Agricultural Trade Flows through Texas Ports: Recent Trends and Outlook

Texas Roundup
APHIS▪CBP▪TDA
August 18, 2016◇College Station, TX

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Texas A&M AgriLife Extension

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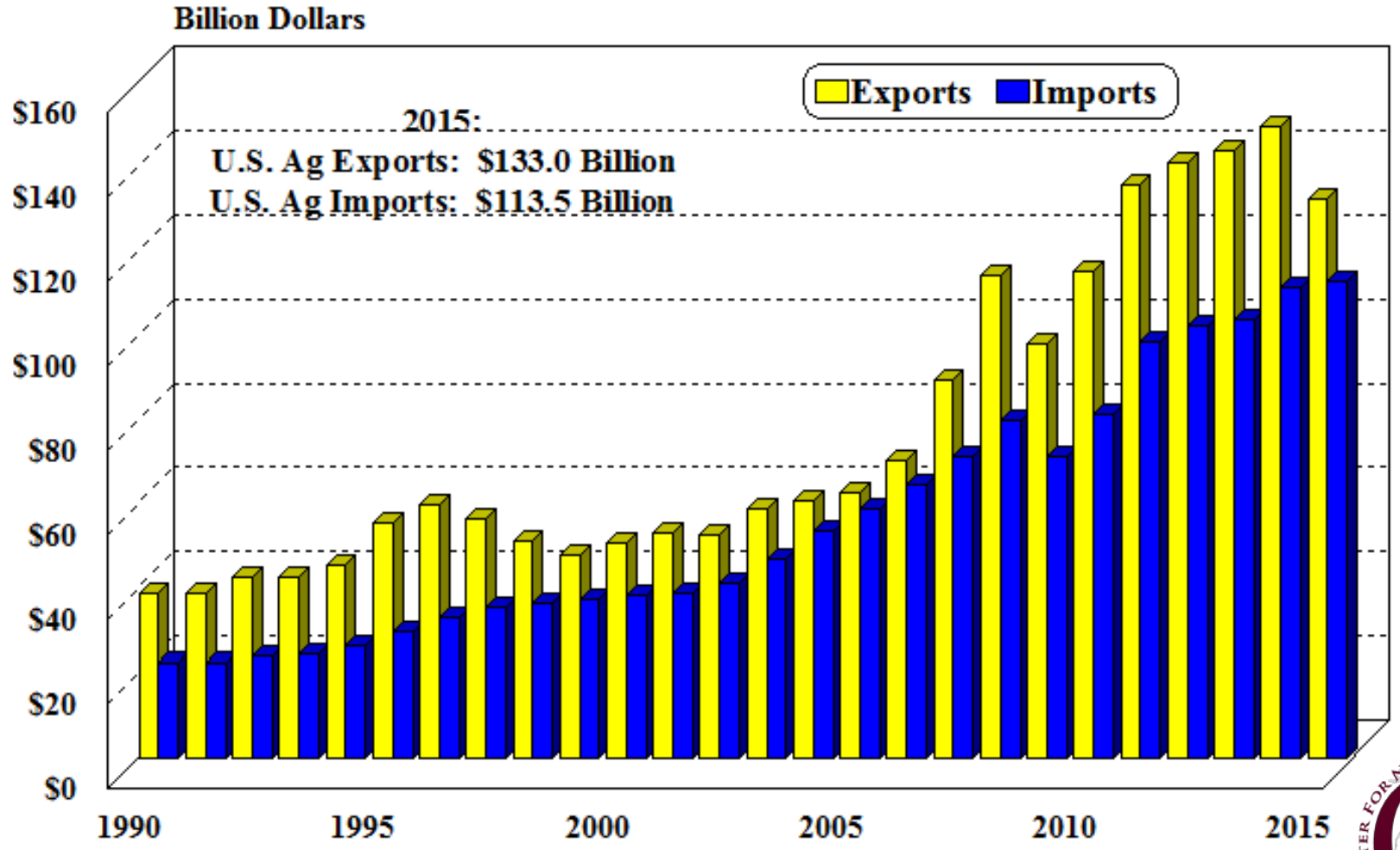
Texas A&M AgriLife Research

Outline

- Importance of Agricultural and Food Trade
- Texas Role in Ag and Food Trade
- The Case of Fresh Fruit & Vegetable Imports from Mexico
- The Case of Cotton Exports and the Panama Canal
- The Case of Meat and Cattle Trade with Mexico
- Summary and Conclusions

U.S. Agricultural and Food Trade, 1990-2015



Source: FAS/USDA, Global Agricultural Trading System, www.fas.usda.gov/gats/default.aspx

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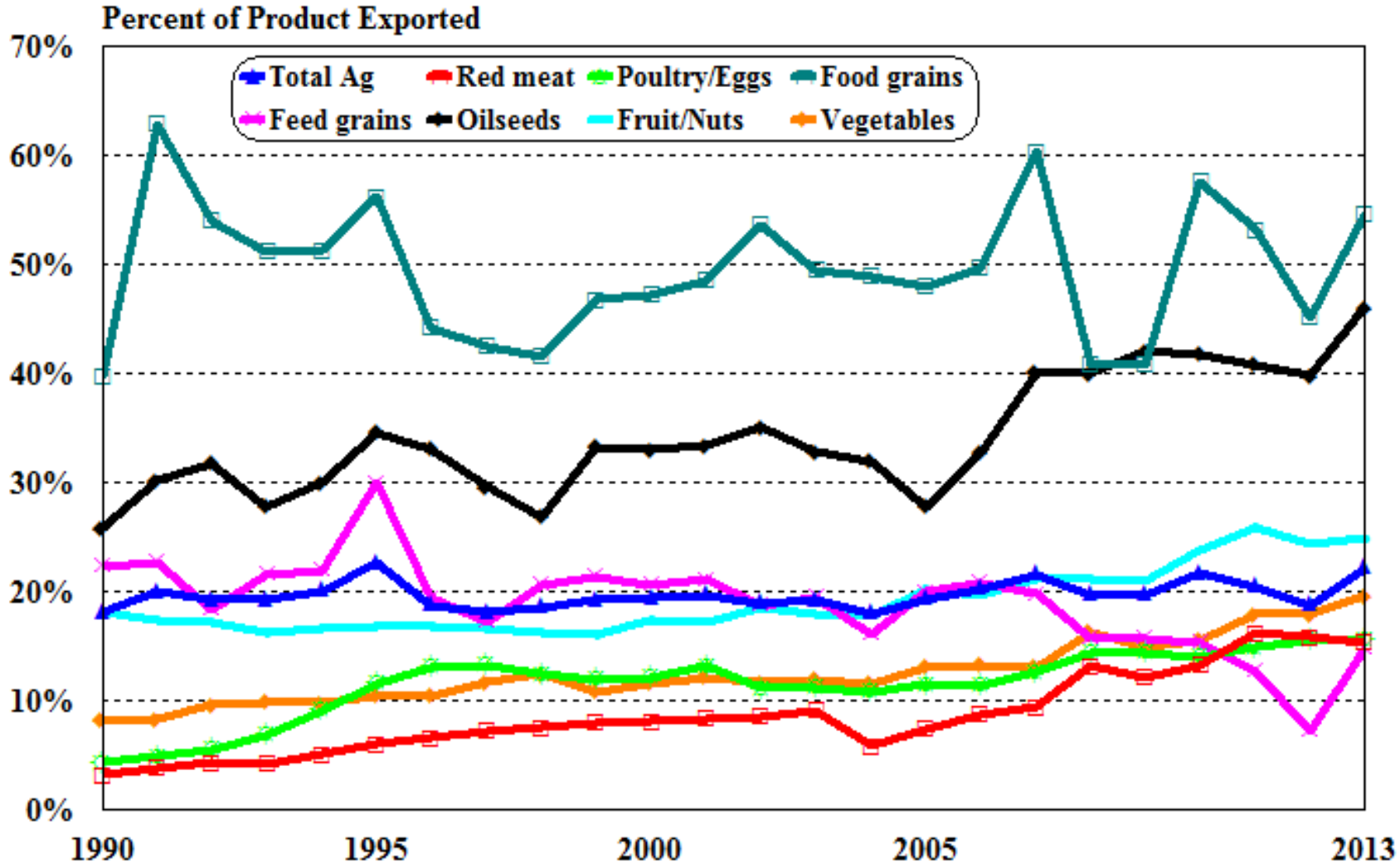
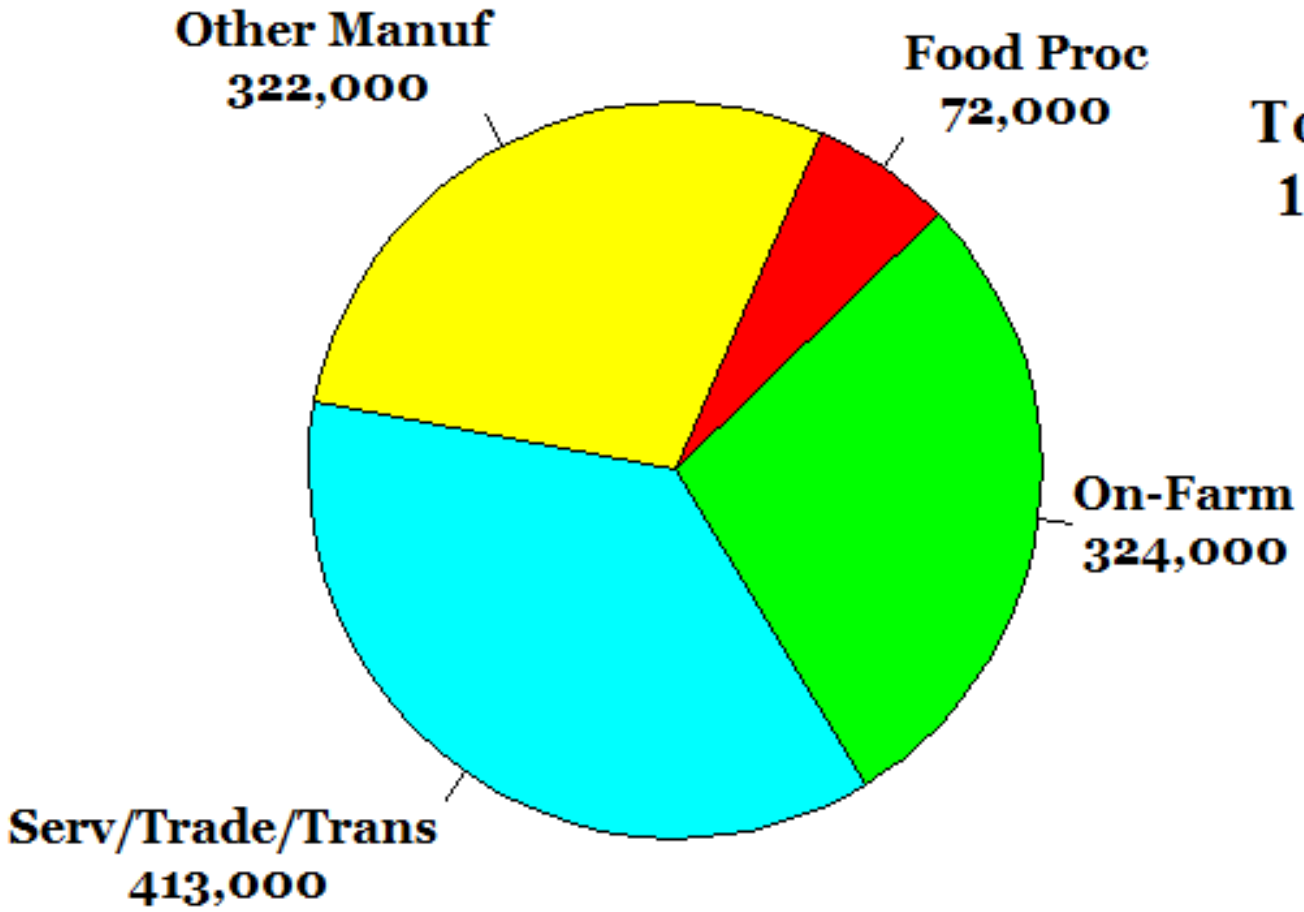
U.S. Export Share of Production



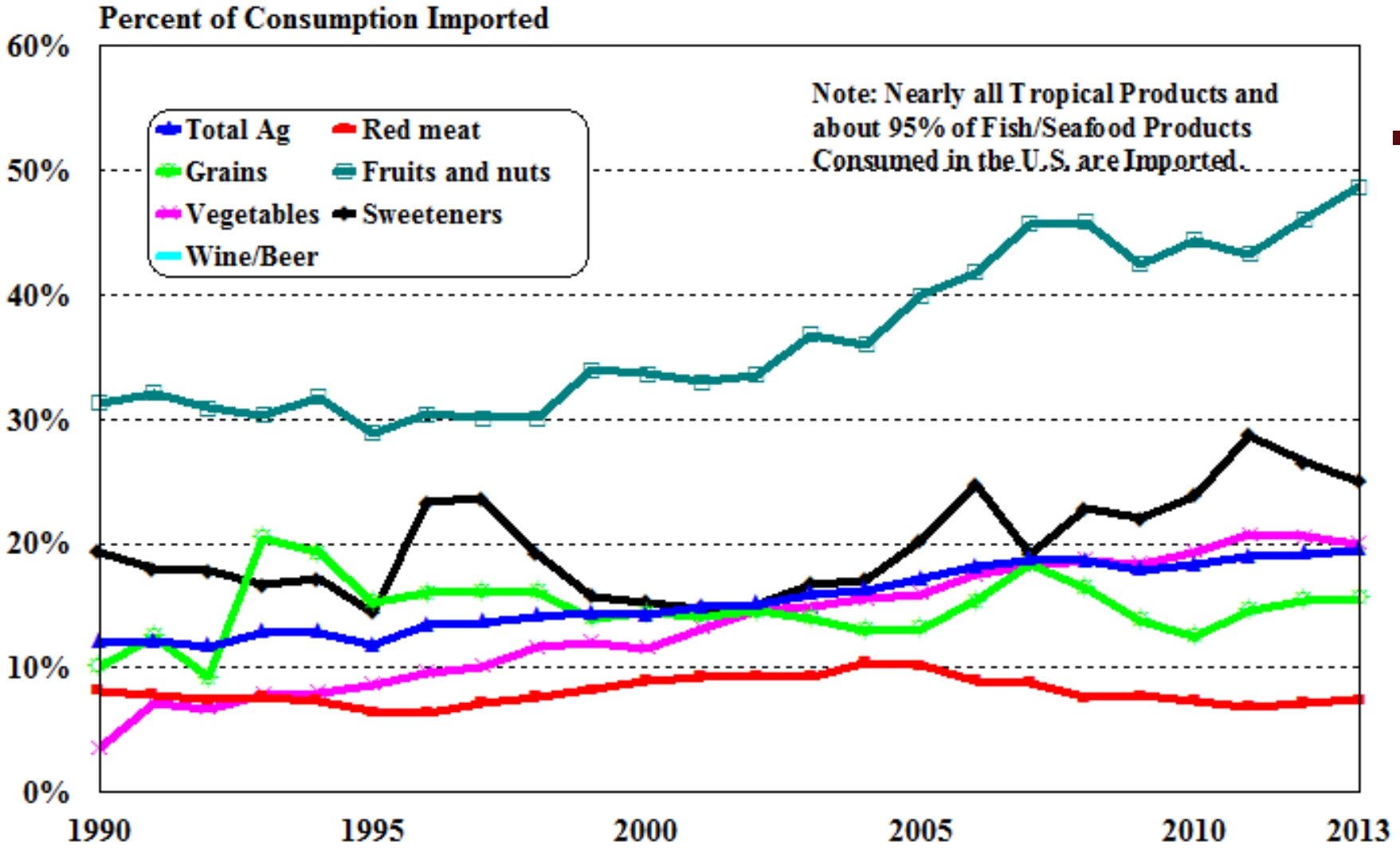
Source: ERS/USDA, U.S. Agricultural Trade Data
http://www.ers.usda.gov/topics/international-markets-trade/us-agricultural-trade/export-share-of-production.aspx

U.S. Employment Attributable to Agricultural Exports, 2014



Source: ERS/USDA, *Effects of Trade on the U.S. Economy*
http://www.ers.usda.gov/data-products/agricultural-trade-multipliers/effects-of-trade-on-the-us-economy.aspx

