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# Emerging Global Trade Patterns: USDA's Long-term Agricultural Projections

**Midwest Agriculture's Ties to the Global Economy**  
**Federal Reserve Bank of Chicago**  
November 28, 2017 Chicago

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***USDA, Economic Research Service***

Disclaimer: The views expressed are those of the author and not USDA or Economic Research Service. Projections are from the United States Department of Agriculture, World Agricultural Outlook Board, Long-term Projections Report, OCE-2017-1, February 2017.

# Presentation Outline

- Baseline process and model type
- Global macroeconomics, population, and exchange rates
- International trade - grains, soybeans, wheat and livestock
- Conclusion



# USDA's Agricultural Projections

- 10-year projection of major commodities
  - Supply, demand, trade, and prices.
  - Based on November 2016 market conditions. Released Feb 2017
- Assumptions:
  - Continuation of current U.S. law and international trade agreements
  - Population growth slows, strongest in developing countries
  - Macroeconomic growth – strongest in emerging markets
- Modeling system: dynamic partial equilibrium trade
  - 40 countries/regions, 24 commodity markets
  - Equilibrates: (Supply = Demand) & (Imports = Exports)  
Solves for prices and trade, clear world and country markets
  - Excel and Fortran programs, elasticity based
  - policy instruments in Excel
- Analysts Judgment: Model + Delphi approach
  - Country modelers, Commodity analyst (ERS, WOAB, FAS, NASS, ...)
  - Country specialist, Weather and geographic specialists
- Process: Macro, modelers, analysts meetings, trade-commodity spec, calibrate



# Changes in Food Consumption:

- Greater consumption of:

- Fruits & Vegetables
- Vegetable Oils
- Processed Cereal Products
- Meats & Dairy Products (emerging markets)

Feed Demand Increases

↑ Import demand for Feed grains

- Less consumption of:

- Staple grains - rice in Asia, corn in Indonesia and Mexico
- Low-quality grain varieties and switching to high-quality (high-quality varieties may lower yields)
- Roots & tubers



# Global Structural Changes

- Shifting Economic Power – Emerging Markets
  - Increasing per capita incomes
- Evolving Demographics:
  - Declining population growth rates,
  - Urbanization,
  - Changing age structure, younger populations
- Infrastructure development in emerging markets
  - Transportation, roads, (also increasing congestion)
  - Market integration
- Food market development
  - Increased access to larger variety of food, retail outlets



