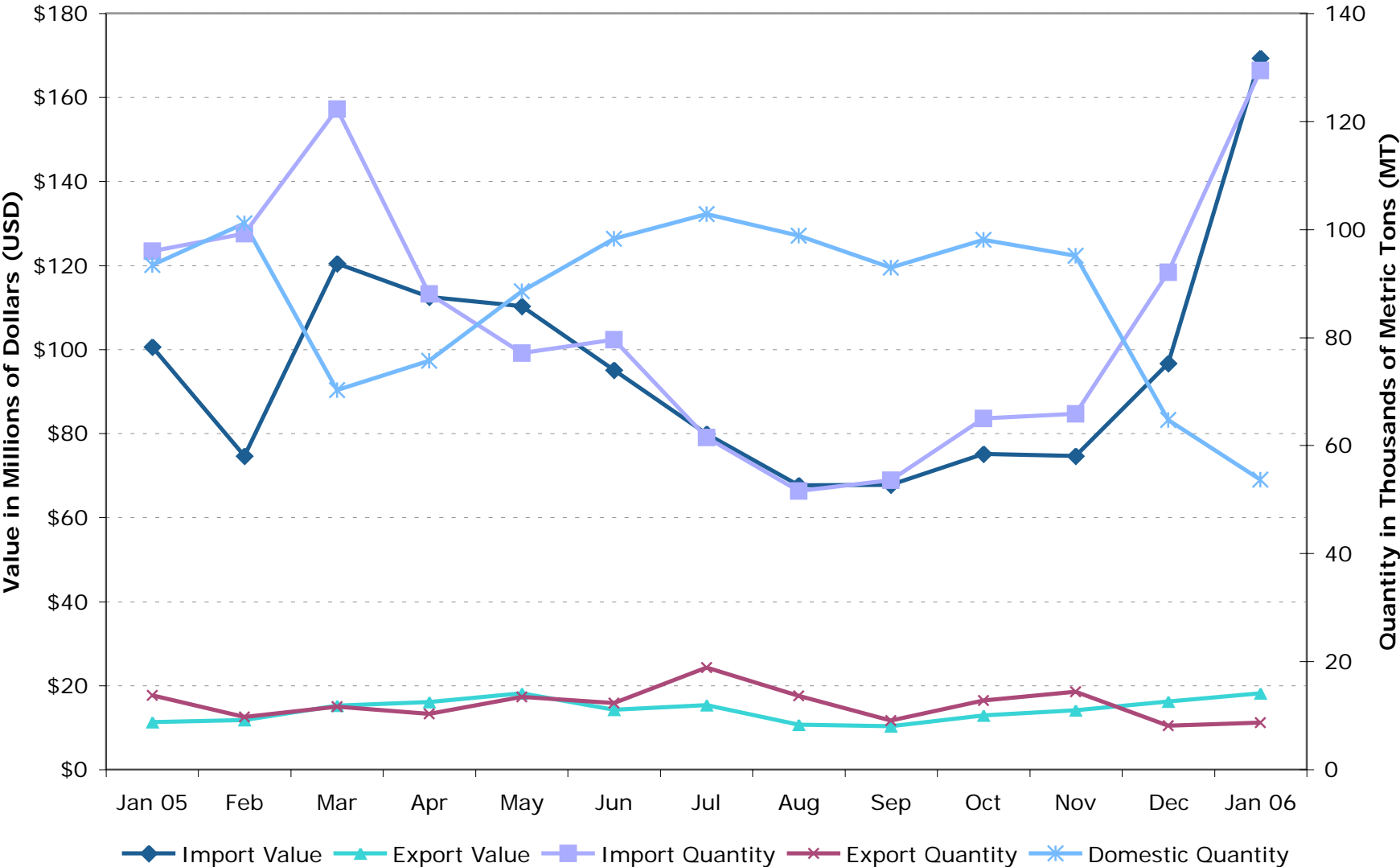
Top 5 Banana Import Sources 2005 by Month



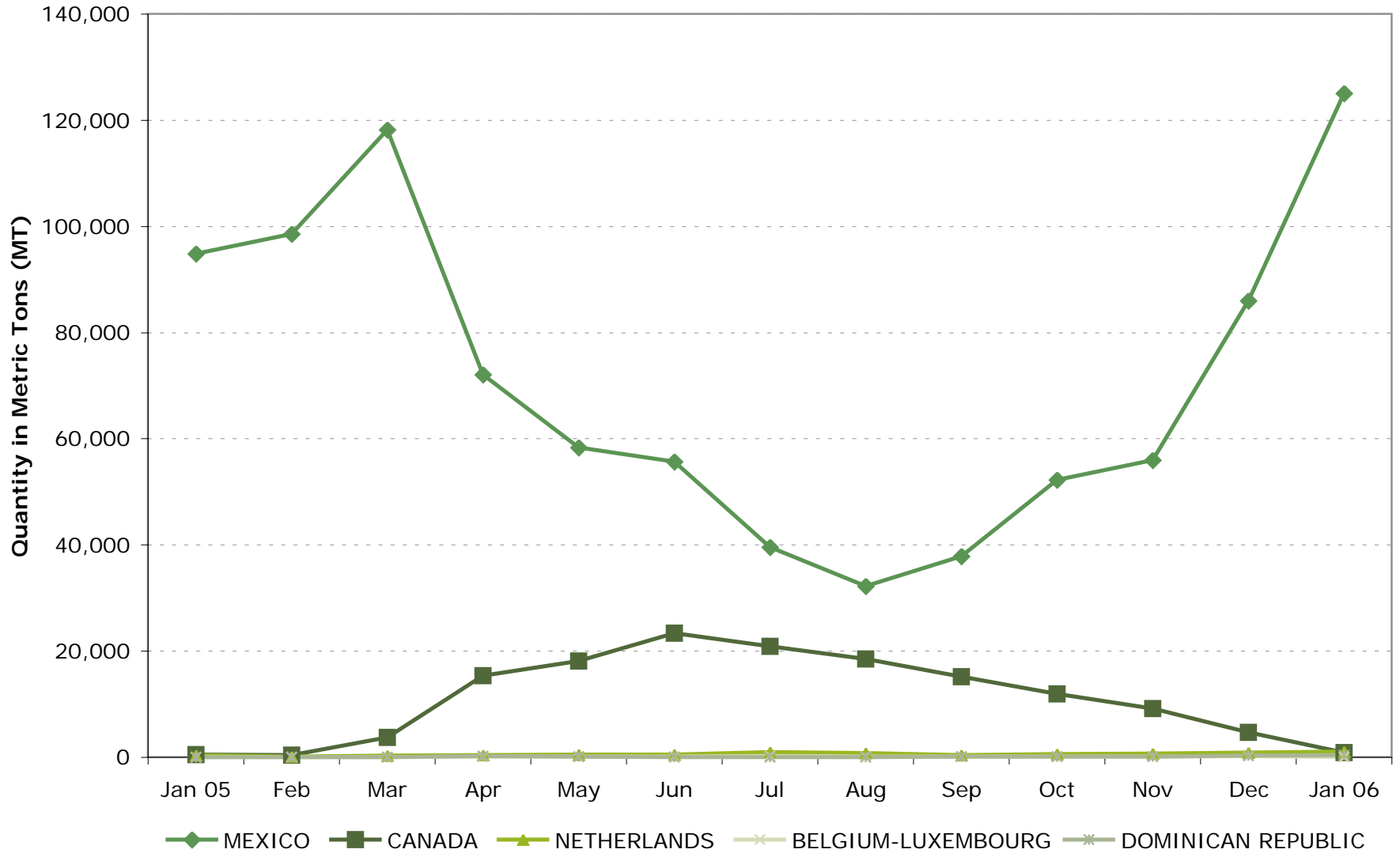
Banana Weekly Import Shipments 26 Feb - 25 Mar 2006