U.S. Food Import Share of Consumption



Source: ERS/USDA, U.S. Agricultural Trade Data
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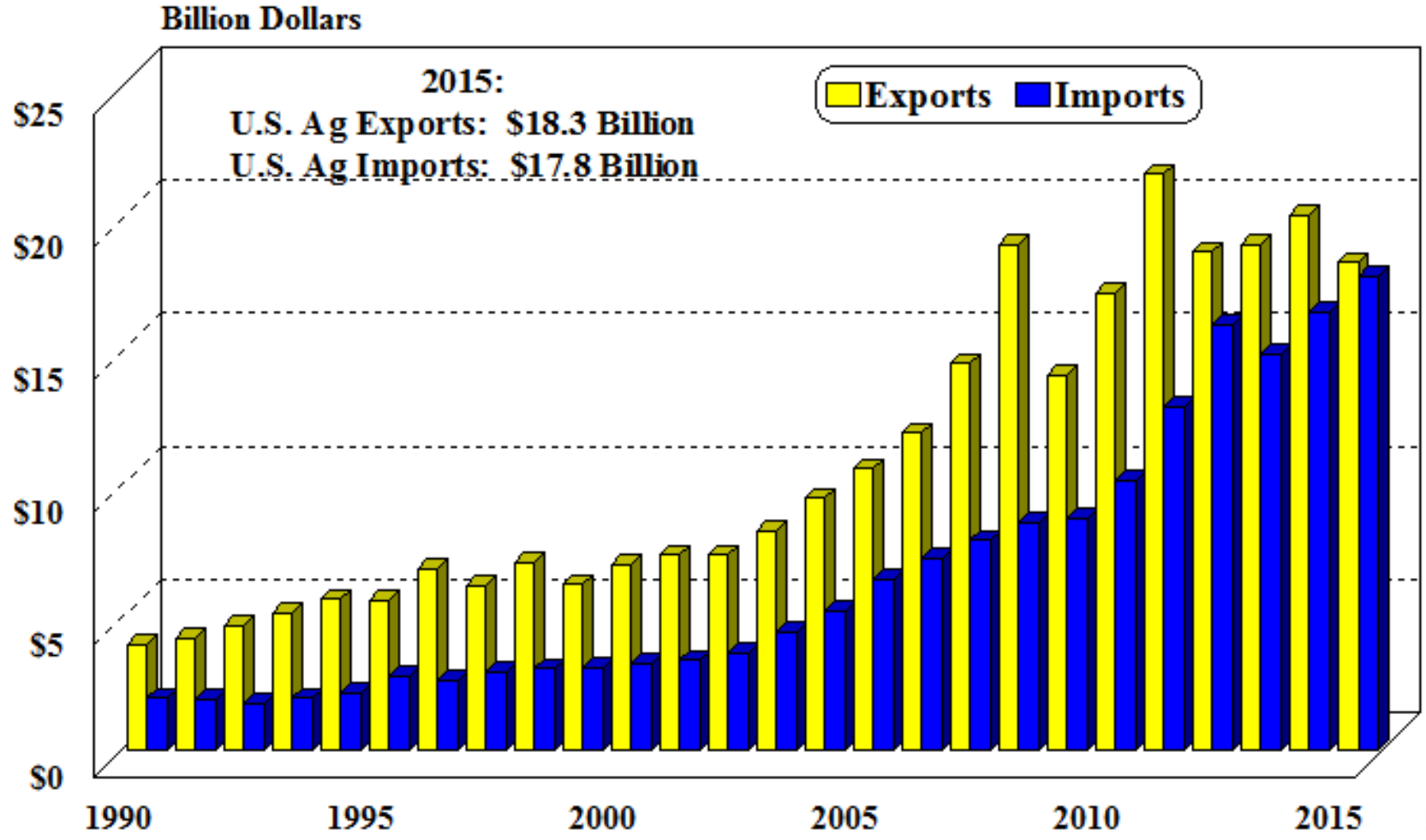
U.S. Agricultural and Food Trade through Texas Ports, 1990-2015



Source: FAS/USDA, Global Agricultural Trading System, www.fas.usda.gov/gats/default.aspx

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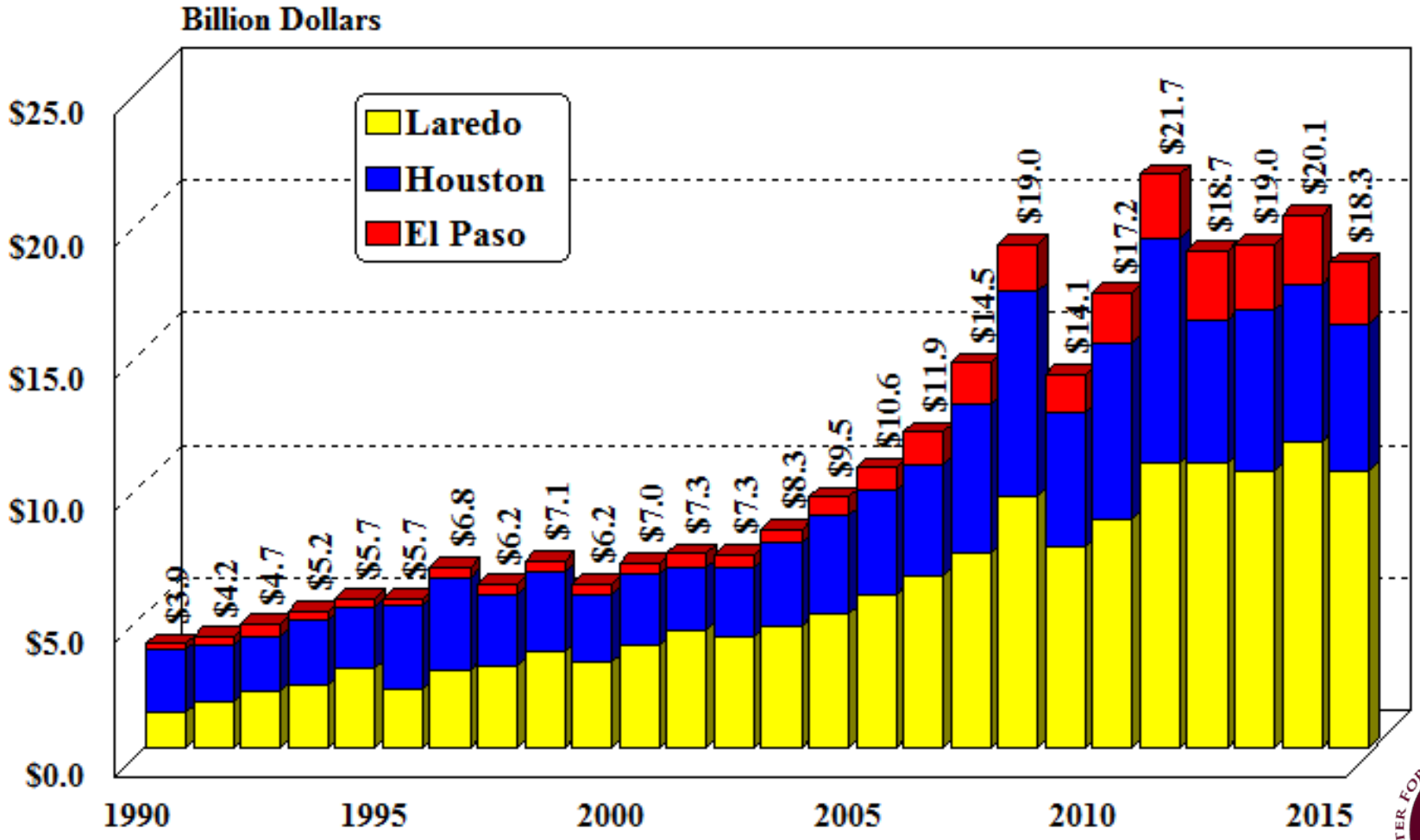
U.S. Agricultural and Food Exports through Texas by Customs District



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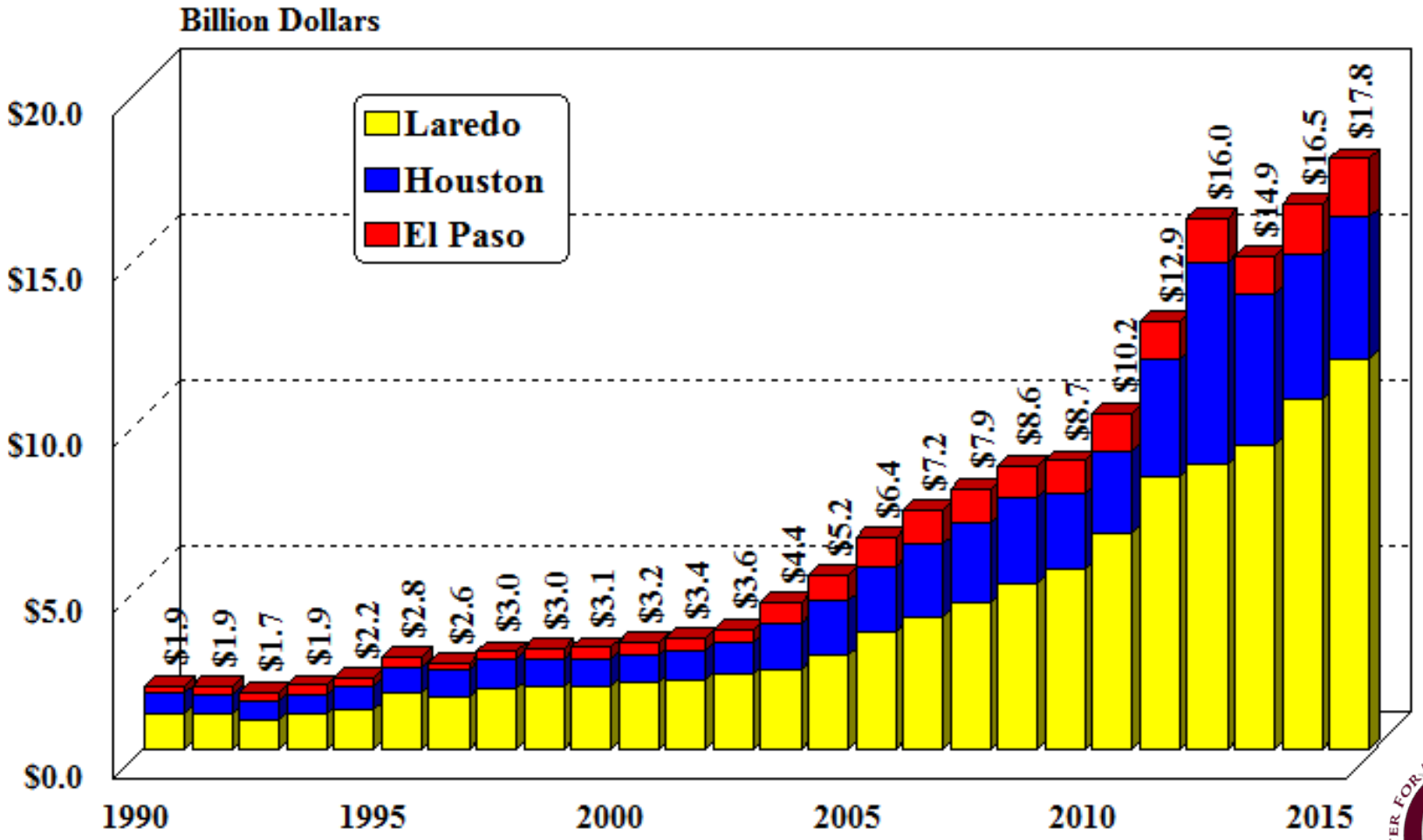

Source: FAS/USDA, Global Agricultural Trading System, www.fas.usda.gov/gats/default.aspx

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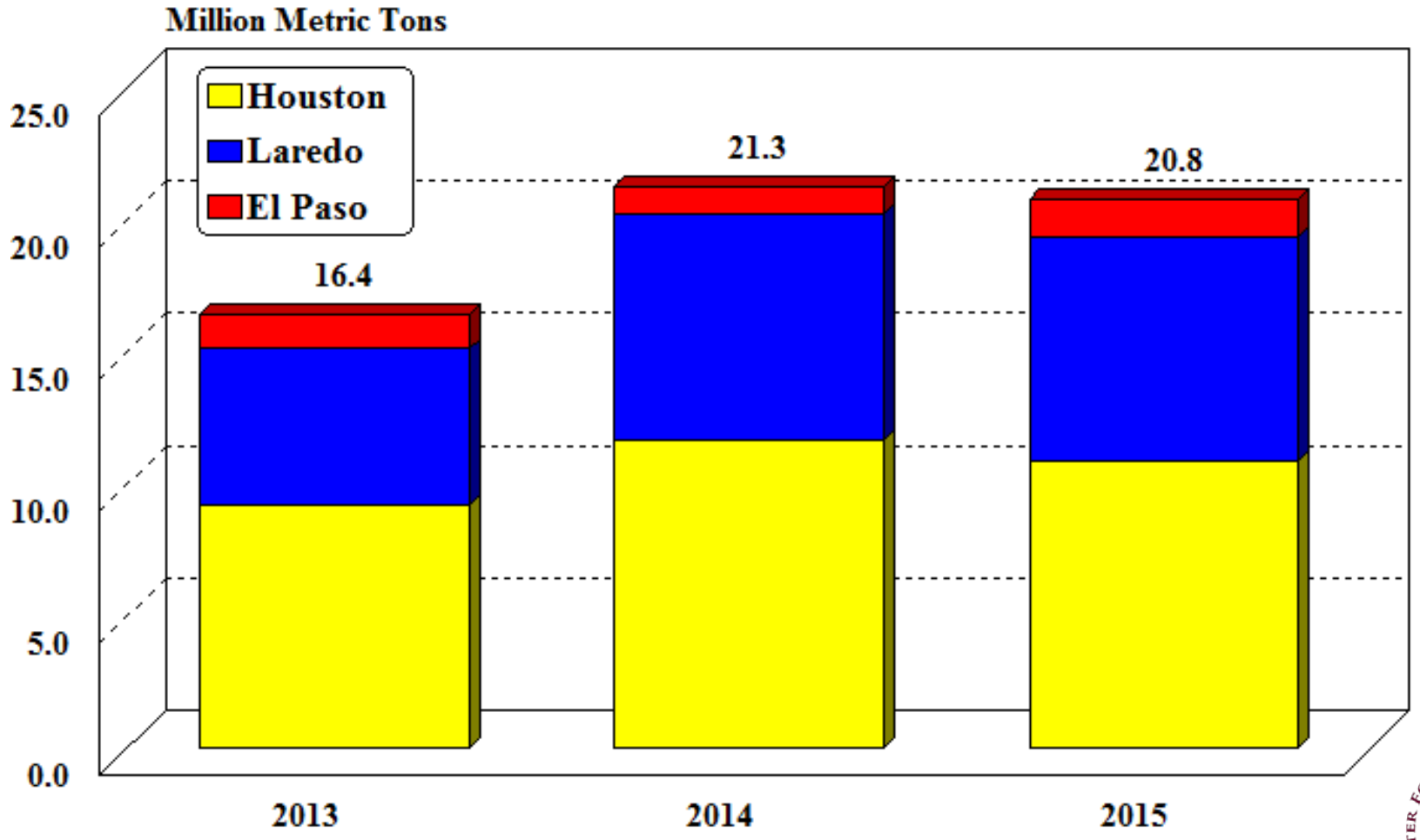
U.S. Grain and Soybean Exports through Texas by Customs District



Source: FAS/USDA, Global Agricultural Trading System, www.fas.usda.gov/gats/default.aspx

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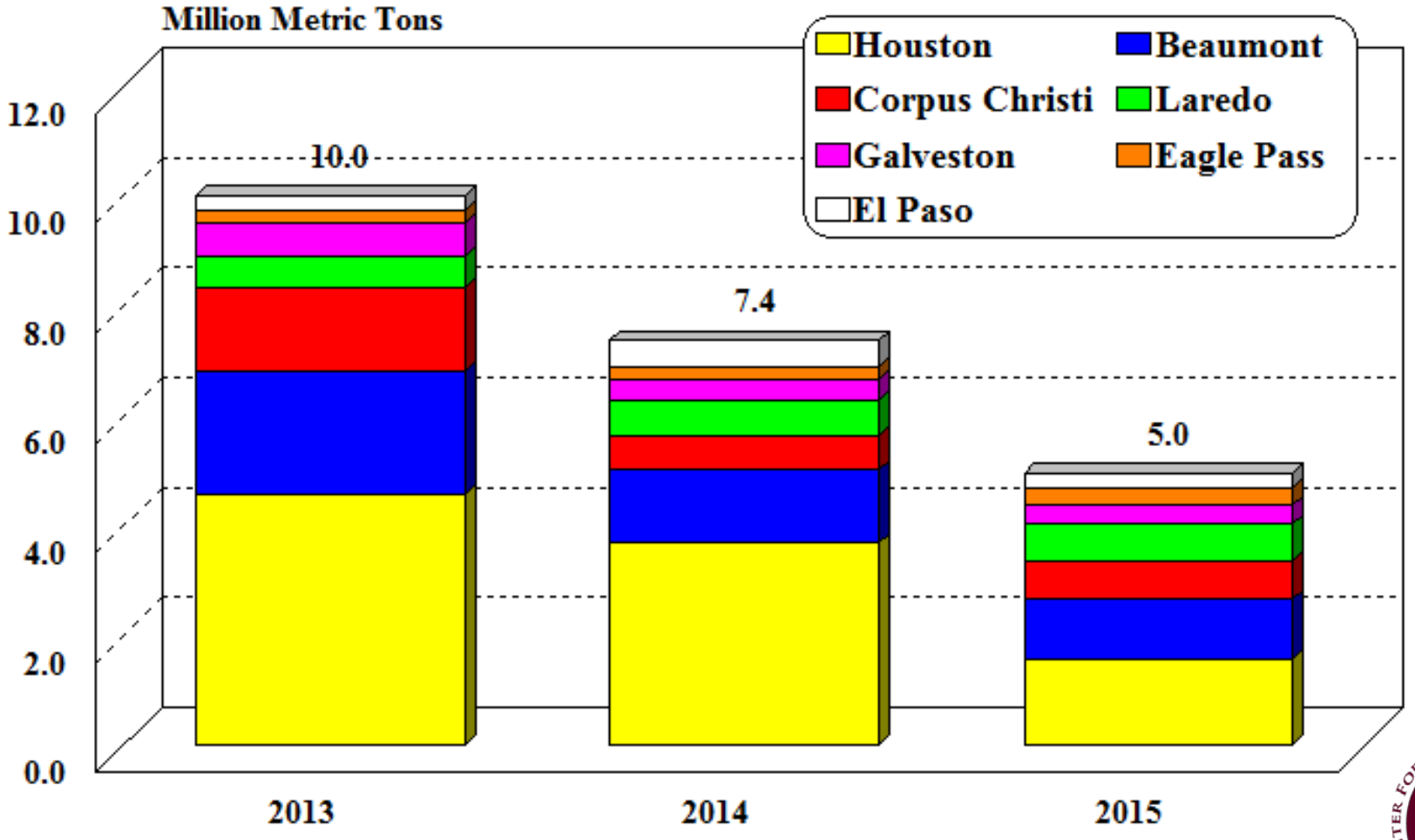
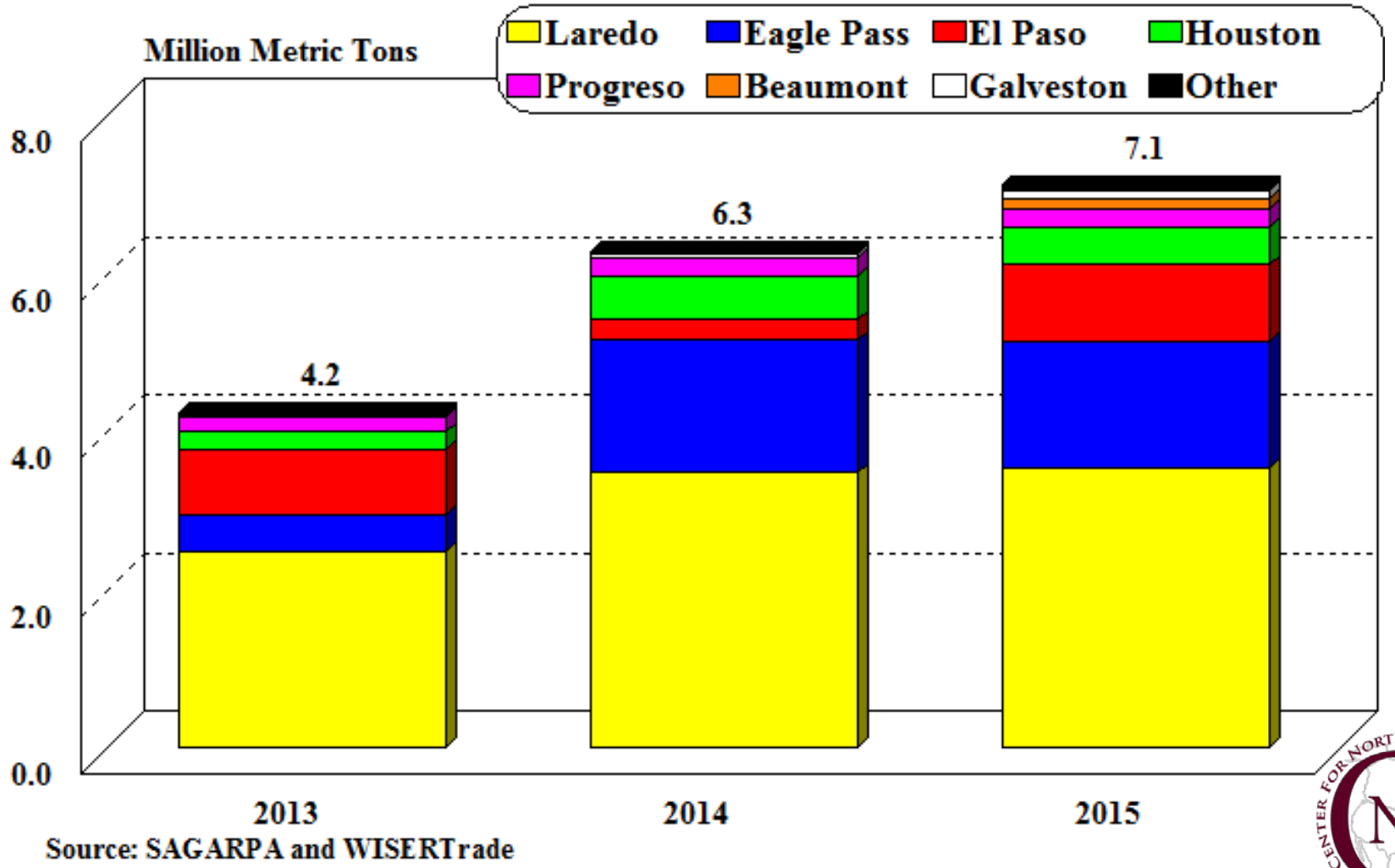
U.S. Wheat Exports through Texas by Port