# Macro Assumptions

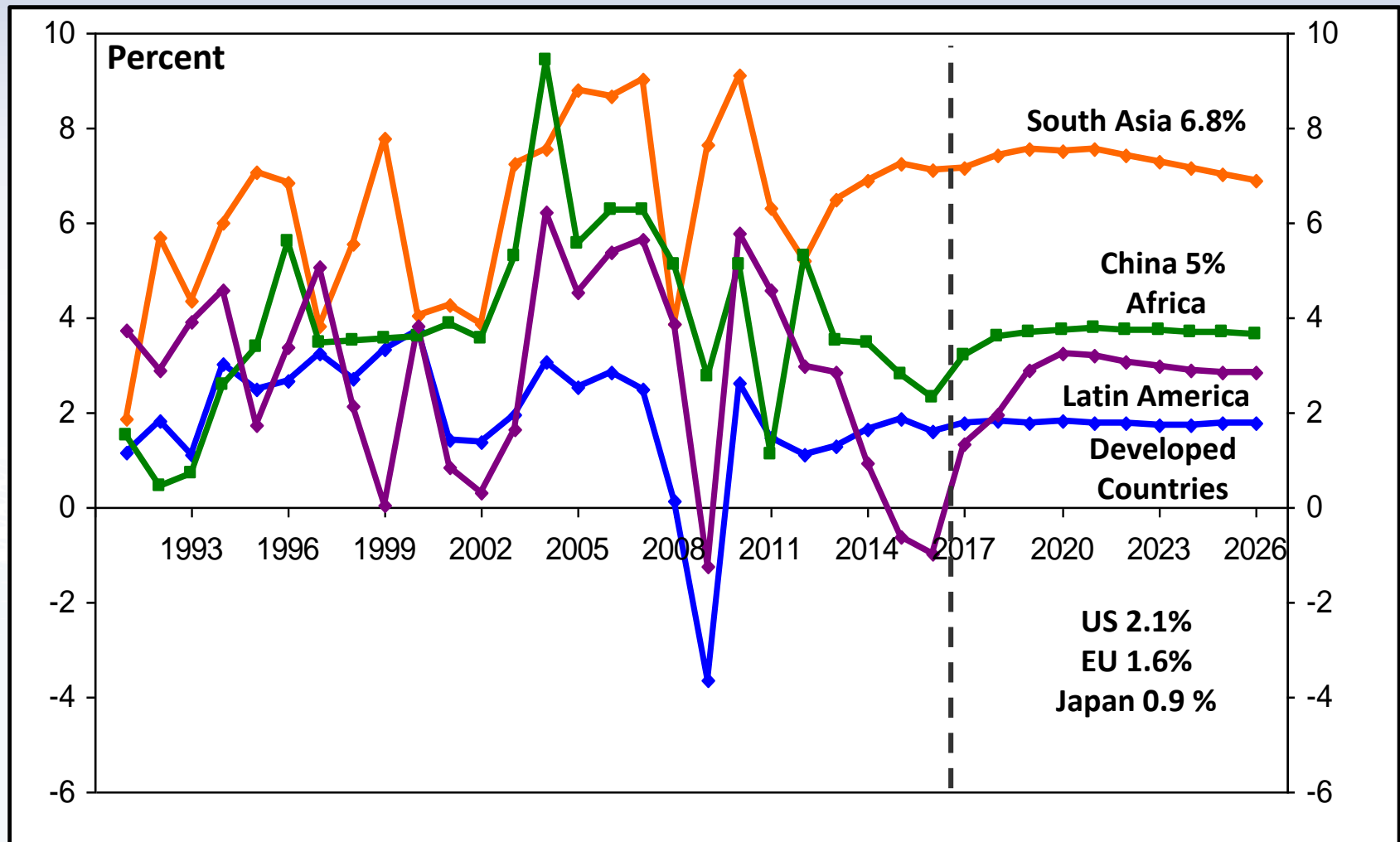
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# GDP Growth for Major Regions:

## Developing Economies Exhibit Strongest Growth

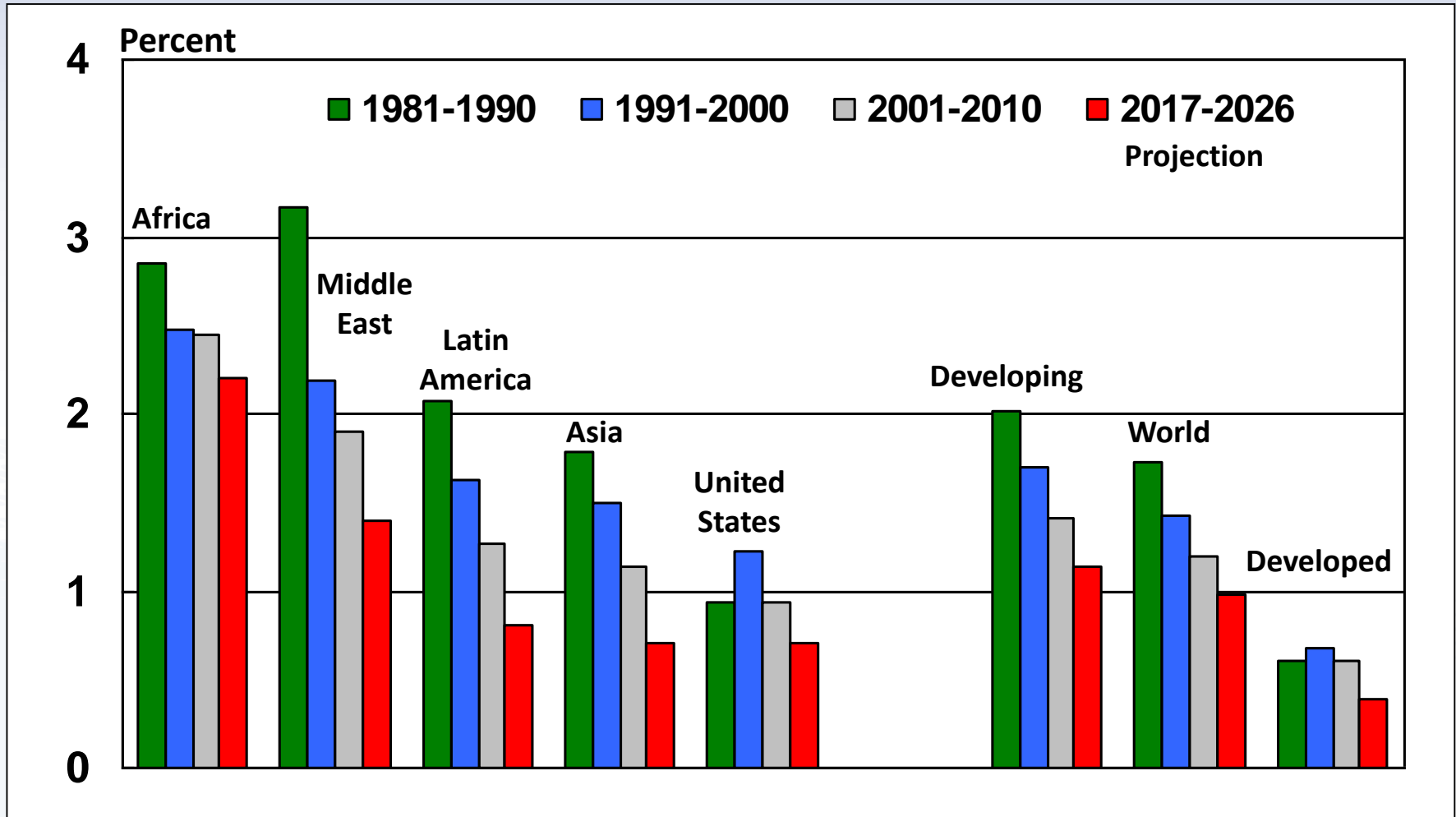


Source: USDA Agricultural Baseline Projections to 2026, February 2017.

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# Population Growth Rates Decline (%)

## Regional 10 Year Averages, 3 Decades and Projection



1/ Based on population projections from the Census Bureau, U.S. Dept. of Commerce.

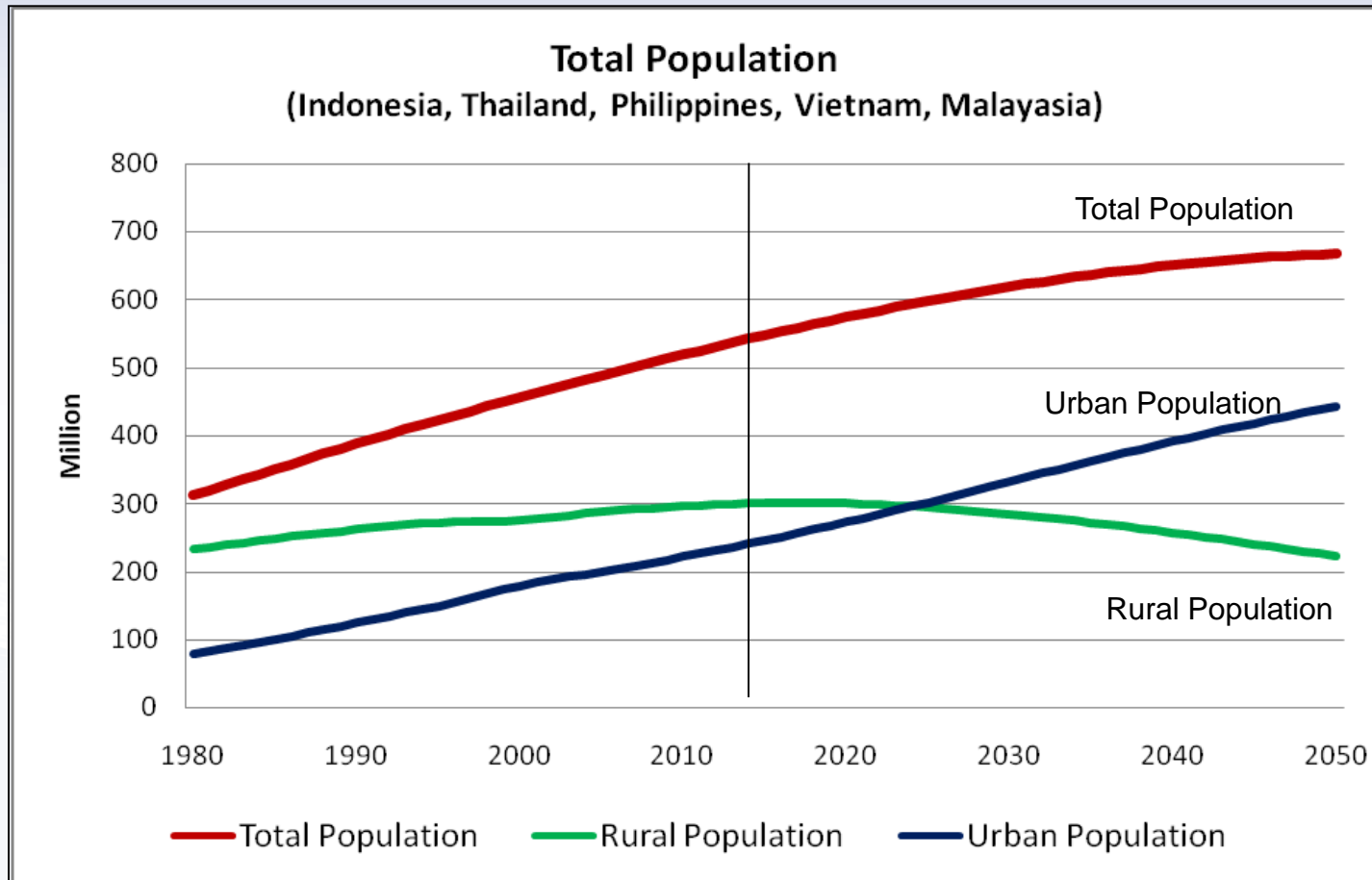
Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.