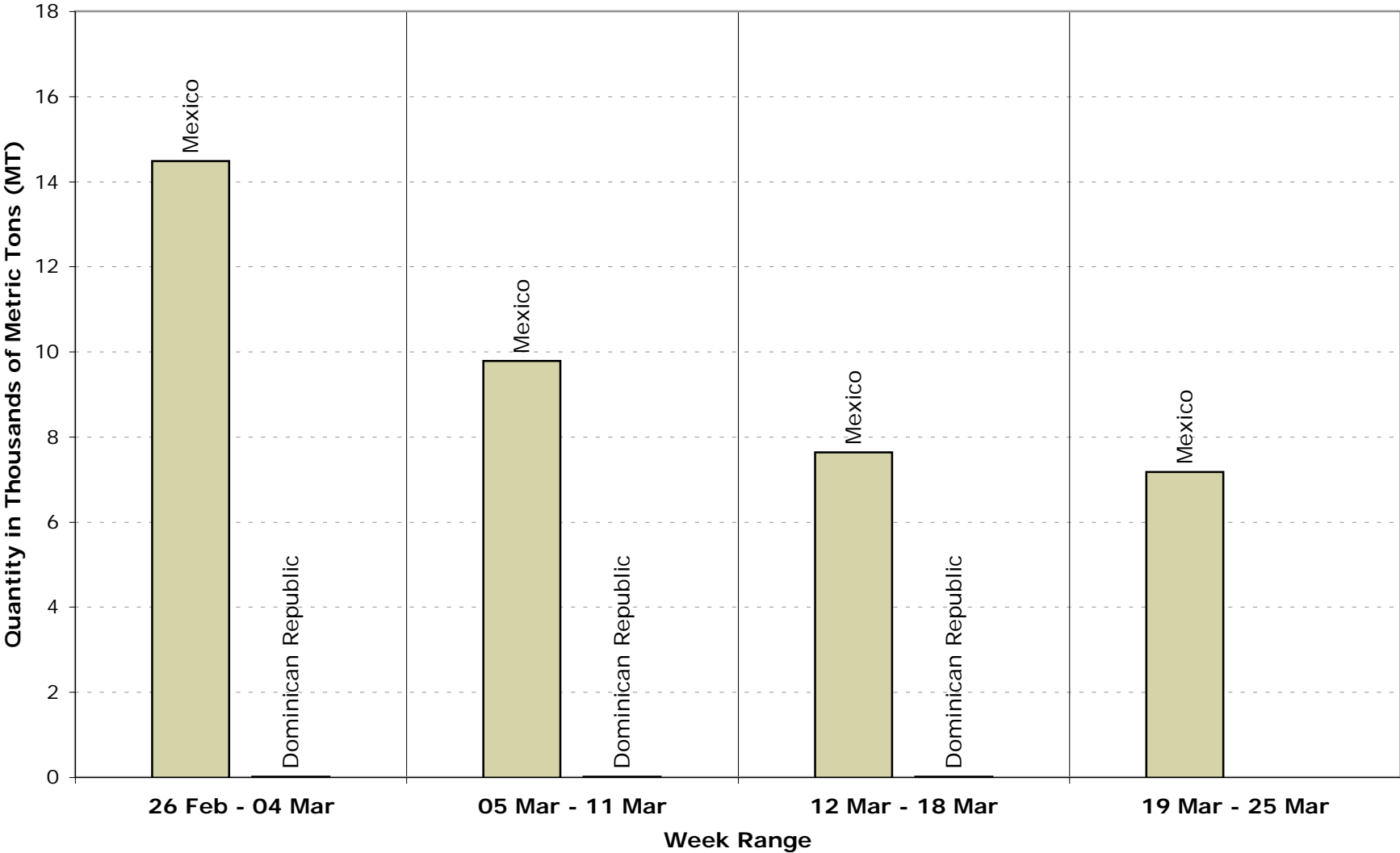
Tomato Trade 2005 By Month



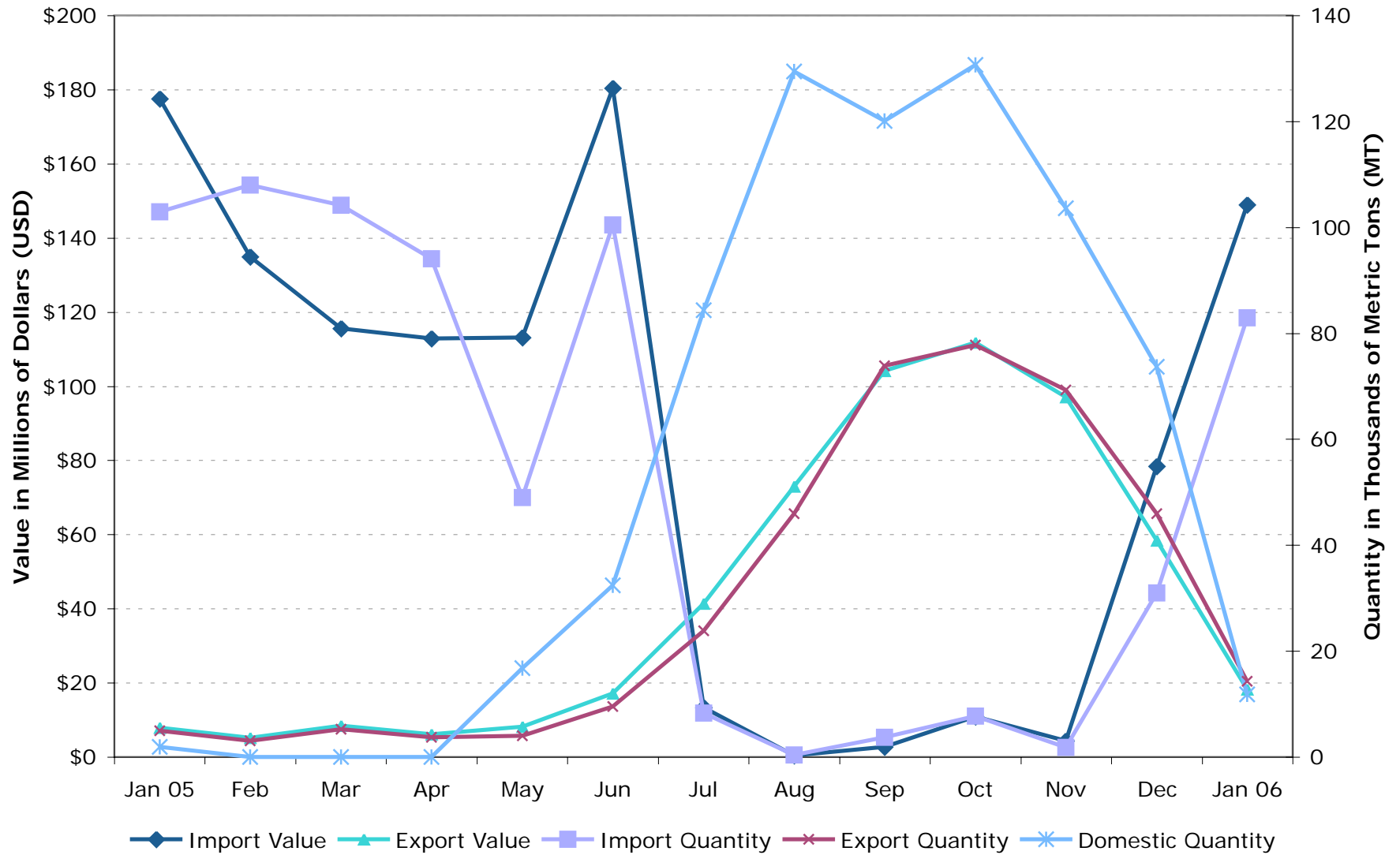