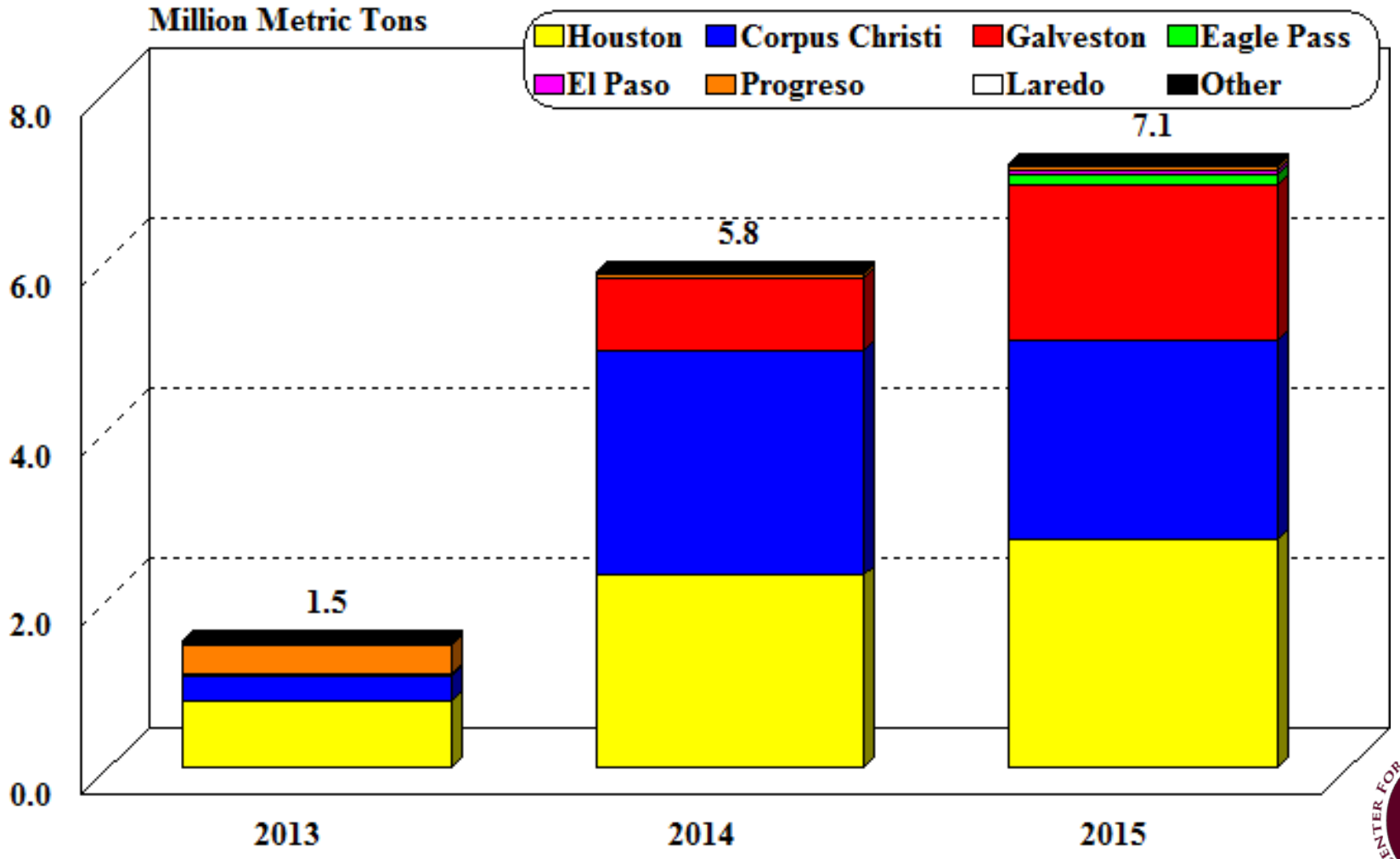
Source: SAGARPA and WISERTrade

U.S. Corn Exports through Texas by Port



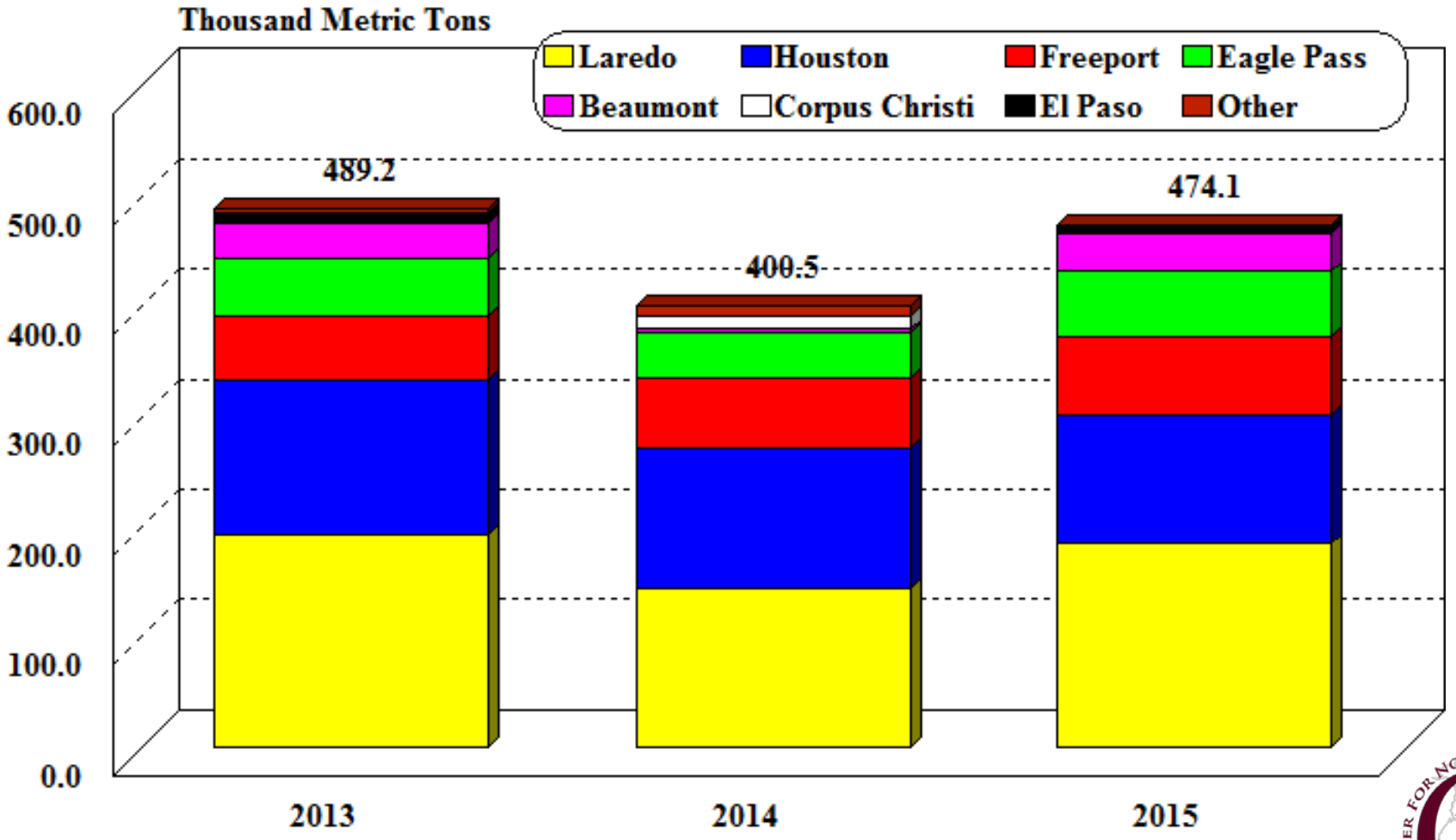
Source: SAGARPA and WISERTrade

U.S. Sorghum Exports through Texas by Port



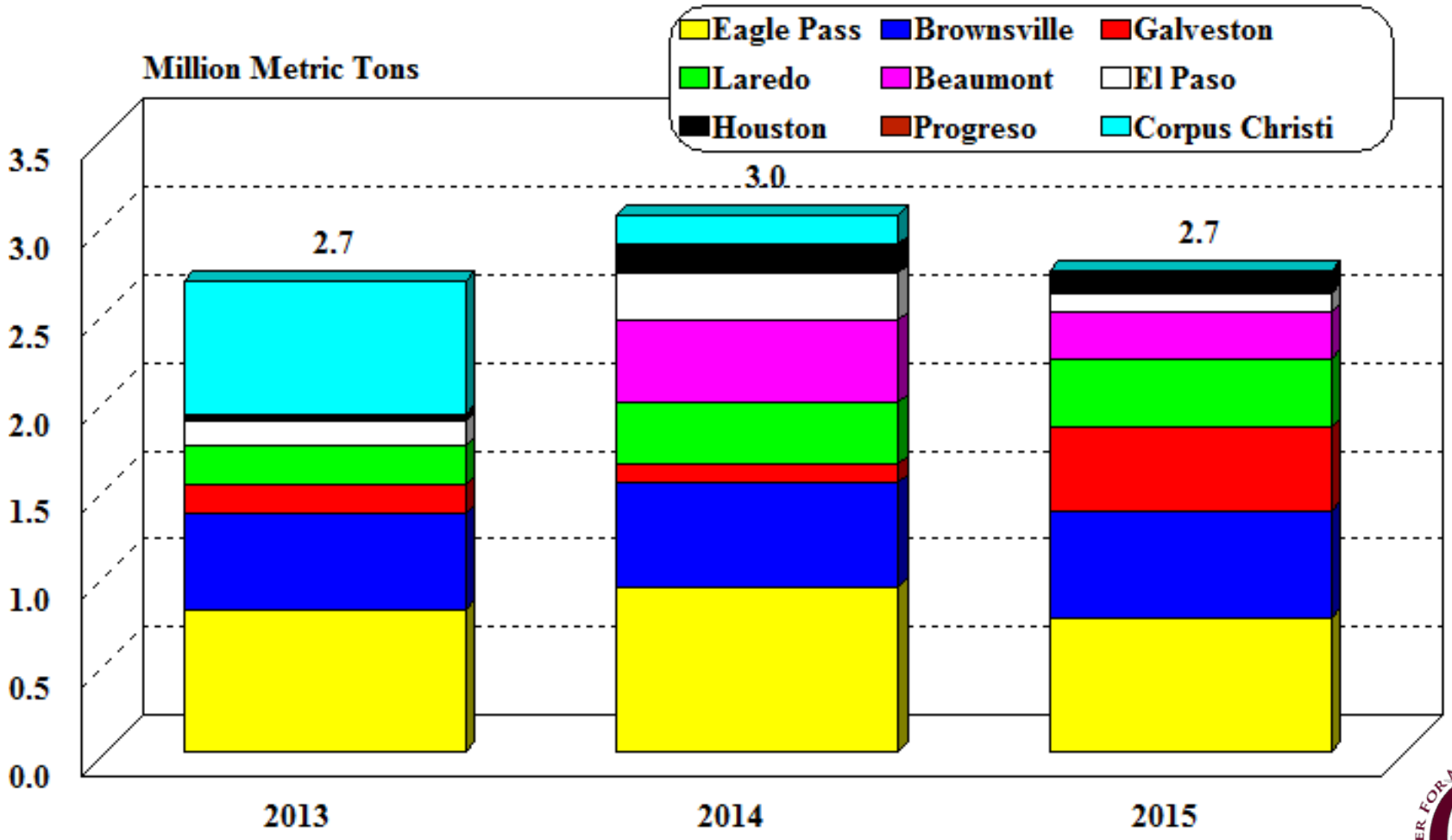
Source: SAGARPA and WISERTrade

U.S. Rice Exports through Texas by Port



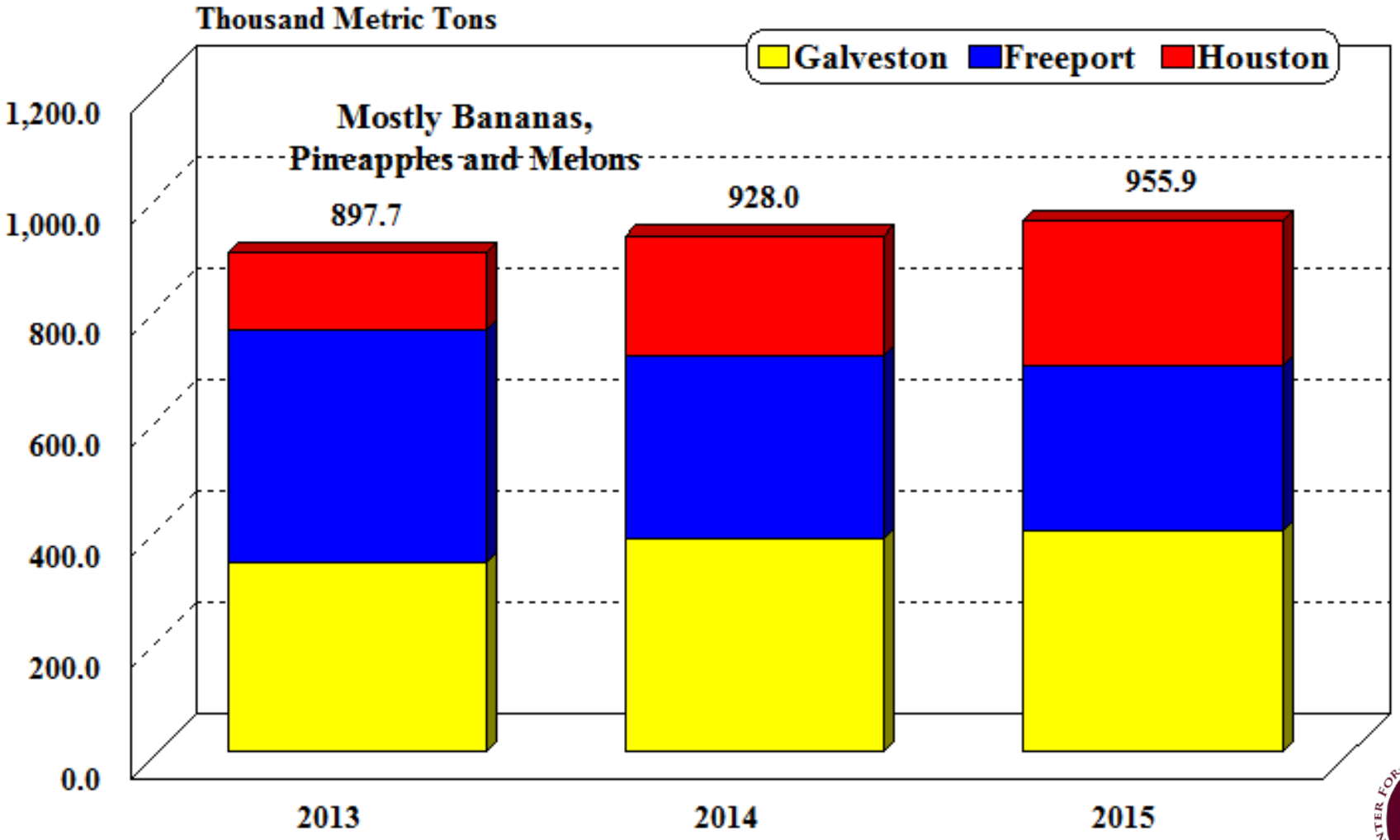
Source: SAGARPA and WISERTrade

U.S. Soybean Exports through Texas by Port



Source: SAGARPA and WISERTrade

U.S. Fruits/Nut Imports through Texas by Seaport



Source: WISERTrade

Other Important Exports and Imports through Texas Ports

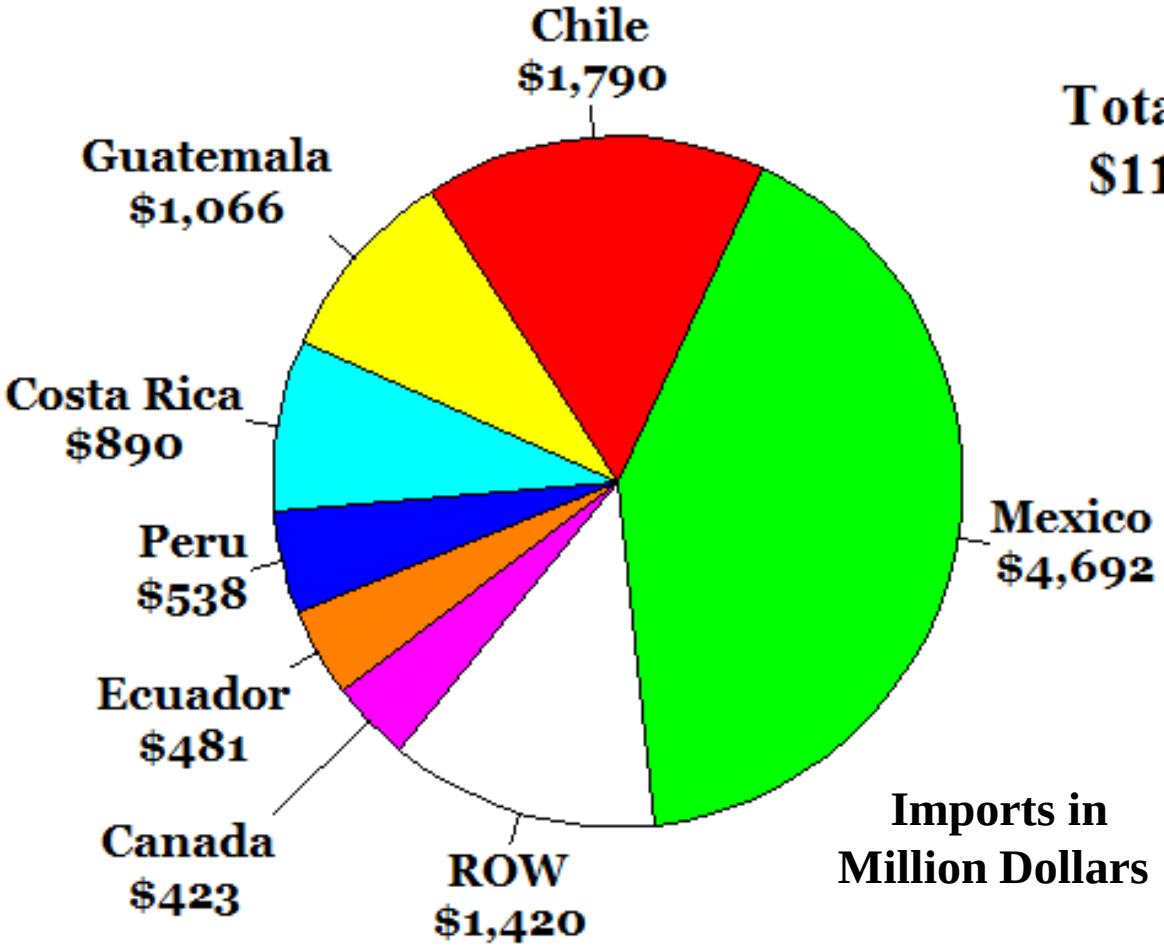
- **Houston: Fats/Oils, Dry Beans, Peanut Exports; Beverages, Sweeteners, Gums/Resins, Coffee Imports**
- **Houston: Major Markets – China, Africa, Mexico, Central and South America, Turkey**
- **Houston/Galveston/Freeport: Major Sources – Central America**
- **Cotton – *More Later***
- **Meats and Cattle – *More Later***
- **Fresh Fruit and Vegetables from Mexico – *More Now***

U.S. Fruits and Vegetable Trade

- U.S. Fruits and Vegetables Industry (2015)
  - Value of domestic production: $36.5 billion
  - Value of fresh and frozen exports: $8.5 billion
  - Value of fresh and frozen imports: $20.1 billion

- What Follows is a Summary of Work Done for Texas International Produce Association

Sources of Imported Fresh and Frozen Fruits to the U.S., 2015



Source: FAS/USDA, Global Agricultural Trading System, www.fas.usda.gov/gats/default.aspx

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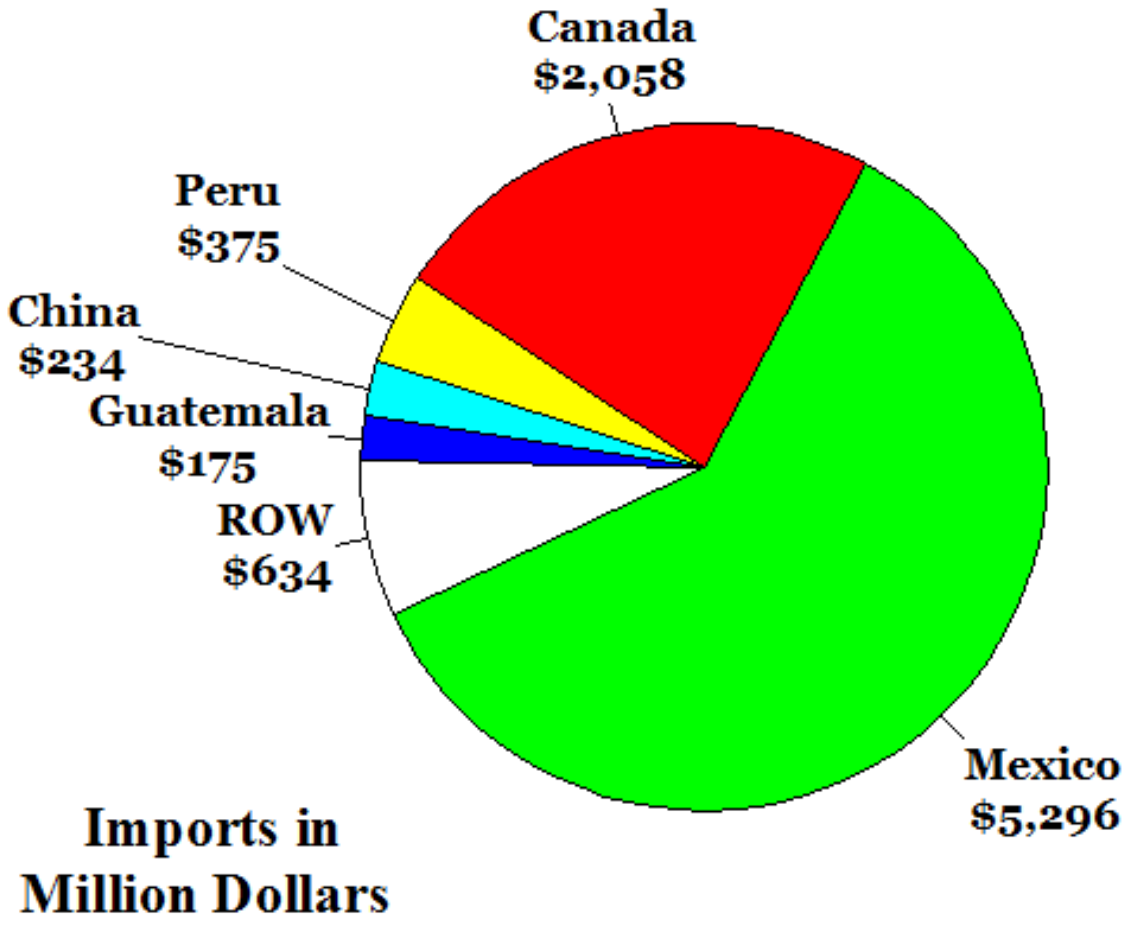
Sources of Imported Fresh and Frozen Vegetables to the U.S., 2015