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# Population Growth And Urbanization In 5 Southeast Asian Countries Aggregate



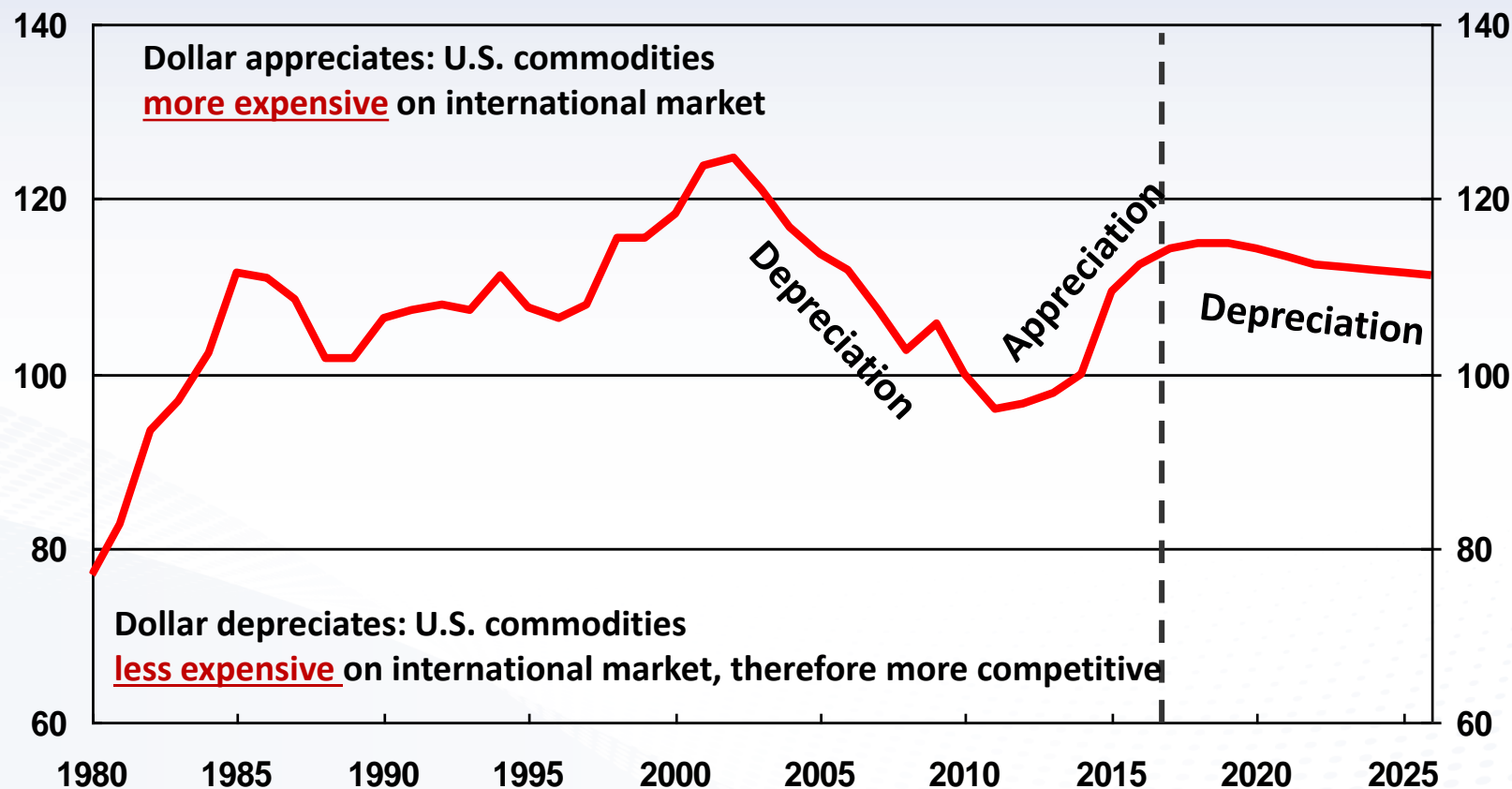
Source: UN-FAO, FAOSTAT, <http://faostat.fao.org>