Top 5 Tomato Import Sources 2005 by Month



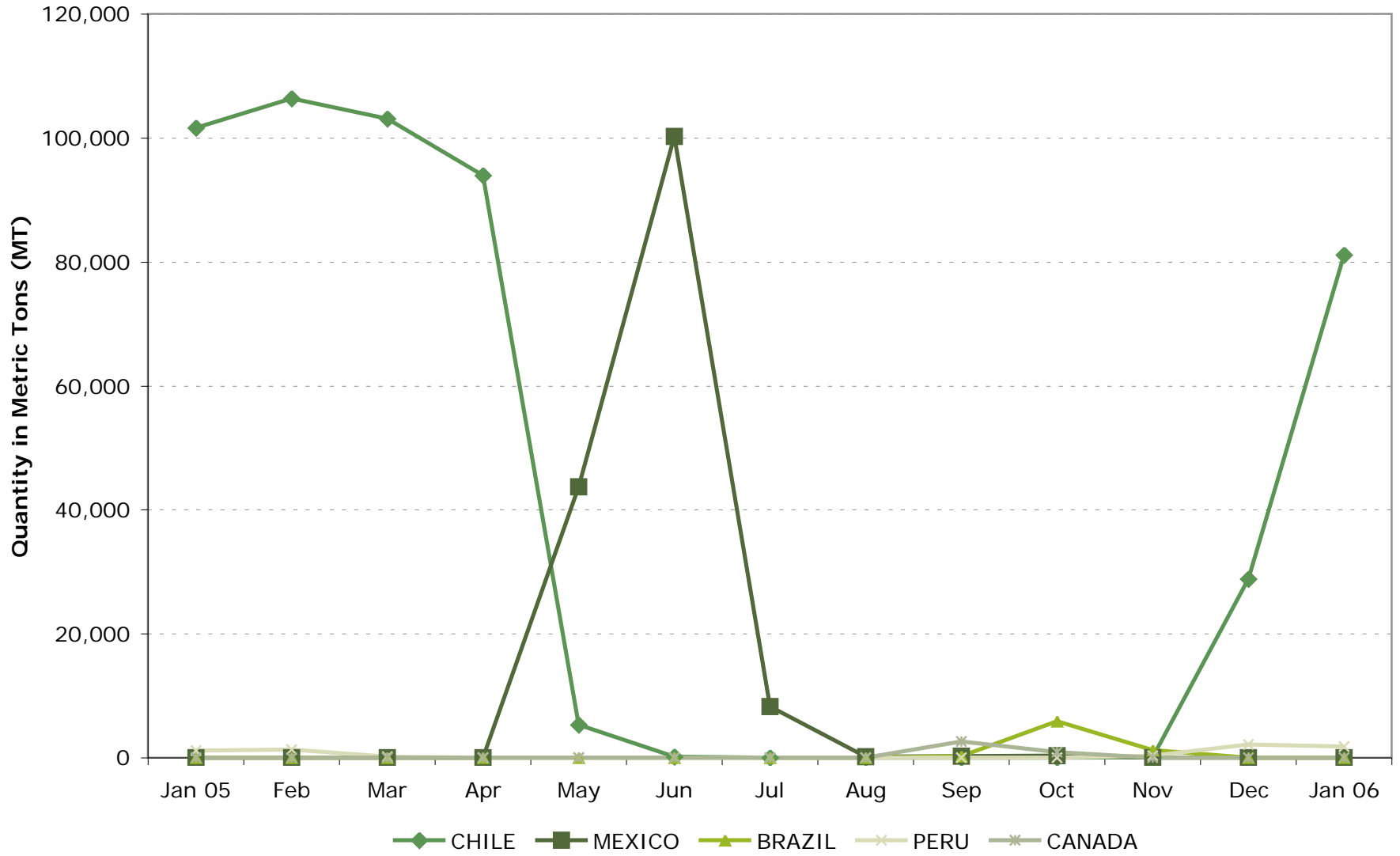
Tomato Weekly Import Shipments
26 Feb - 25 Mar 2006