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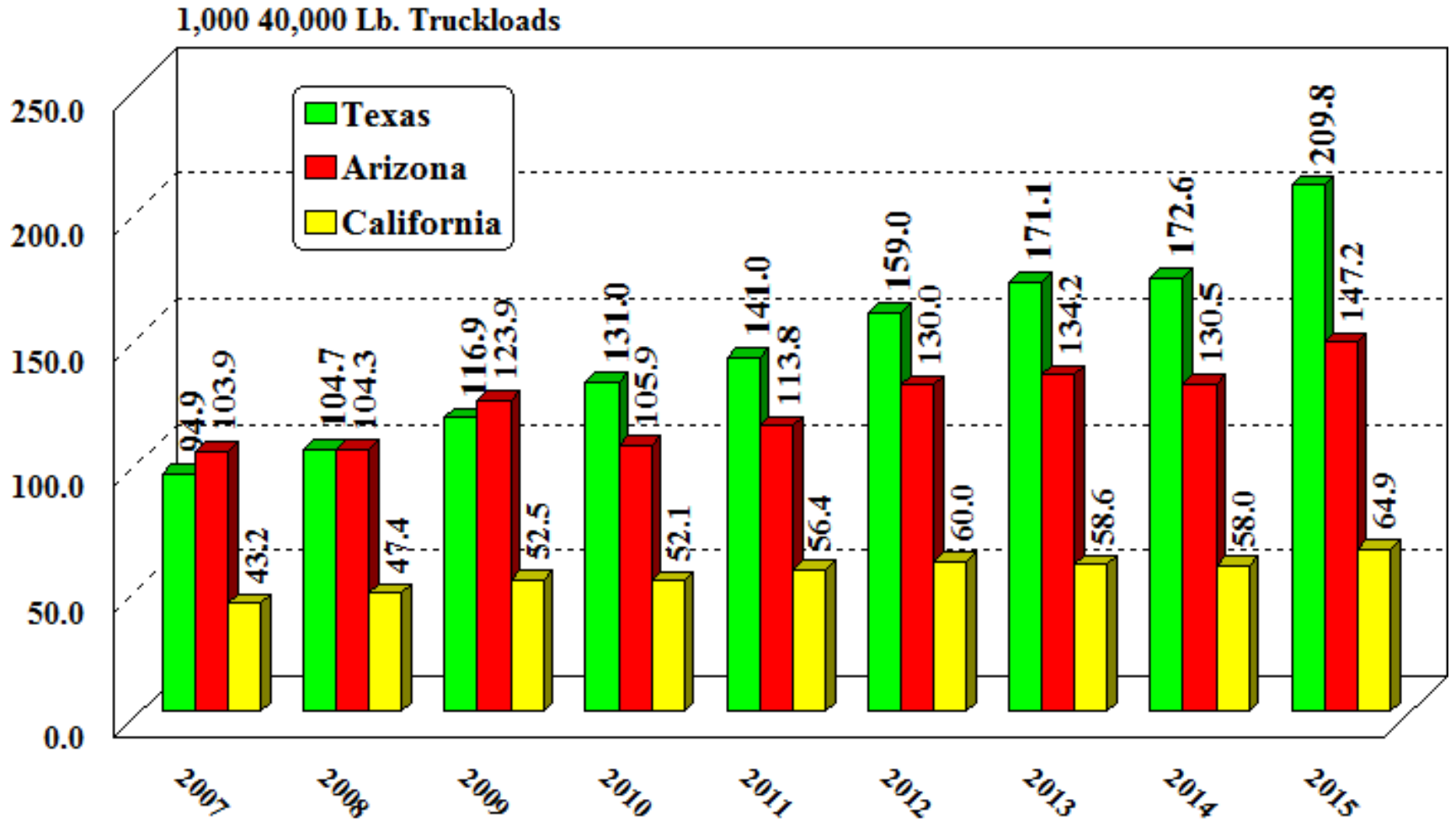
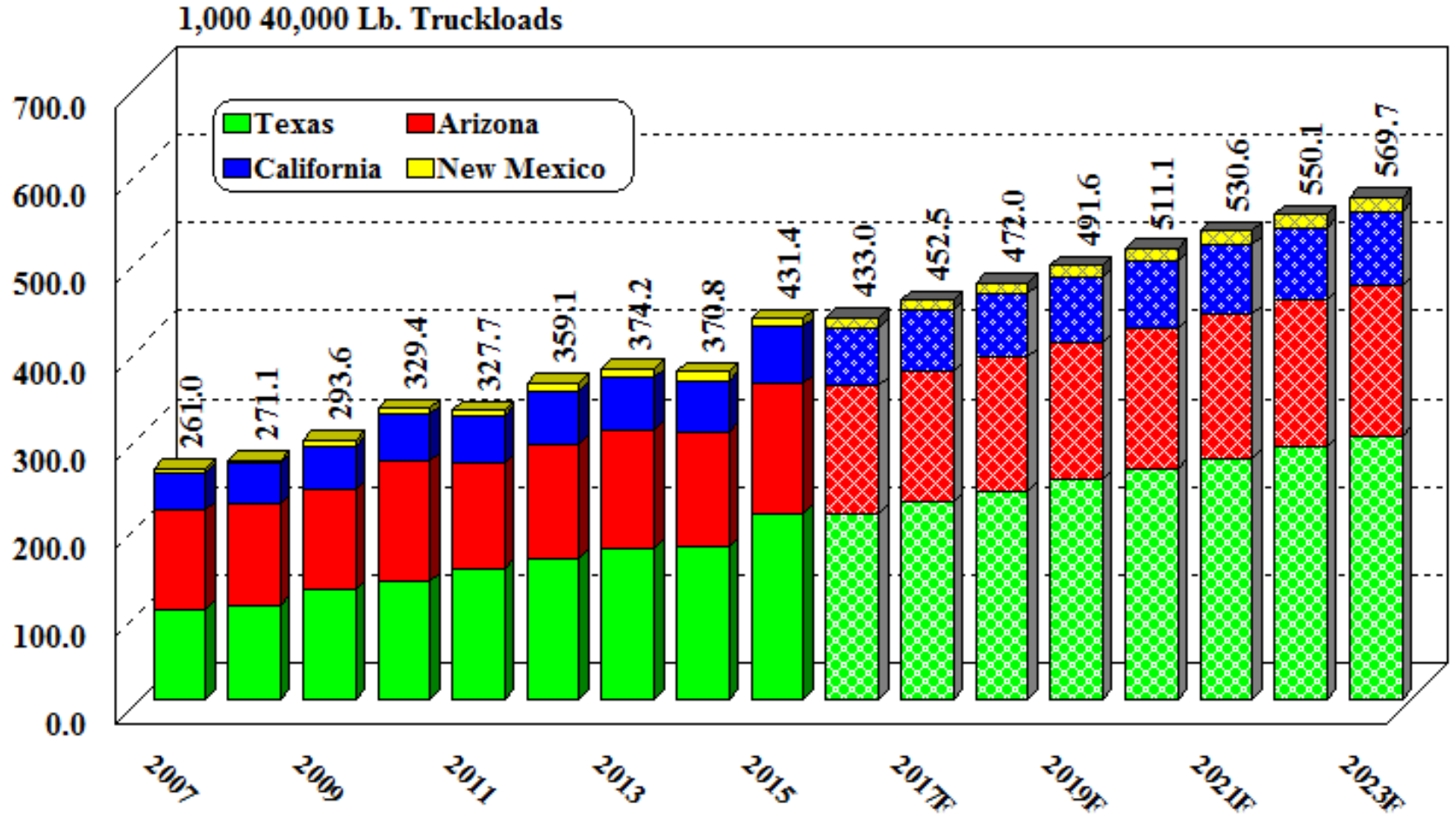
U.S. Imports of Fresh Produce from Mexico by Truck, 2007-2015



Source: Agricultural Marketing Service, USDA and Department of Agricultural Economics, Texas A&M Univerisy System

U.S. Imports of Fresh Produce from Mexico by Truck, 2007-2023F, Baseline



Source: Agricultural Marketing Service, USDA and Department of Agricultural Economics, Texas A&M Univerisy System
2016-2023 Forecast based on 2007-2015 Model

U.S. Imports of Fresh Produce from Mexico by Truck, Main Ports of Entry, 2015

Port of Entry	40,000# Units
Nogales, AZ	**141,119**
Pharr, TX	**131,850**
Otay Mesa, CA	48,628
Laredo, TX	46,253
Progreso, TX	16,759
Rio Grande City, TX	11,633
All Other Ports	35,131

Source: AMS/USDA

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Addressing Border Issues Previously Cited by Industry

- Employee breaks and lunches halt inspections
- Shutting down inspections early
- Hours of operation too short
- Not enough inspectors *(More have been added)*
- Allow inspectors the authority to identify pests which are easily identifiable *(More are getting)*
- Not enough personnel with cargo release authority *(More are getting this authority)*
- Need improved management of resources
- Inefficient process for placement of verification seals
- The hours of operation for both FDA and CBP differ *(APHIS also has different hours)*
- Lack of education
- Need to send pests to off-site APHIS facilities *(Entomologist now located on-site at Pharr)*

(Report for TDA, August 2014)