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# U.S. Agricultural Trade-Weighted Dollar Exchange Rate Projected to Slightly Depreciate <sup>1/</sup>

Index values, 2010=100



<sup>1/</sup> Real U.S. agricultural trade-weighted dollar exchange rate, using U.S. agricultural export weights.

Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.

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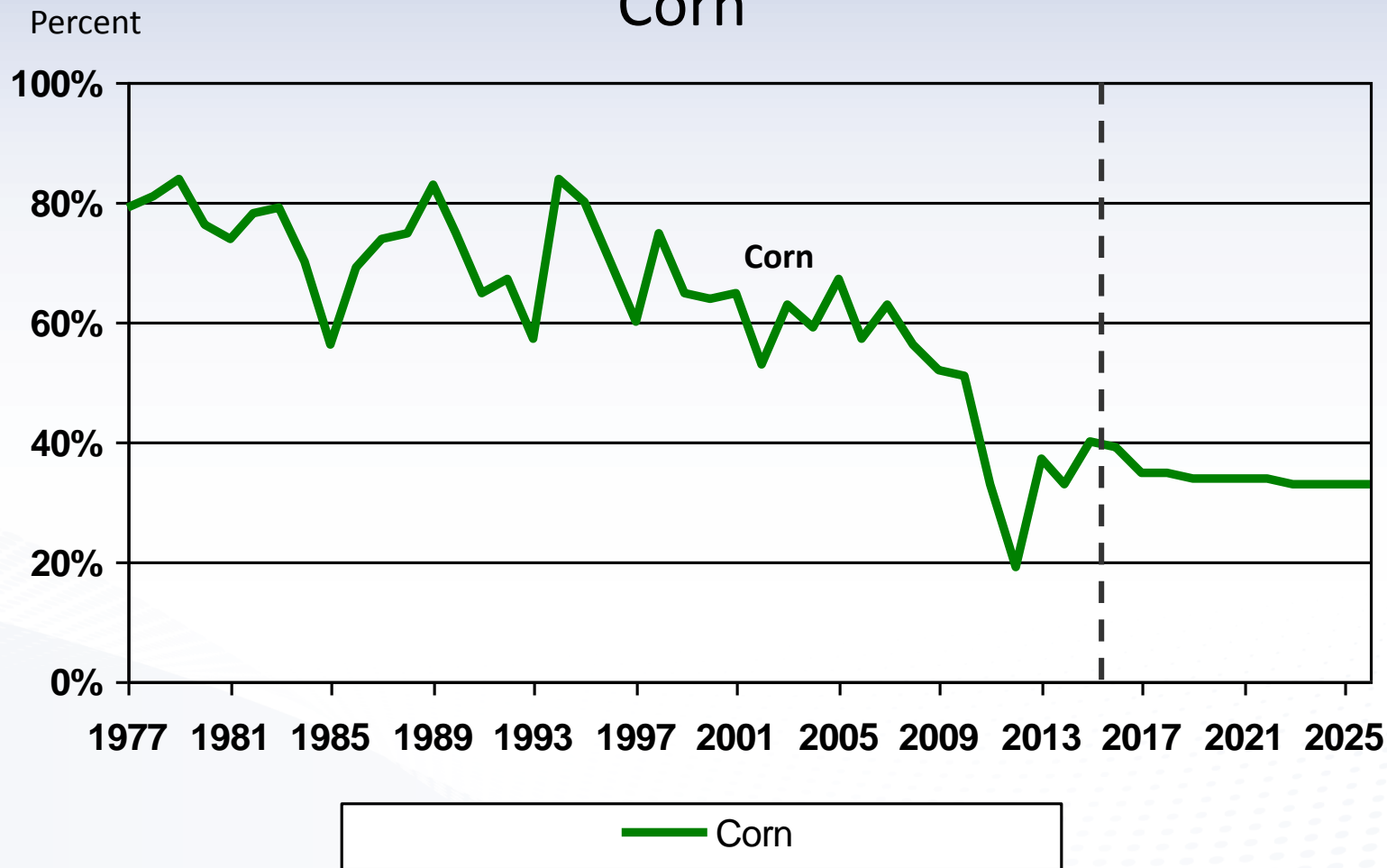
# International Trade:

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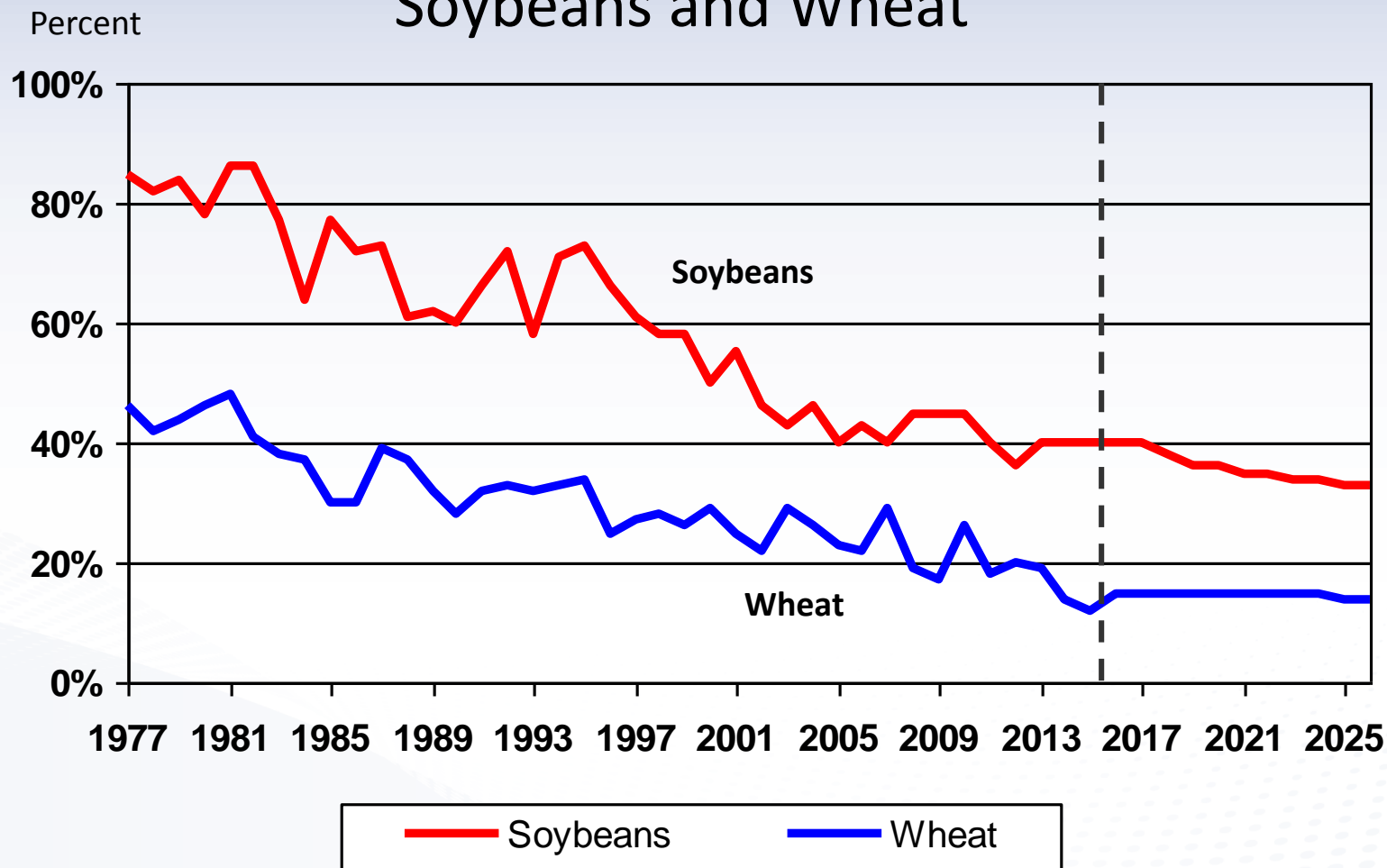
# U.S. Export Share in World Market: Corn



Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.

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# U.S. Export Share in World Market: Soybeans and Wheat

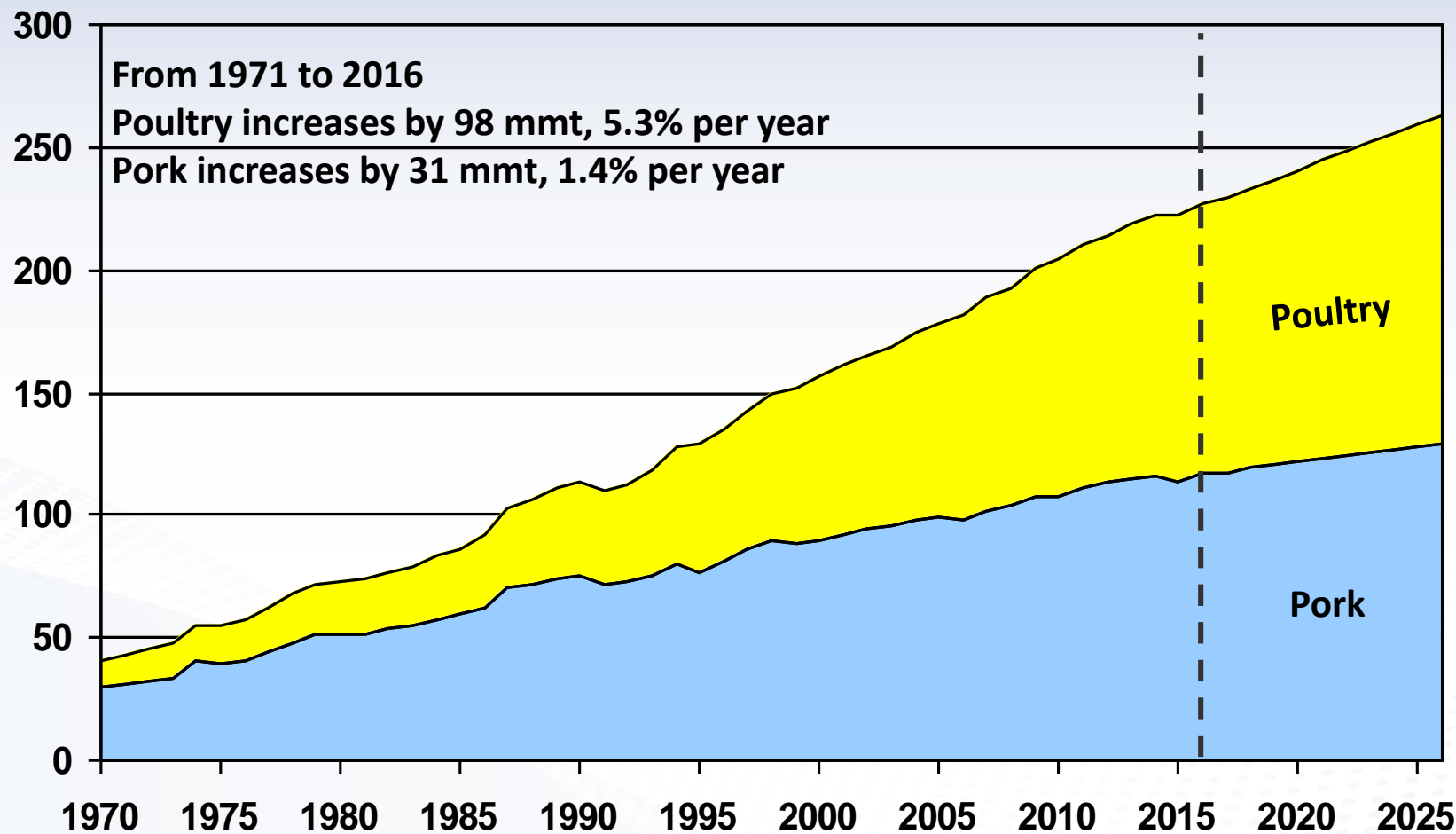


Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.