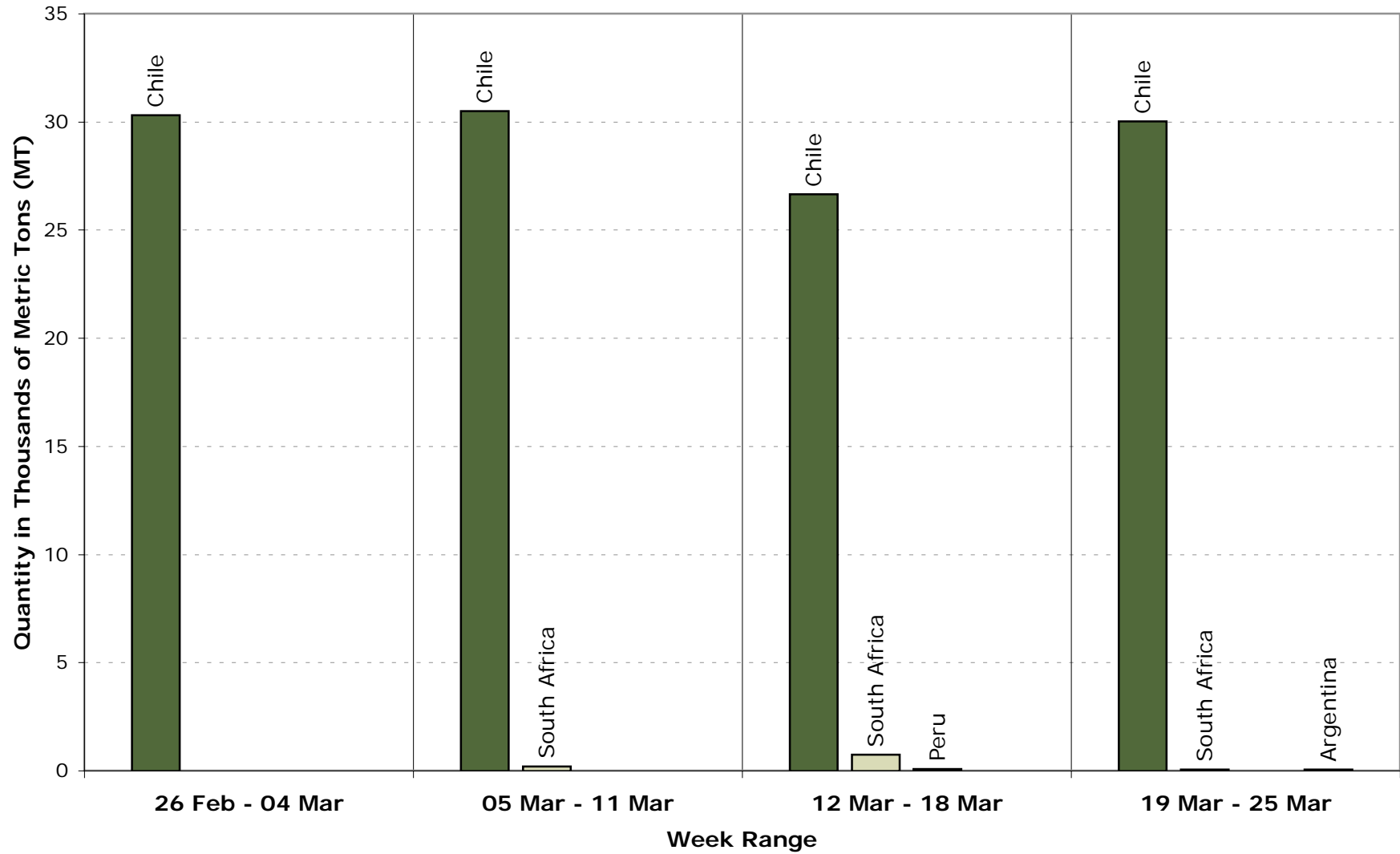
Grape Trade 2005 By Month



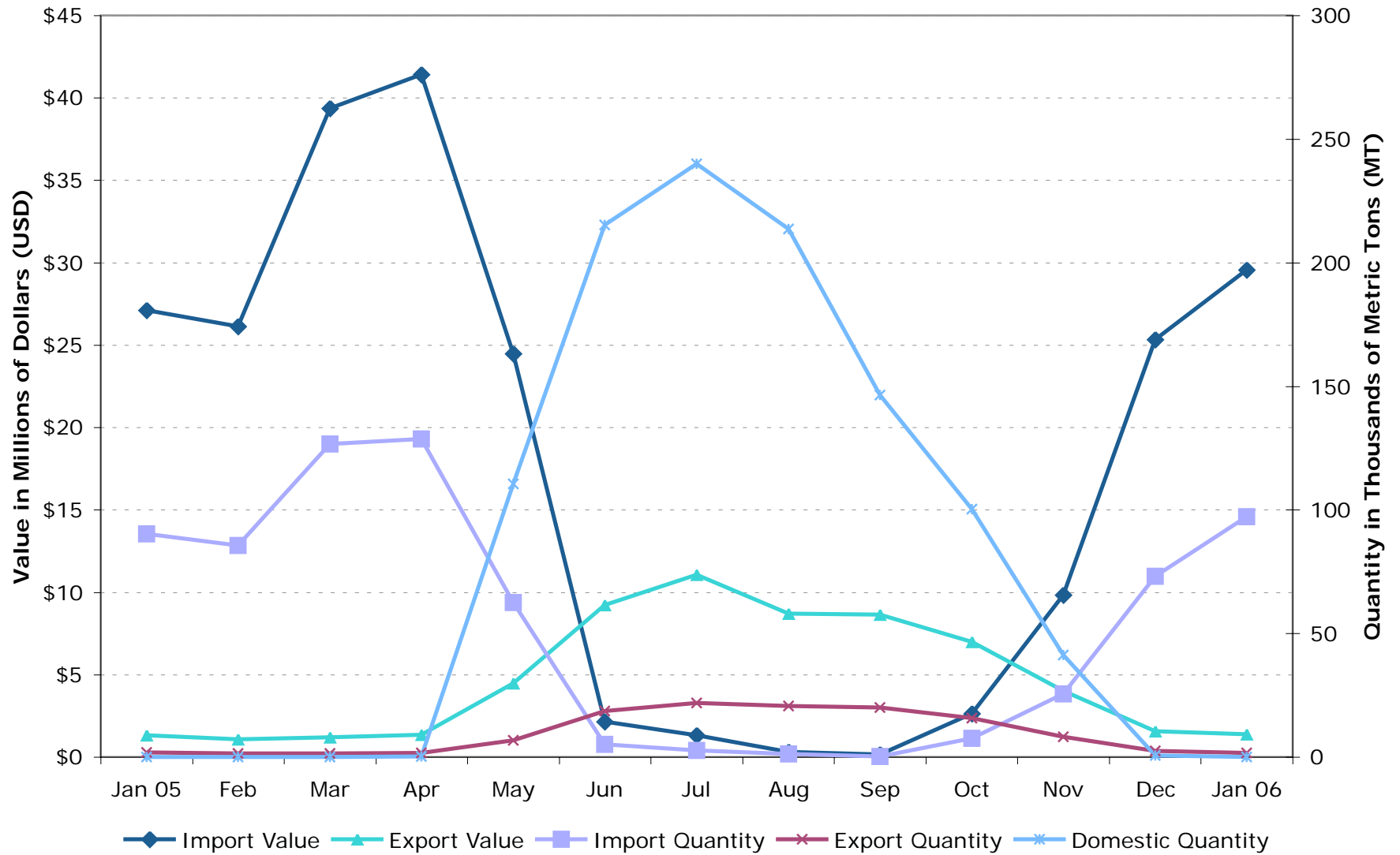