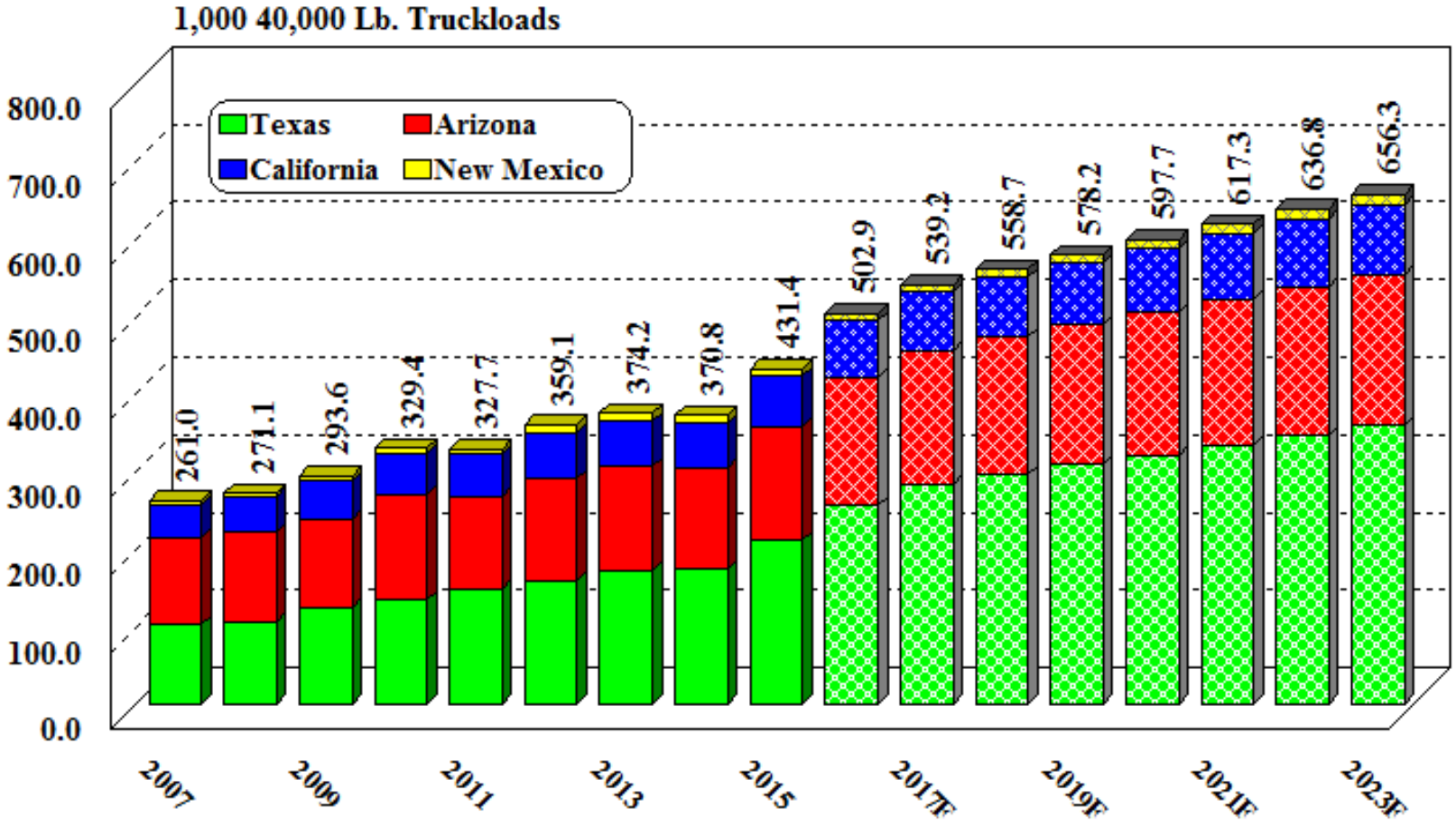
Major Highway Network in Mexico

2006

2012 (Now)

Source: Government of Mexico

U.S. Imports of Fresh Produce from Mexico by Truck, 2007-2023F, w/Industry Input



Source: Agricultural Marketing Service, USDA and Department of Agricultural Economics, Texas A&M Univerisy System
2016-2023 Forecast based on 2007-2015 Model and Industry Input

Economic Impacts of U.S. F&V Imports from Mexico

Summary of Economic Activity from U.S. Produce Imports from Mexico over Land Borders, 2015 and 2023 Forecast with Industry Input

	TX/NM/AZ/CA		Texas	
	2015	2023F	2015	2023F
Total Truckloads	431,373	656,303	209,817	357,881
Direct Economic Output	*Million Dollars*			
Warehousing	$168.2	$255.7	$81.8	$139.9
Truck Transportation	$129.4	$196.7	$62.9	$107.6
Sorting, Grading and Packing	$82.2	$125.0	$46.9	$80.2
Customs Brokering	$64.7	$98.4	$31.5	$53.8
Miscellaneous Border Services	$35.6	$54.1	$17.3	$29.6
Total Direct Economic Output	$480.2	$729.8	$240.4	$411.2
Total Supporting Economic Output	$535.7	$814.4	$236.3	$404.0
Total Economic Output	$1,015.9	$1,544.2	$476.7	$815.2
Total Jobs Supporting Produce Imports	8,485	12,897	4,510	7,712

F&V Conclusions

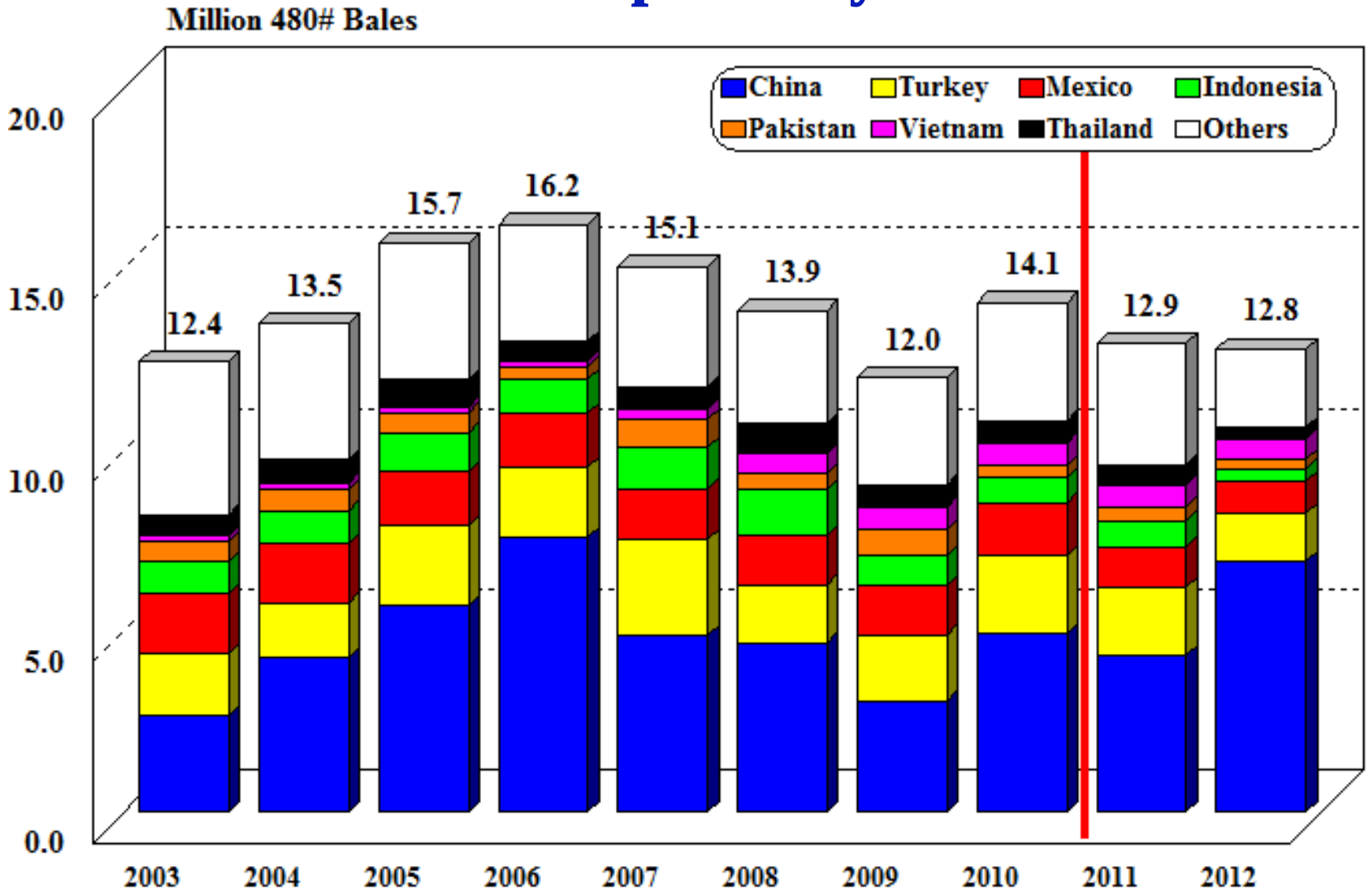
- U.S becoming more dependent on Fruits and Vegetables
- Food safety will continue to be a big issue
- Increase produce trade with Mexico through Texas
  - Pharr could soon become #1 port-of-entry
- More infrastructure and personnel needed
- Cutting transportation time crucial to fruit and vegetable quality

U.S. Cotton Exports and the Panama Canal

- In 2011, Assessed Impacts of the **Panama Canal Expansion Project** on **U.S. Cotton Exports by Port** for **AMS/USDA**
  - *Results of Costa and Rosson Paper presented here*
- Evaluate PCE Impacts on **U.S. Cotton Export Flows, Export Levels, Prices & Revenues**
- Found that PCE Will Shape **Future Competitive Position** of **U.S. Cotton Production & Exports**
- Evaluate impacts on other **exporting countries**
- **Spatial Equilibrium Model** of the **International Cotton Industry** 2008/09 MY

U.S. Cotton Exports and the Panama Canal

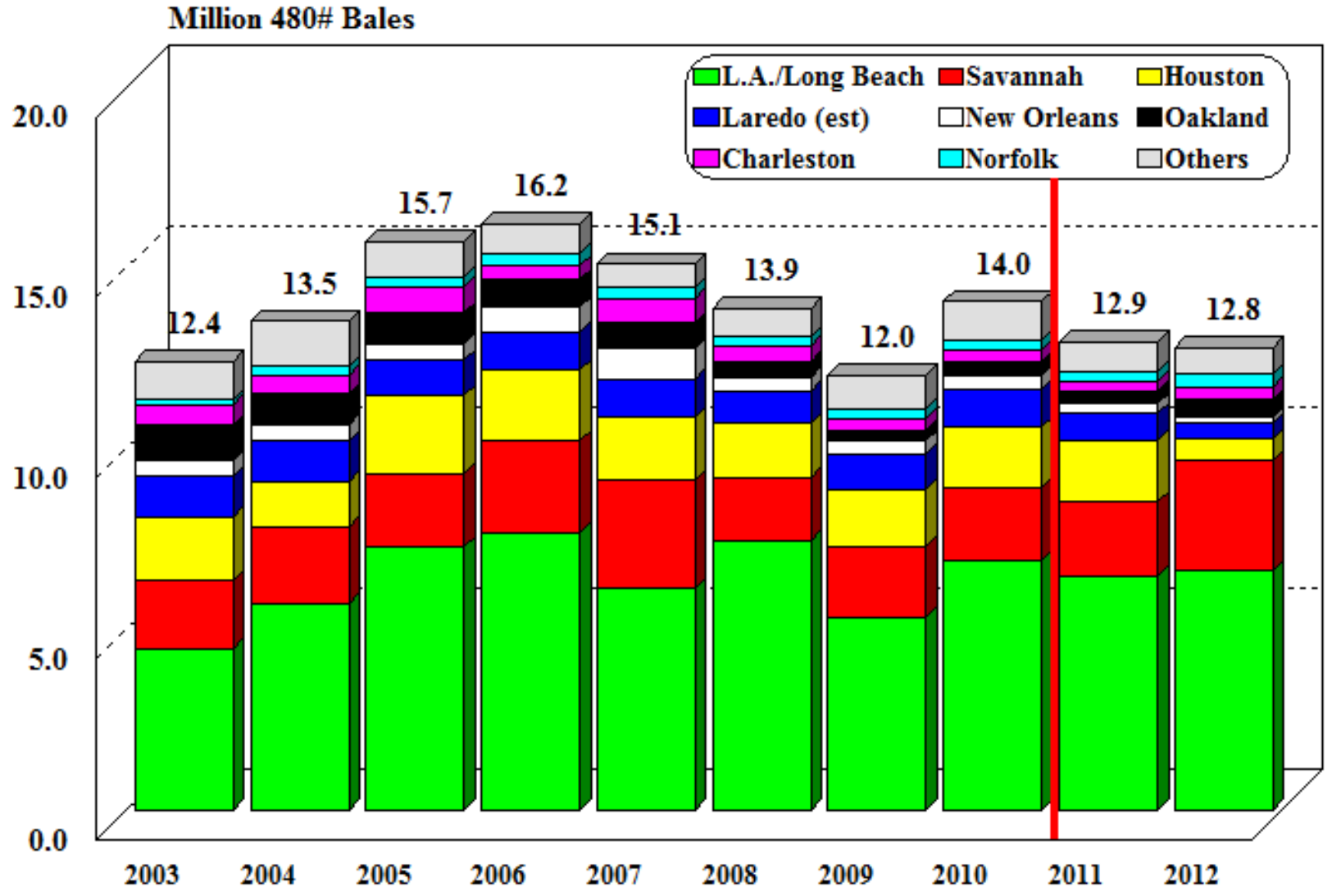
U.S. Cotton Exports by Destination



Source: Global Agricultural Trade System (GATS), USDA Foreign Agricultural Service, http://www.fas.usda.gov/gats/default.aspx

U.S. Cotton Exports and the Panama Canal

U.S. Cotton Exports by Port



Source: Global Agricultural Trade System (GATS), USDA Foreign Agricultural Service, http://www.fas.usda.gov/gats/default.aspx

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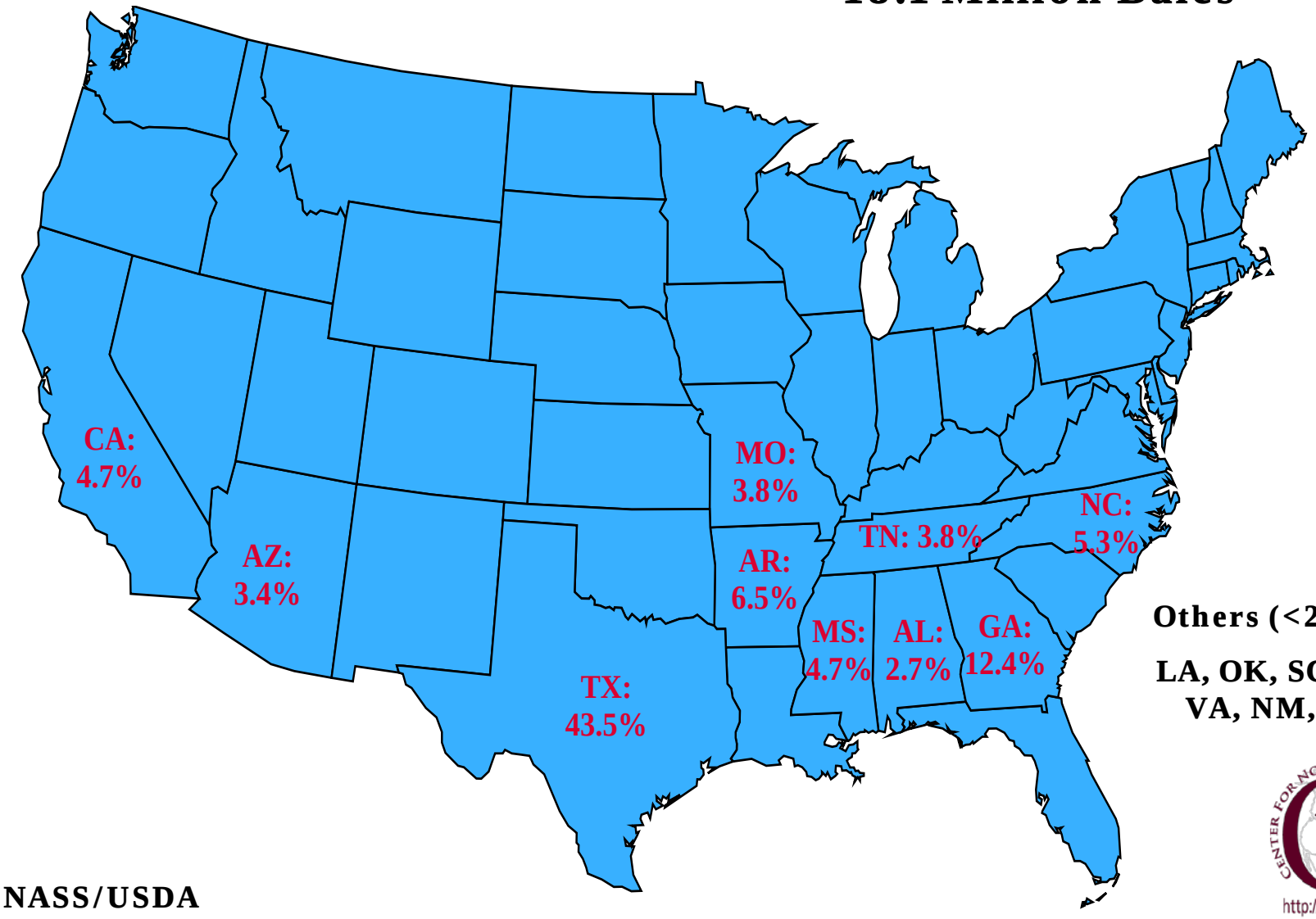
U.S. Cotton Production by State, 2010

Total Production:

18.1 Million Bales



Others (<2.5%):