Top 5 Grape Import Sources 2005 by Month



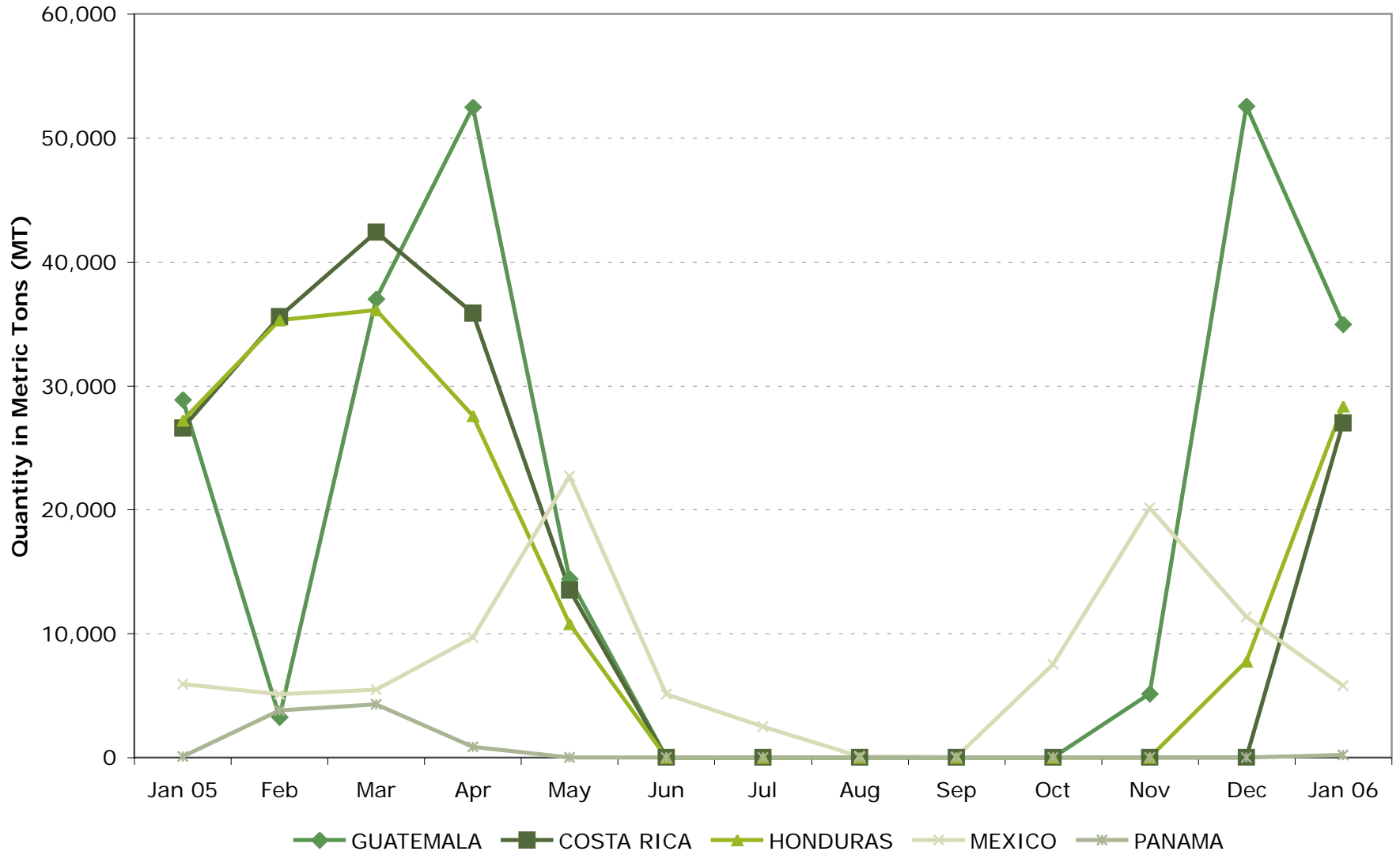
Grape Weekly Import Shipments 26 Feb - 25 Mar 2006



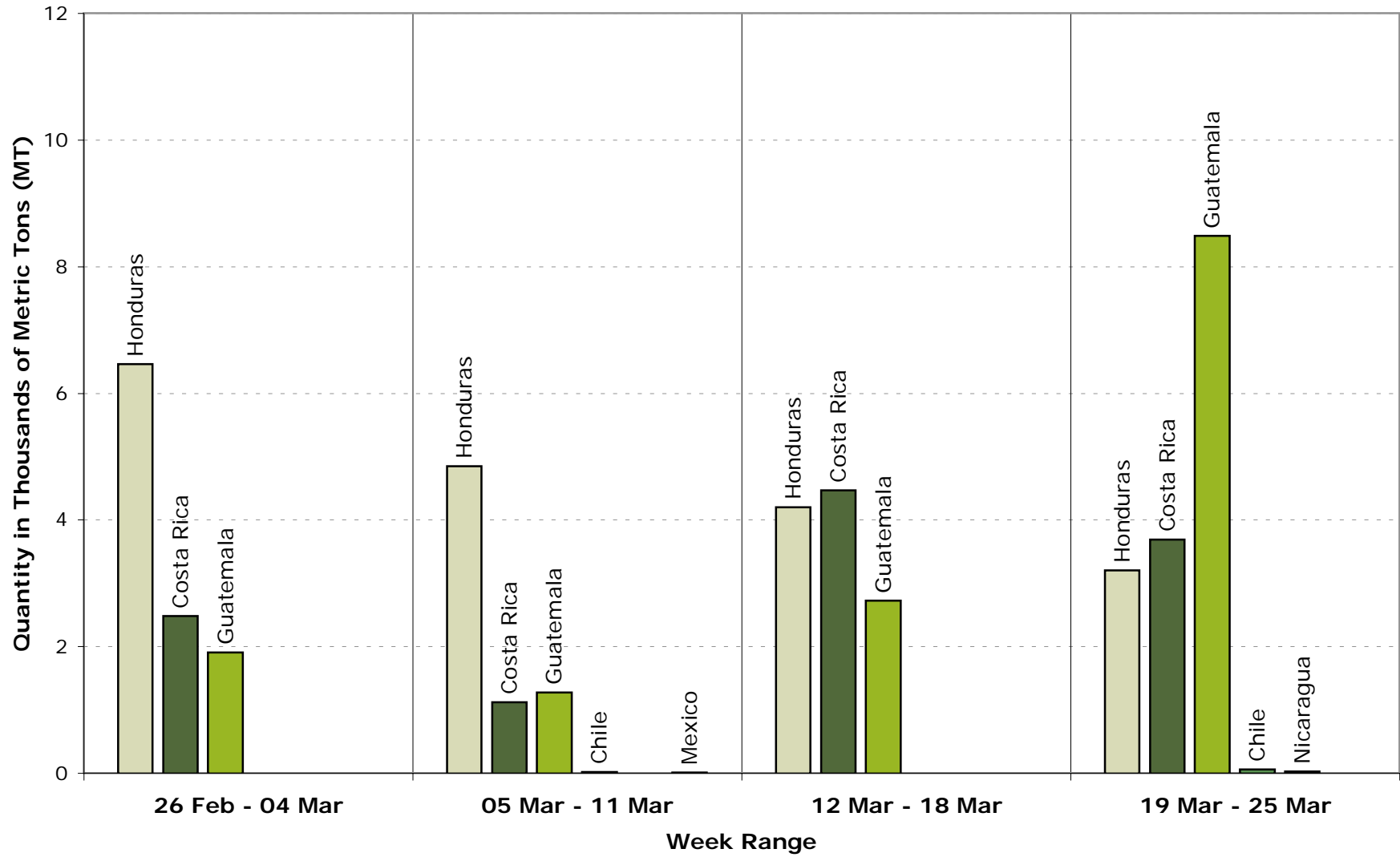
Melon Trade 2005 By Month



Top 5 Melon Import Sources 2005 by Month

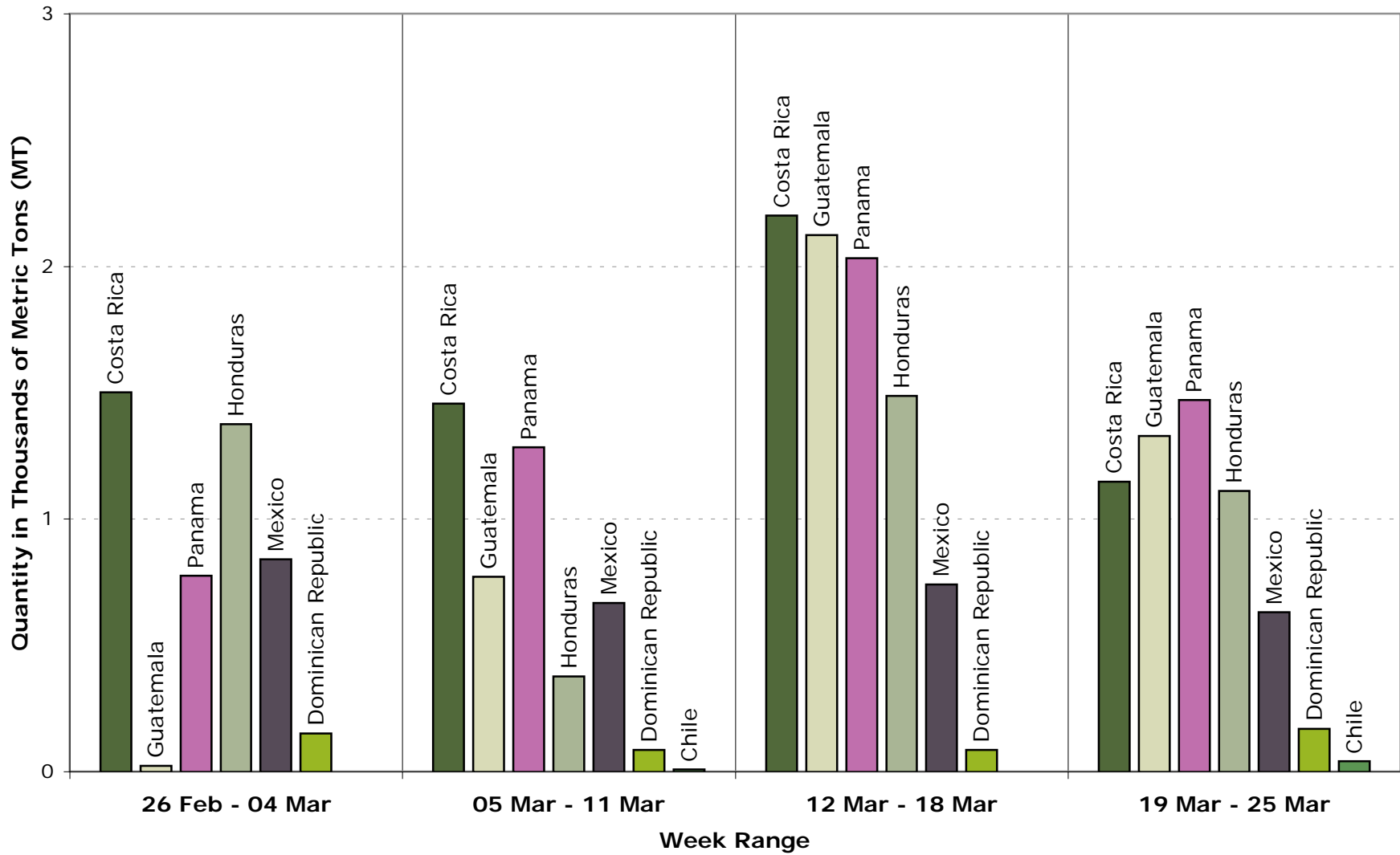