LA, OK, SC, FL, VA, NM, KS

Source: NASS/USDA

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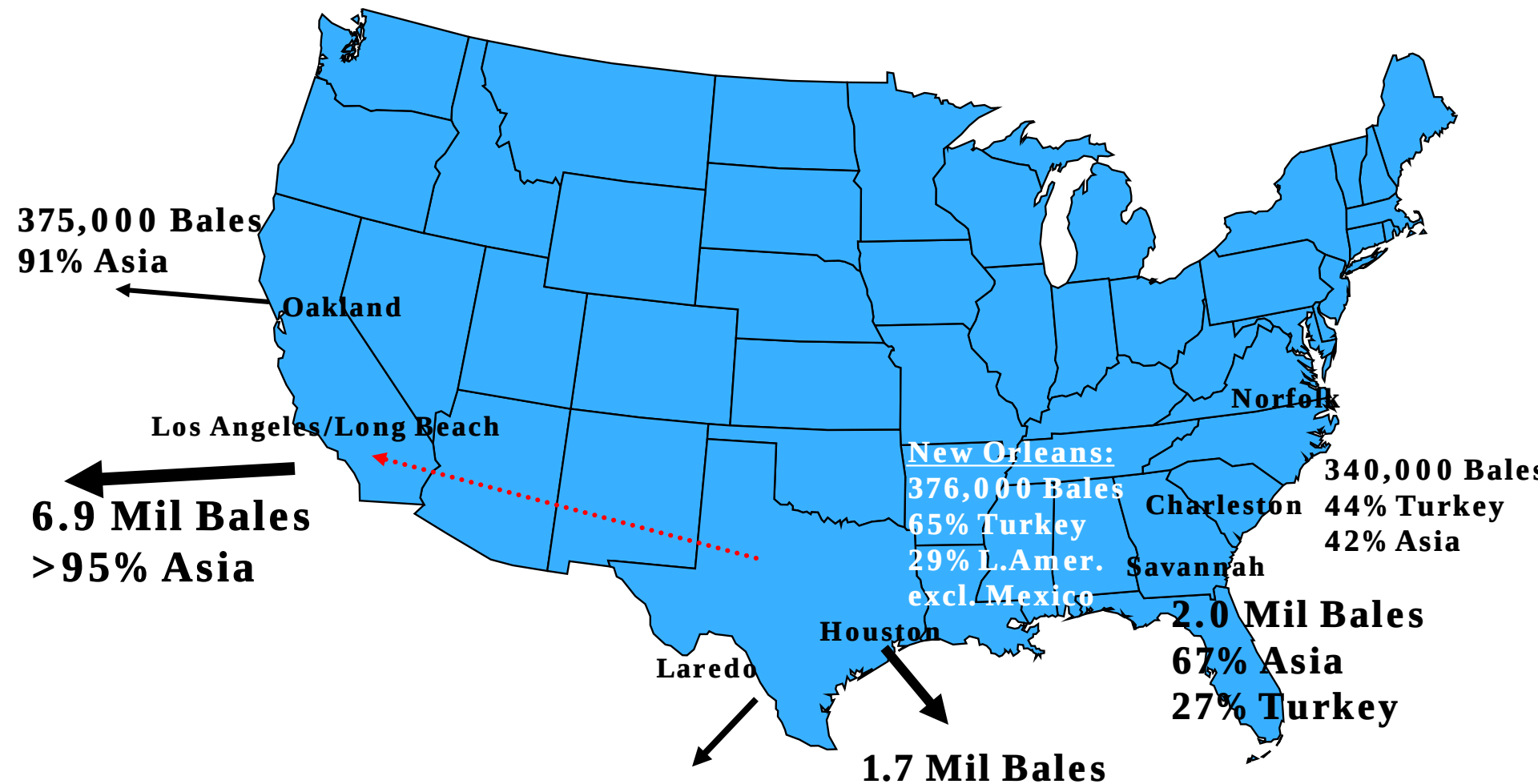
U.S. Cotton Exports by Port & Destination, 2010



Source: WISERTrade

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Panama Canal Importance to U.S. Cotton Exports

- In 2010, **1.34 million** bales from **Norfolk, Charleston, and Savannah** exported to **East Asia** via **Panama Canal**
  - This represents **~10%** of the total U.S. exports

- **Panama Canal** previously could **not handle post-Panamax** vessels (12,000 TEUs)

- **U.S. cotton exports** via the **Panama Canal** were via smaller **Panamax** vessels (<5,000 TEUs)

Panama Canal Expansion (PCE) & Costs

- **Economies of scale** in maritime shipping
  - 36% of the world containerized fleet is Post-Panamax vessels (up to 12,000 TEU) (2011)
  - After **PCE**, **shipping costs** per container likely **decline 40%**
- **Cost structure**
  - **Panamax** vessel **operational costs** of **$2,314/TEU** (4,000 TEU)
  - **Post-Panamax** vessel **operational costs** of **$1,449/TEU** (10,000 TEU)

Panama Canal Expansion

- **Transit time** vs. **PCE Cost Savings**
  - **East Coast to China** (Shanghai port) route via the **Panama Canal** (all-water) is **7-8 transit days longer** than the **Intermodal Option** (rail to West Coast ports)
  - **Intermodal Option** across U.S. is **more efficient** time-wise
  - But, the **all-water** route from the **East Coast** is about **$490/TEU cheaper** than the **Intermodal Option**
  - This **cost differential** corresponds to a **savings** of **~$70/TEU/day** ($490/TEU/7 days)
  - **PCE** will reduce maritime costs at least **$210/TEU** for the **East Coast ports to China**

Panama Canal Expansion

- Toll Charges
  - Recent **toll increases** captured **1/3 of the potential savings** of the expansion or **$70/TEU of $210/TEU**

- In the end, **PCE** will reduce maritime costs for shipments from the **Gulf & South Atlantic ports** to **China** by **$140/TEU**
  - **28% reduction** ***($140/$490 = 28%)***

Results

Most Likely Scenario (2): **28%** Reduction in Ocean Freight rates Due to PCE

- **Panama Canal expansion** is expected to **increase cotton exports** via the **Panama Canal**
- **U.S. Gulf and Atlantic ports** should **increase** cotton exports
- **Pacific Coast ports**, however, would experience a **reduction** in cotton exports
  - *Note:* Scenario 1 is 10% Reduction in Rates; Scenario 3 is Scenario 2 + 10% Reduction in LA/LB Rates

Results for 28% Reduction in Ocean Freight, Gulf & South Atlantic Ports

Port	Base Model	Scenario 1	Change (%)	Scenario 2	Change (%)	Scenario 3	Change (%)
Savannah	**2,236.7**	**3,907.5**	**74.7**	**4,450.9**	**99.0**	**3,903.3**	**74.5**
Houston	**1,551.8**	**2,046.2**	**31.8**	**2,434.5**	**56.9**	**1,795.6**	**15.7**
New Orleans	**514.7**	**724.2**	**40.7**	**1,197.8**	**132.7**	**1,144.7**	**122.4**
Charleston	338.3	534.3	57.9	875.6	158.8	577.9	70.8
Norfolk	282.2	333.5	18.2	617.9	118.9	579.9	105.5
Gulfport	45.3	20.9	-54.9	20.5	-54.9	0.0	-100.0
Mobile	72.8	24.0	-67.0	0.0	-100.0	0.0	-100.0
Total U.S. Gulf and Atlantic	*5,041.8*	*7,590.6*	*50.5*	*9,597.2*	*90.3*	*8,001.4*	*58.7*
L.A.-Long Beach	**6,163.3**	**3,697.2**	**-40.0**	**1,879.5**	**-69.5**	**3,827.7**	**-37.9**
Oakland	**343.8**	**343.6**	**-0.1**	**343.3**	**-0.1**	**45.4**	**-86.8**
Total West Coast	***6,507.1***	***4,040.8***	***-37.9***	***2,222.9***	***-65.8***	***3,873.1***	***-40.4***
Laredo-El Paso	1,141.3	1,296.7	13.6	1,269.5	11.2	1,264.6	10.8
Hidalgo-Brownsville	340.6	176.6	-48.1	179.2	-47.4	179.6	-47.3
Total U.S.-Mexico Border Ports	*1,481.9*	*1,473.3*	*-0.6*	*1,448.7*	*-2.2*	*1,444.2*	*-2.5*
Total U.S. Ports	***13,030.8***	***13,104.7***	***0.6***	***13,268.8***	***1.8***	***13,318.7***	***2.2***

Cotton/PCE Summary

Panama Canal Expansion Will Play Major Role in Future of U.S. Cotton Exports

- ✓ **Total U.S. cotton exports increase by 238,000 Bales,** or **2%**
- ✓ **Gulf and S. Atlantic ports increase cotton exports by 4.6 Million Bales** or **90%**
- ✓ **West Coast ports exports decline by 4.3 Million Bales or 66%**

Similar Impacts for Other Ag Products?

- **Probably, but to a Lesser Degree than Cotton**
- **Soybeans – Most Exports to Asia Shipped through LA, WA, and VA, Closer to Source**
- ***But,* CA Ports Account for 3.9% of (1.2 MMT) Soybean Shipments to Asia while Producing no Soybeans**
  - **Must come from considerable distance as only minimal amounts produced west of Great Plains**
- **Corn – Most Exports to Asia Shipped through LA and WA, Closer to Source**
- ***But,* CA Ports Account for 5.6% (680 TMT) of Corn Shipments to Asia while Producing Minimal Amounts**
  - **Likely comes from considerable distance as only minimal amounts produced in nearby states**

Similar Impacts for Other Ag Products?

- **Rice – Most Rice Exported to Asia Shipped via CA Ports, but CA Grows about ¼ of U.S. Rice**
  - **Unlikely to shift**
- **Wheat – Most Wheat Exported to Asia Shipped via WA and LA Ports**
  - **Both are nearest to large production areas**
- **Meats, Fruits and Vegetables – Most of What is Shipped to Asia is via CA Ports**
  - **Unlikely to change as production centers are nearby and/or lower transit times are extremely crucial for these product categories**

Cotton/PCE Conclusions

- PCE Impacts Could Be Larger than Estimated
- Competitive Position of **U.S. Cotton Enhanced**
- **Gulf & South Atlantic Ports** Stand to **Gain**
  - ➢ Constraints: Depth, Land Area & Funding
- Infrastructure Improvement & Gains Follow Port Development
  - ✓ Roads, Bridges, Power Supplies, etc.
- Could Have Similar Impacts for Soybeans and Corn Shipped Out of CA Ports to Asia
- Now that it is Finally Open, We'll See!!

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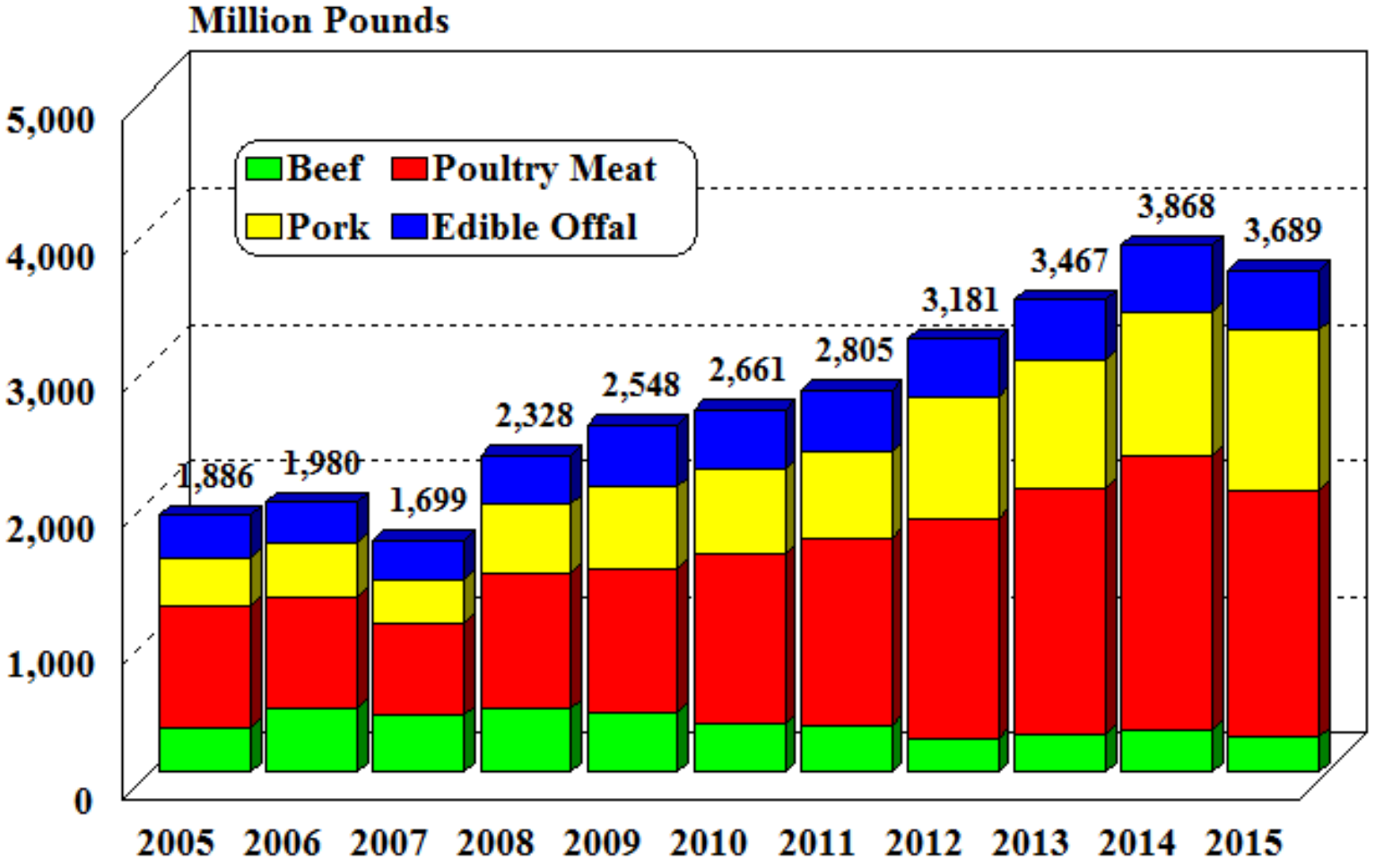
U.S. Meat and Cattle Trade with Mexico

- Conducted Study for AMS/USDA on the Impacts of Improved Mexican Infrastructure on U.S. Meat Complex *(Final Report under Review)*
- Meat Exports to Mexico have Generally Increased
  - Beef has fluctuated and down from highs, Pork and Poultry Meat have continued to grow, Offal has remained steady
- Beef Imports from Mexico have Grown Significantly while Cattle Imports Up and Down
- Most Exports and Beef Imports through Texas Ports
- Cattle Imports Evenly across 3 Customs Districts

Meat Trade with Mexico

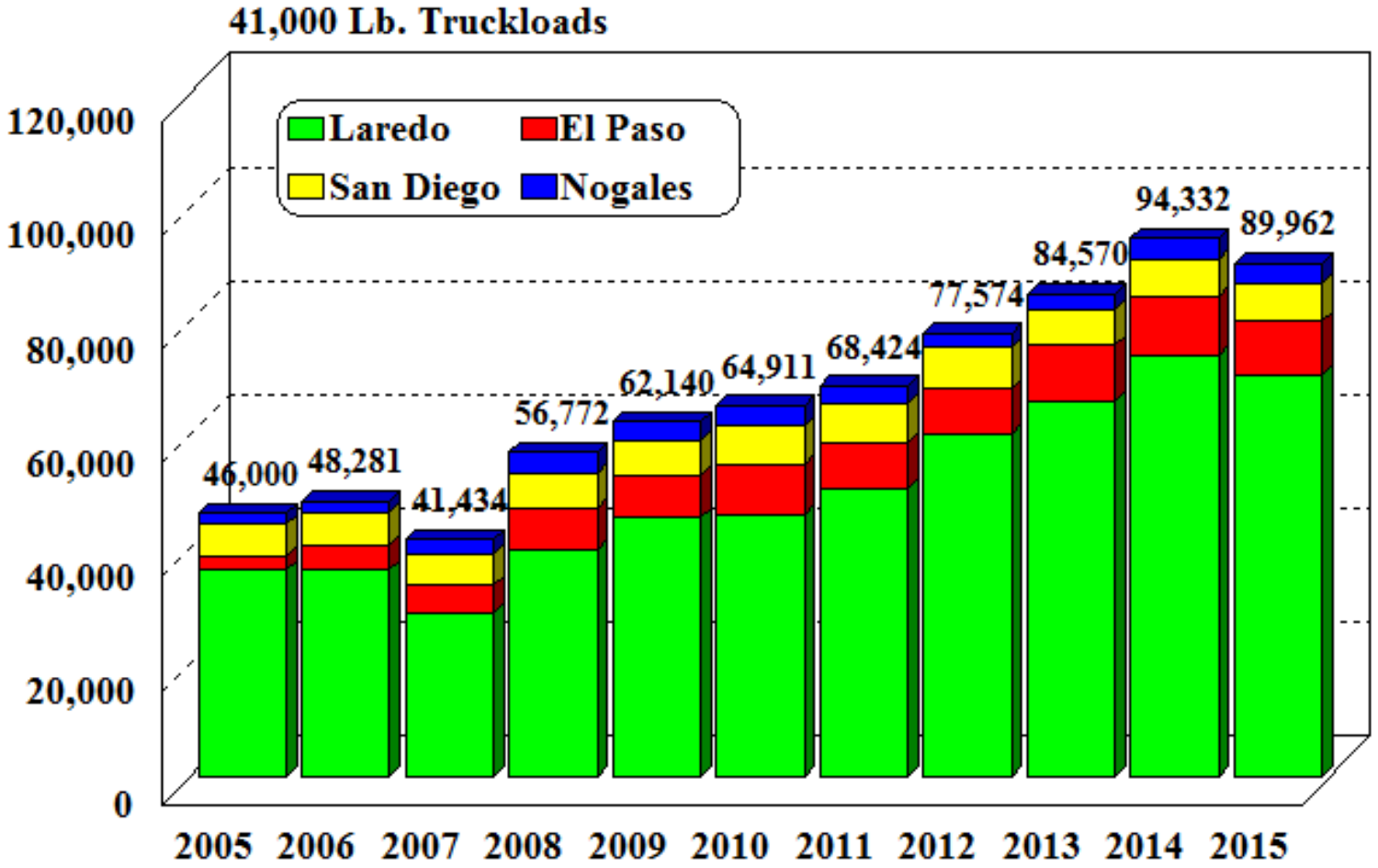
U.S. Exports of Beef, Pork, Poultry Meat and Edible Offal to Mexico via Truck