Cantaloups Weekly Import Shipments 26 Feb - 25 Mar 2006

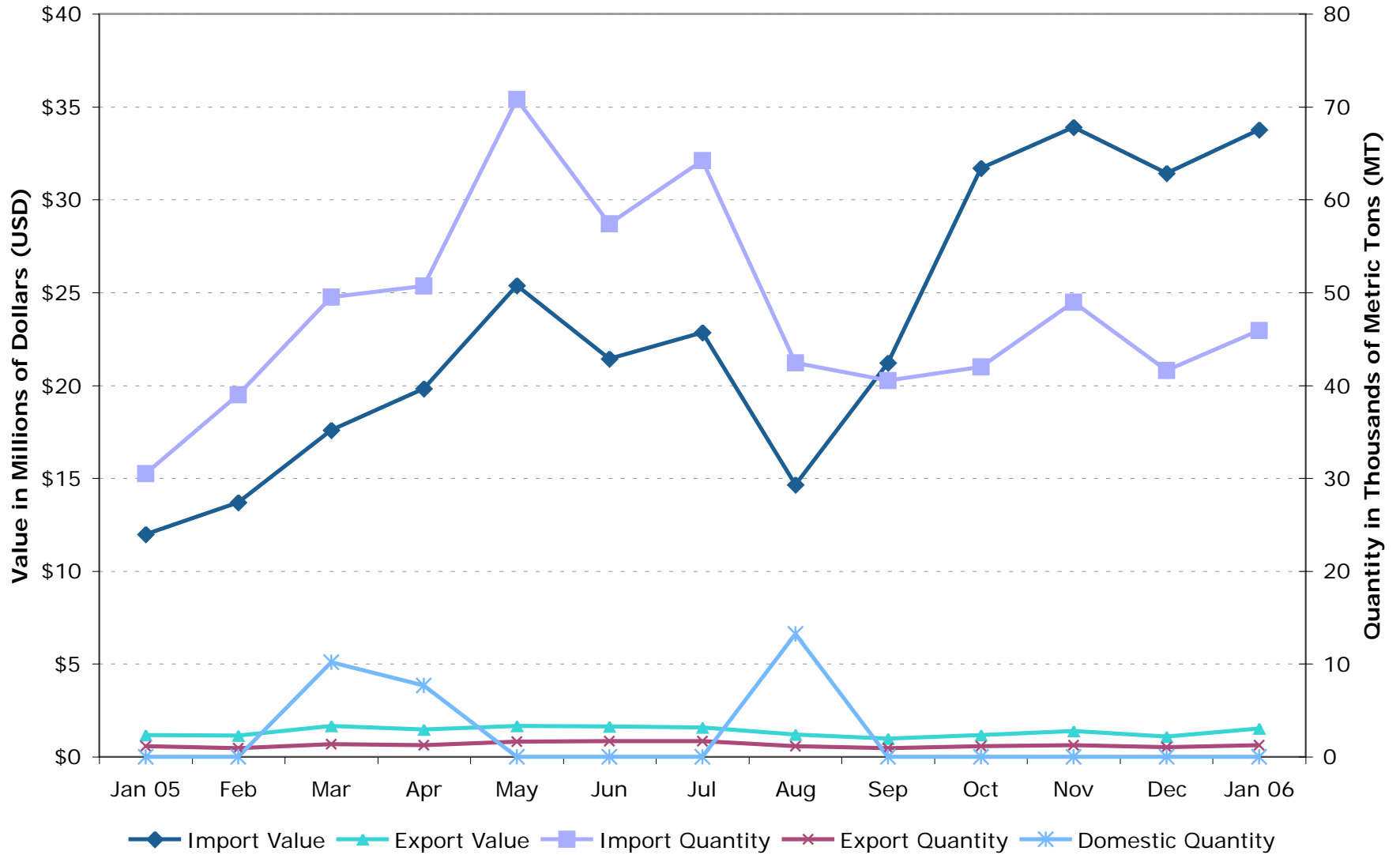


Honeydew Weekly Import Shipments

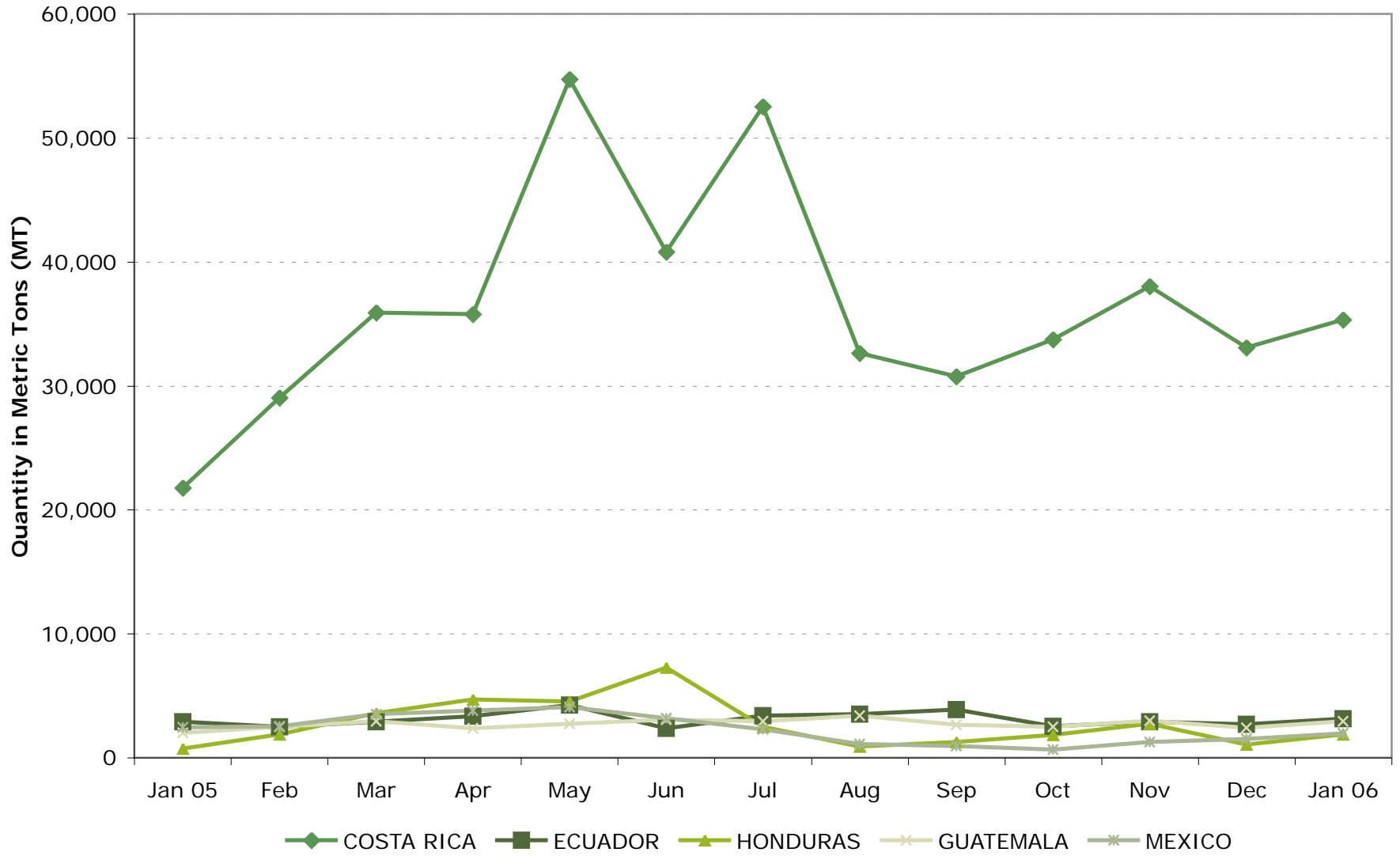
26 Feb - 25 Mar 2006



Pineapple Trade 2005 By Month



Top 5 Pineapple Import Sources 2005 by Month



Pineapple Weekly Import Shipments 26 Feb - 25 Mar 2006