Source: USDA/FAS Global Agricultural Trading System

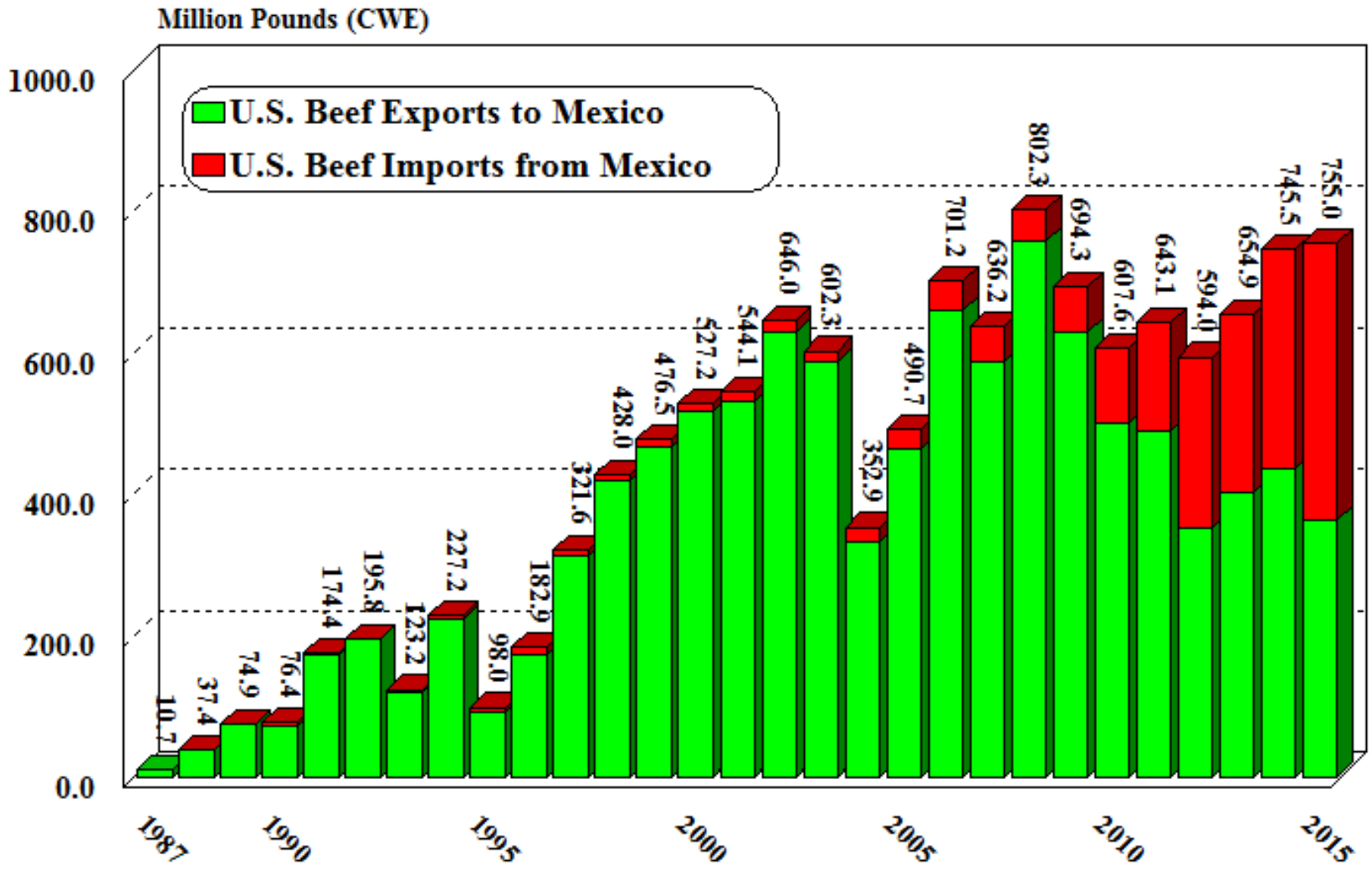
Meat Trade with Mexico

U.S. Meat Exports to Mexico via Truck by Port



Source: USDA/FAS Global Agricultural Trading System

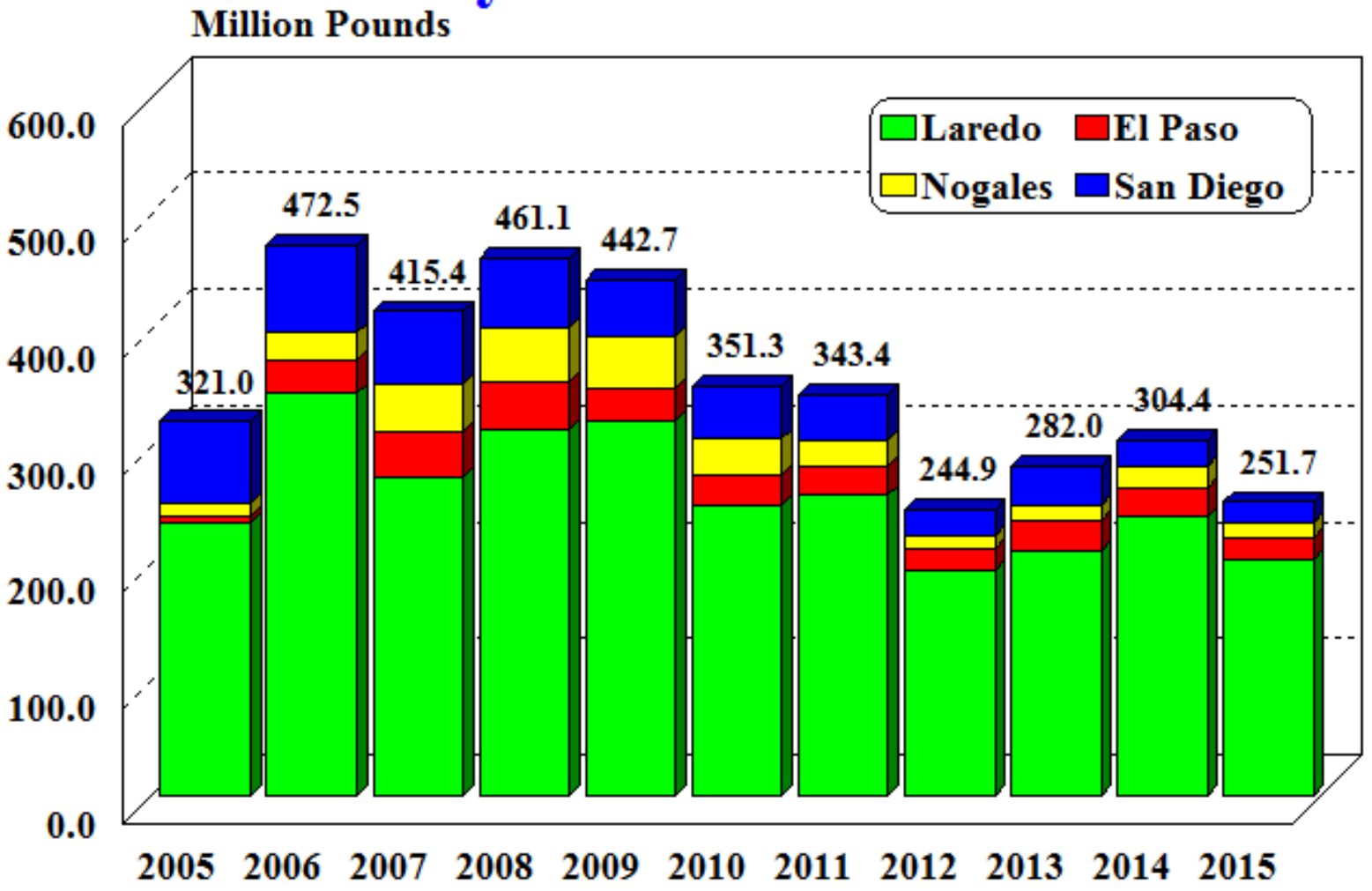
Meat Trade with Mexico



Source: http://www.ers.usda.gov/data-products/livestock-meat-international-trade-data.aspx

Meat Trade with Mexico

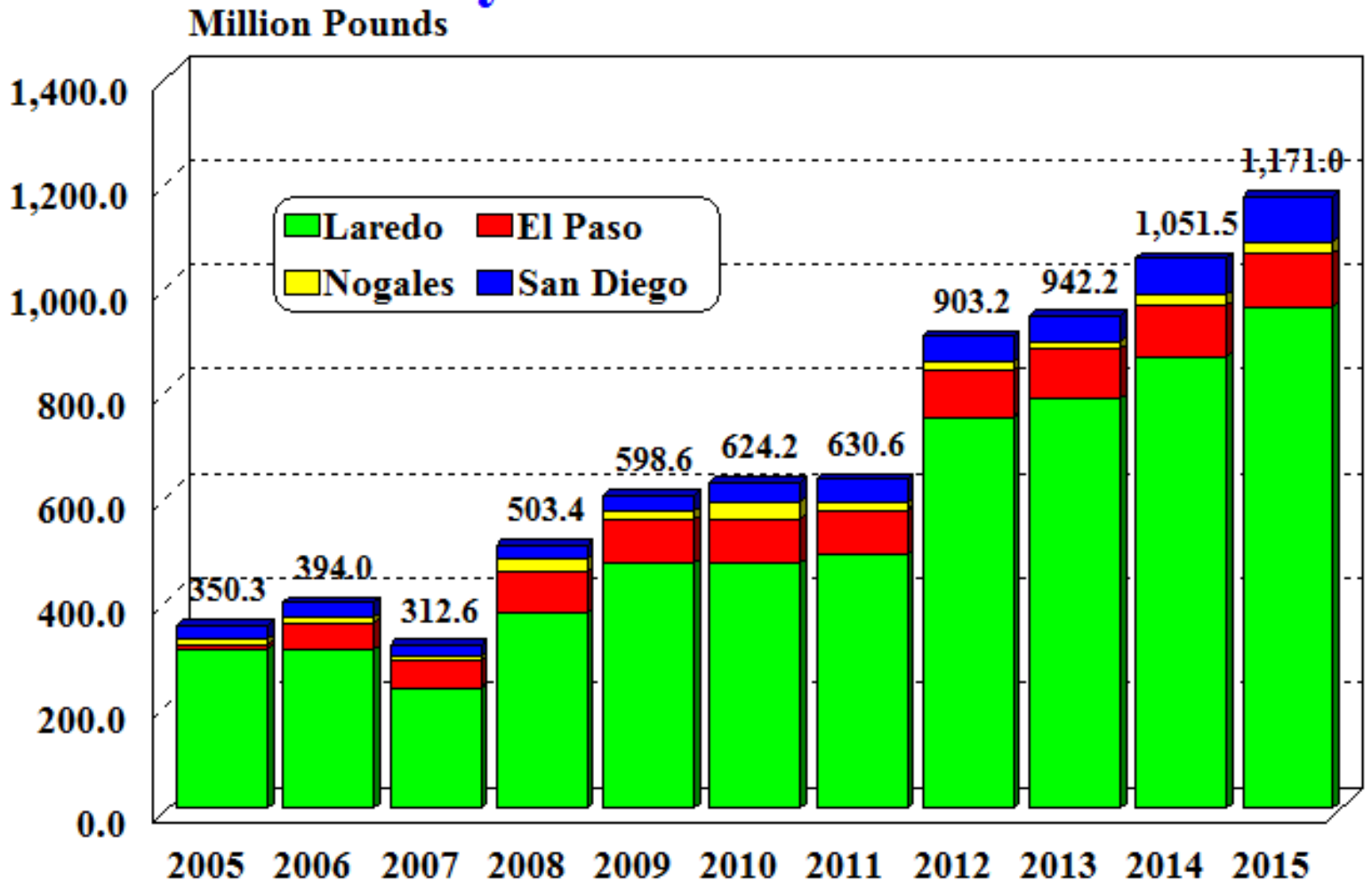
U.S. Exports of Beef to Mexico by Port District



Source: USDA/FAS Global Agricultural Trading System

Meat Trade with Mexico

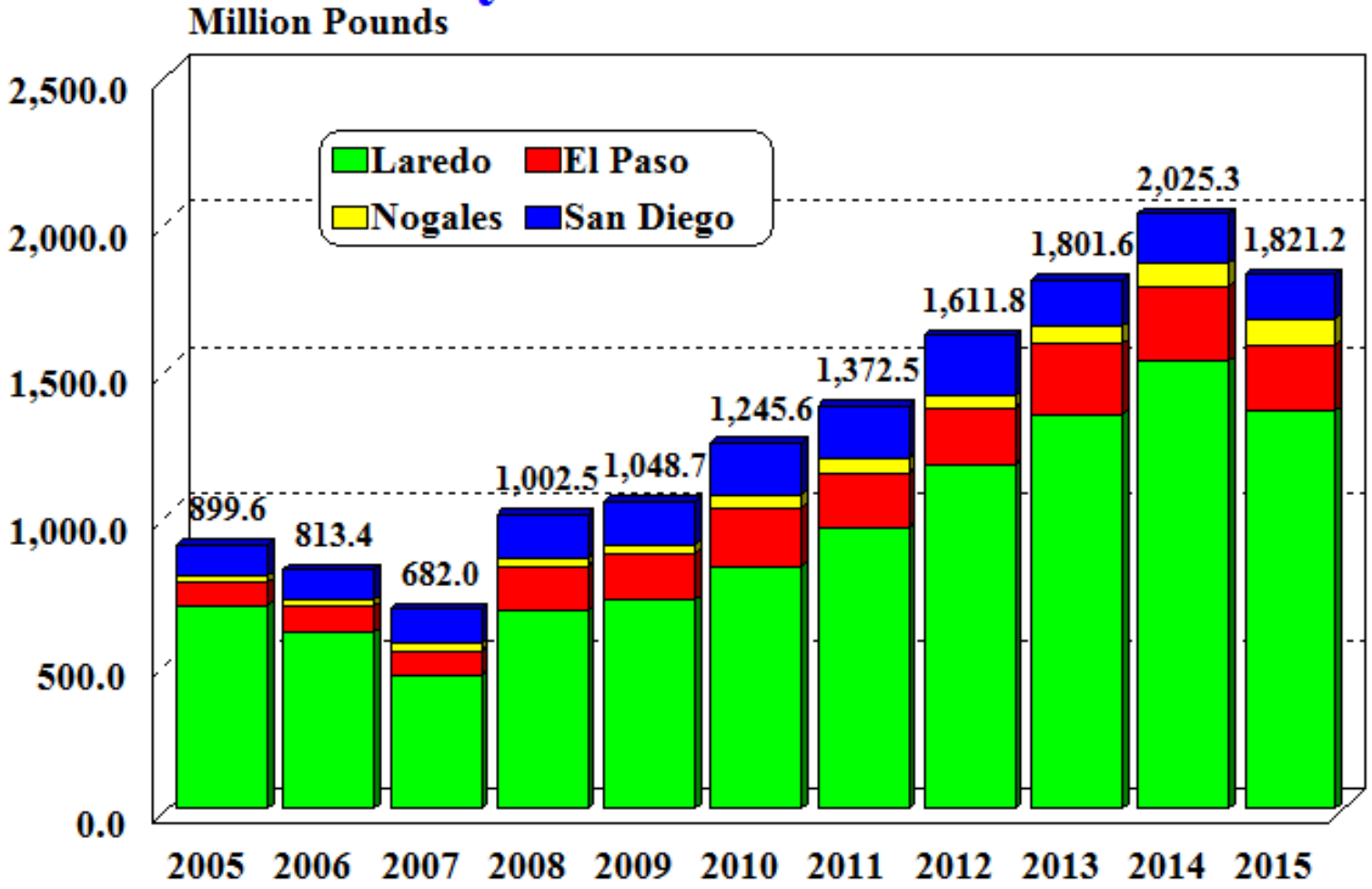
U.S. Exports of Pork to Mexico by Port District



Source: USDA/FAS Global Agricultural Trading System

Meat Trade with Mexico

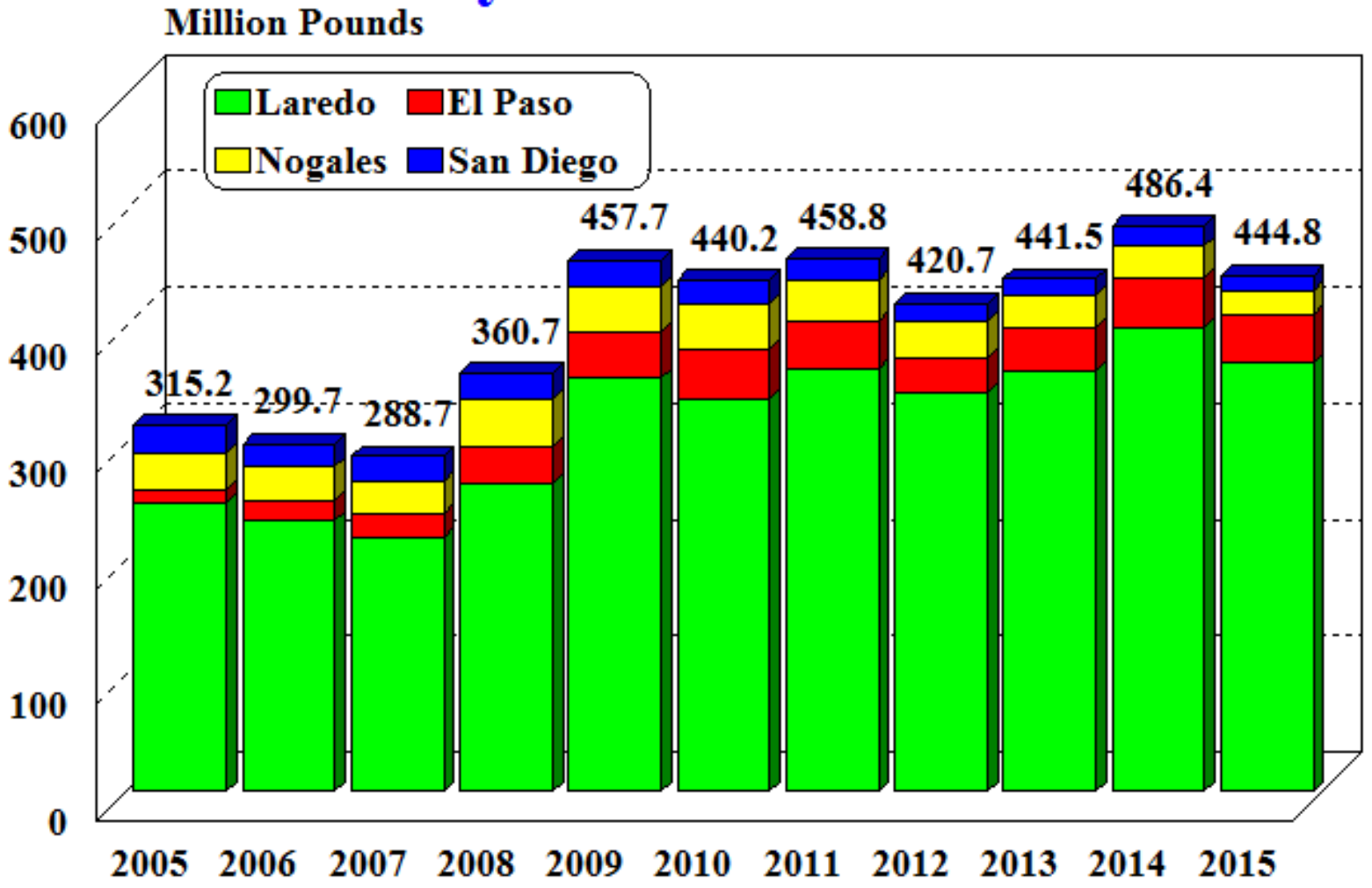
U.S. Exports of Poultry Meat to Mexico by Port District



Source: USDA/FAS Global Agricultural Trading System

Meat Trade with Mexico

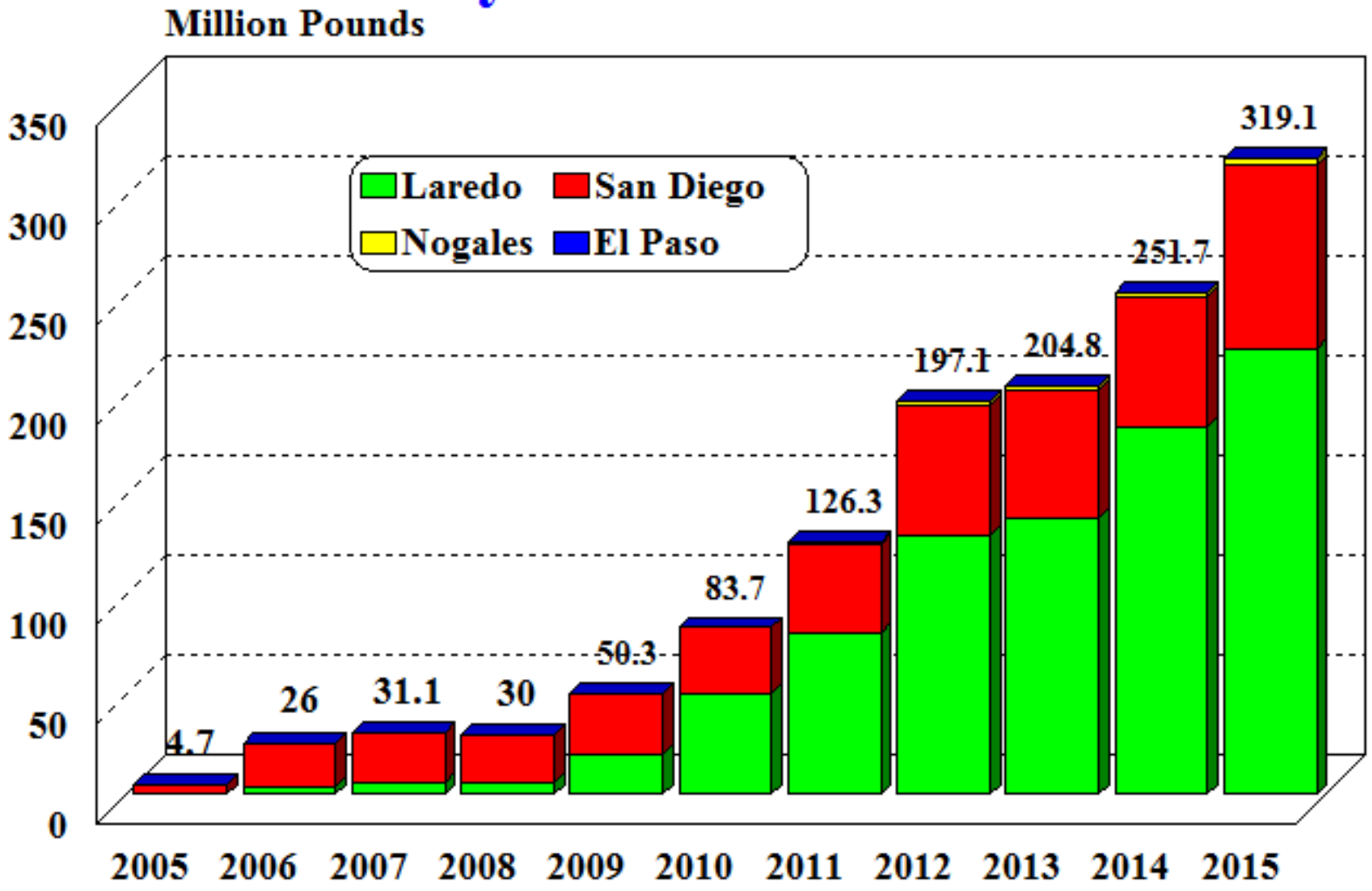
U.S. Exports of Edible Offal to Mexico by Port District



Source: USDA/FAS Global Agricultural Trading System

Meat Trade with Mexico

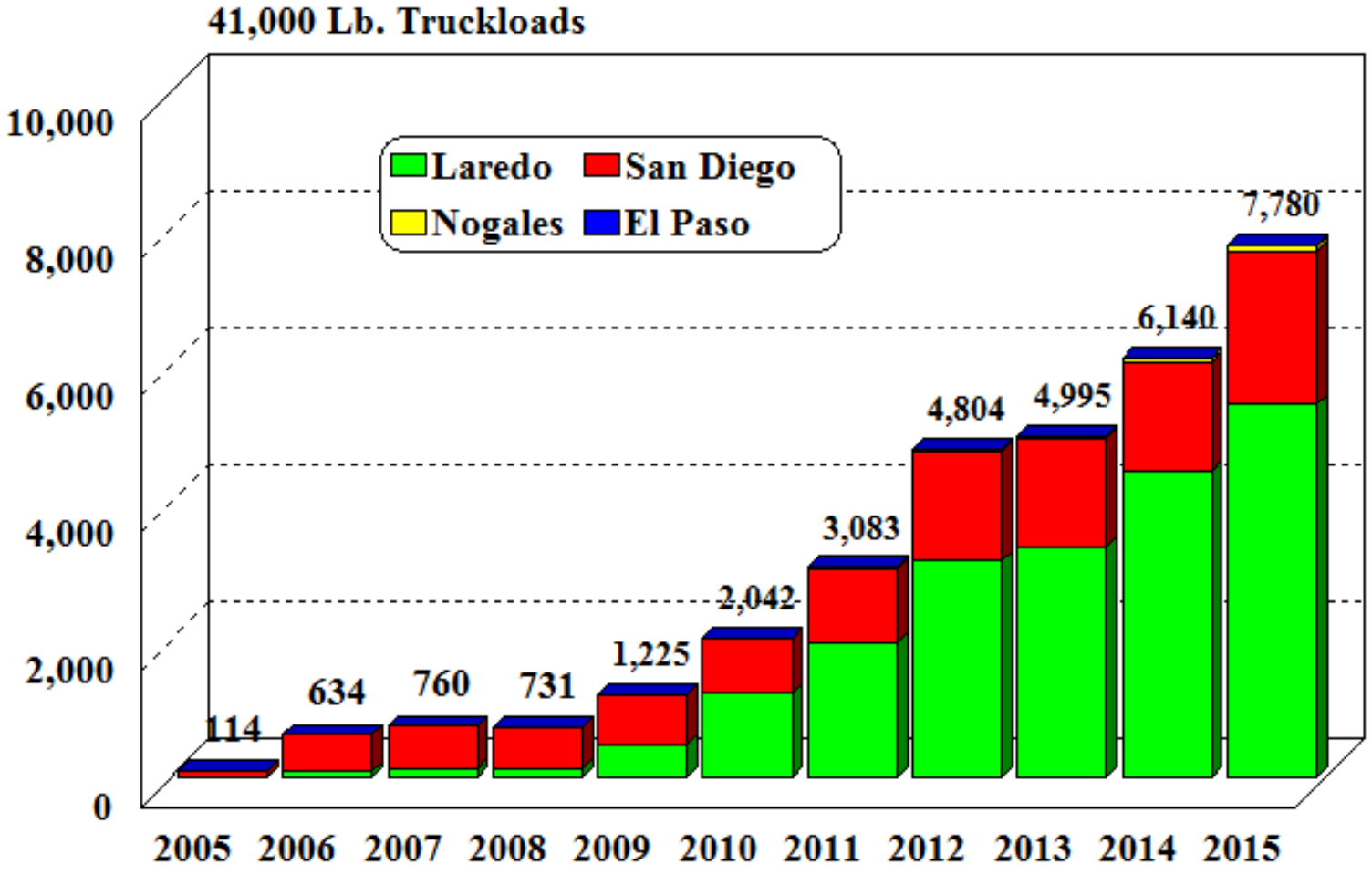
U.S. Imports of Beef from Mexico by Port District



Source: USDA/FAS Global Agricultural Trading System

Cattle Trade with Mexico

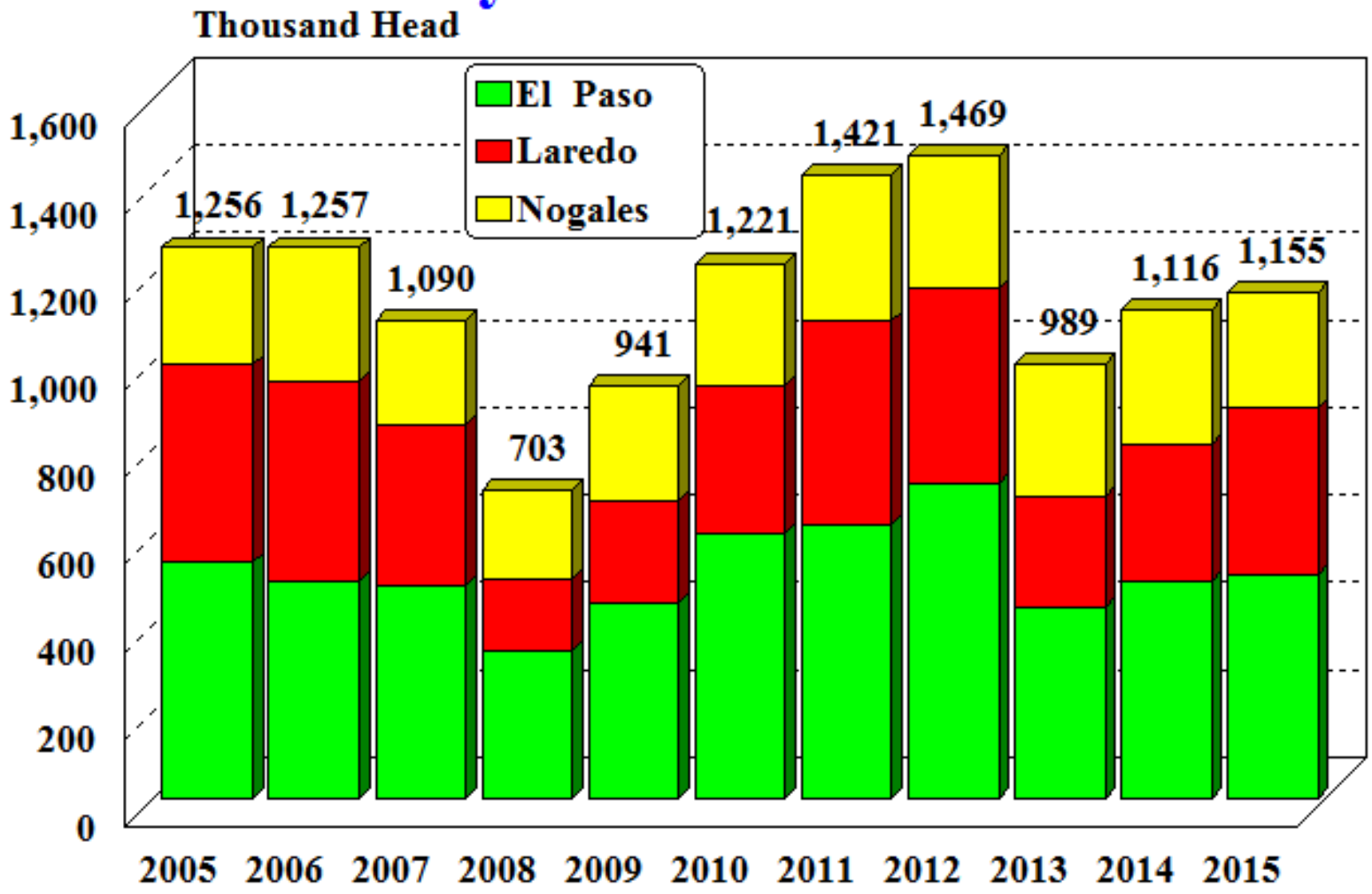
U.S. Imports of Beef from Mexico by Port District



Source: USDA/FAS Global Agricultural Trading System

Cattle Trade with Mexico

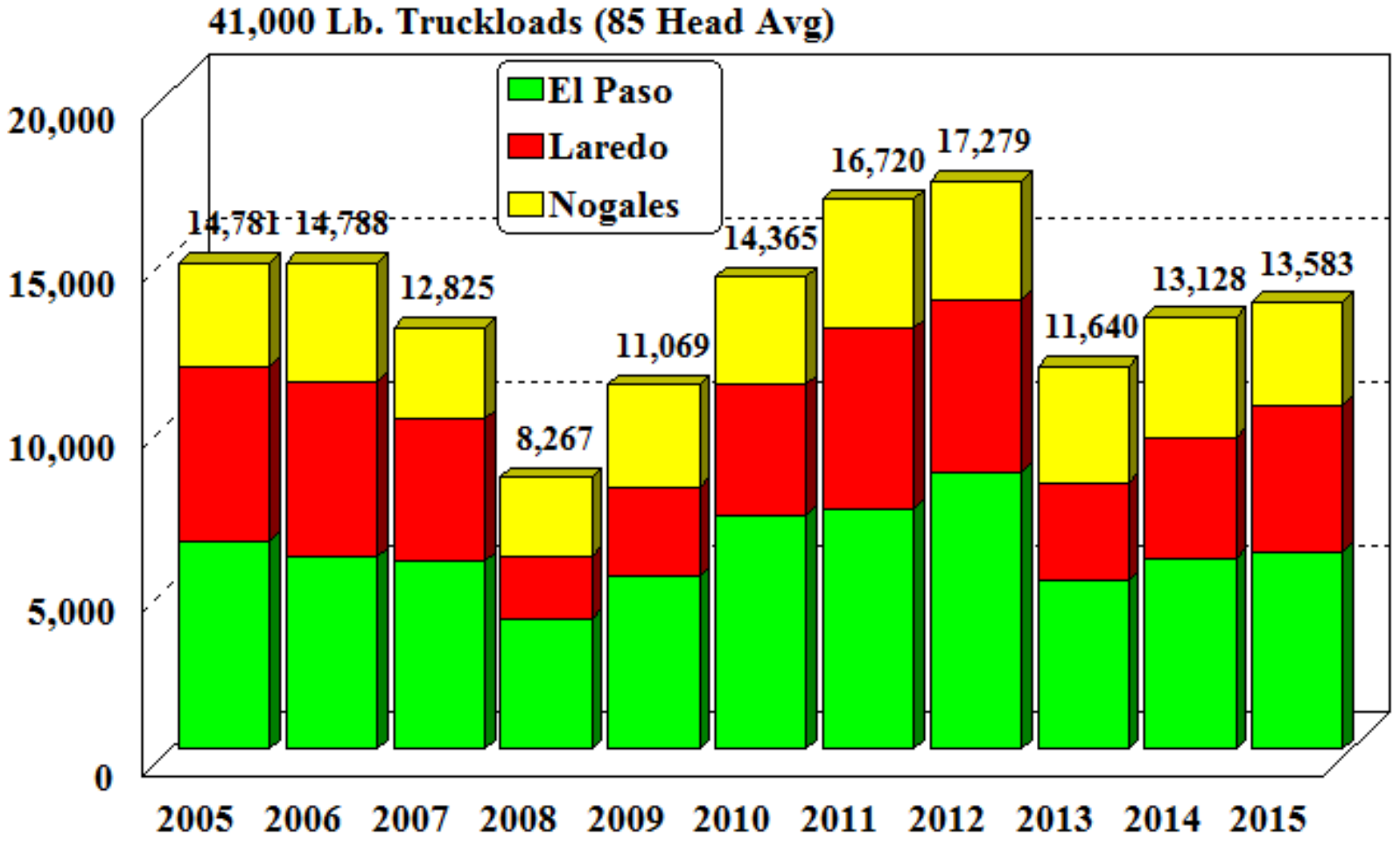
U.S. Imports of Live Cattle from Mexico by Port District



Source: USDA/FAS Global Agricultural Trading System

Meat and Cattle Trade with Mexico

U.S. Imports of Live Cattle from Mexico by Port District



Source: USDA/FAS Global Agricultural Trading System

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Conclusions

- U.S. Agricultural Trade is Very Important, and Texas Plays a Significant Role
- Exports of Grains, Soybeans, Cotton, and Meats Move through Most Texas Ports
- Imports of Fruits, Vegetables, Meats, Cattle, Beverages and Coffee through Texas Ports Help to Supply U.S. Food Demand
- Mexico is Major Market for Exports and Source of Imports, but Shipping around the World from Texas and Receive Product from Many Countries

Ongoing/Future Work

- Project for USDA/AMS – Next Big Infrastructure Need at the U.S.-Mexico Border
- Ongoing work with Texas International Produce Association Tracking Import Flows
- Potential Work with the Texas Border Trade Advisory Committee (BTAC)
- Brazil at 2040 – FAS/EMP Project Recently Awarded

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Thank you…

Questions??

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