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# Global Pork and Poultry Production 1970 - 2026

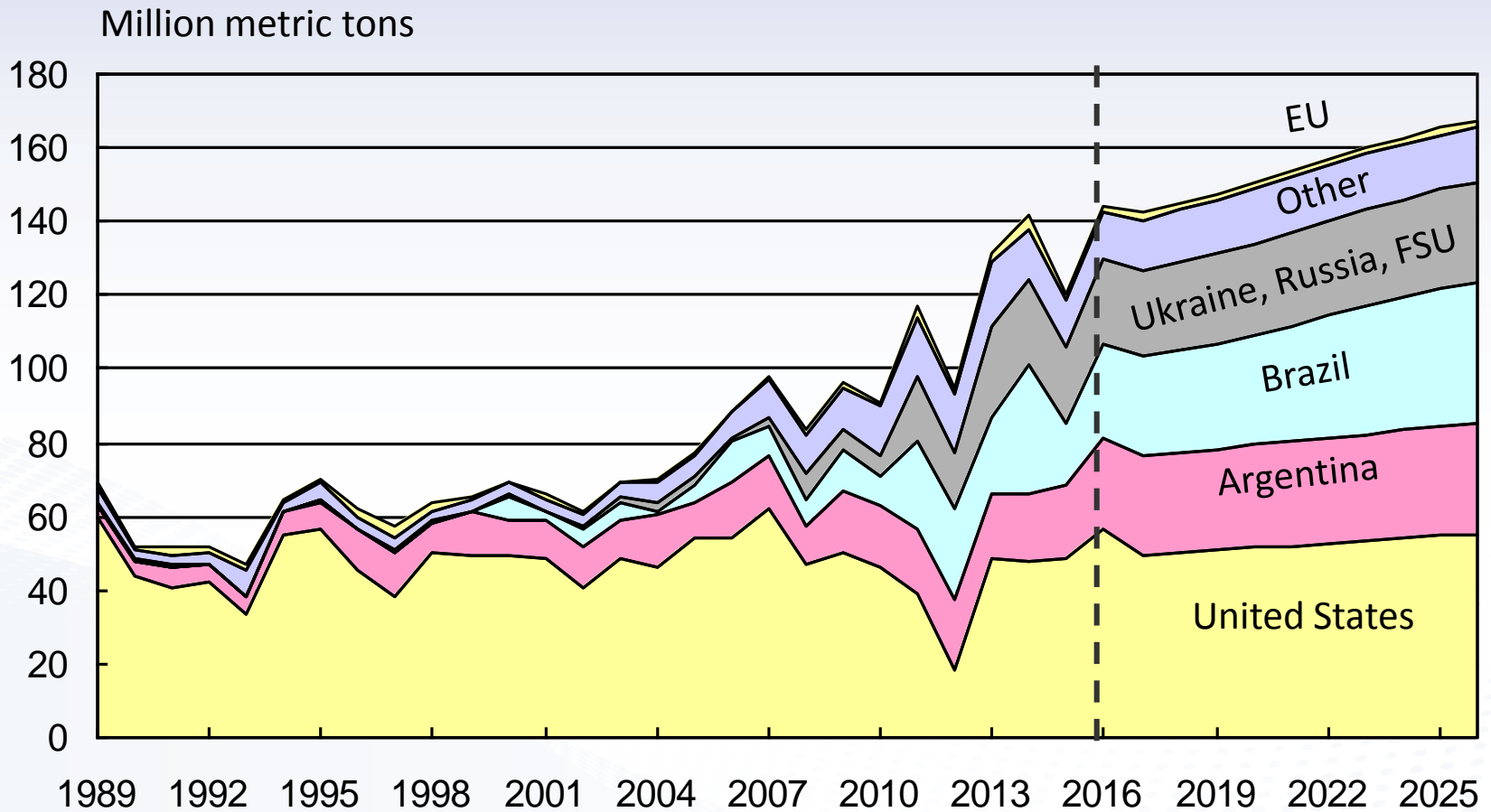
Million metric tons



Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.

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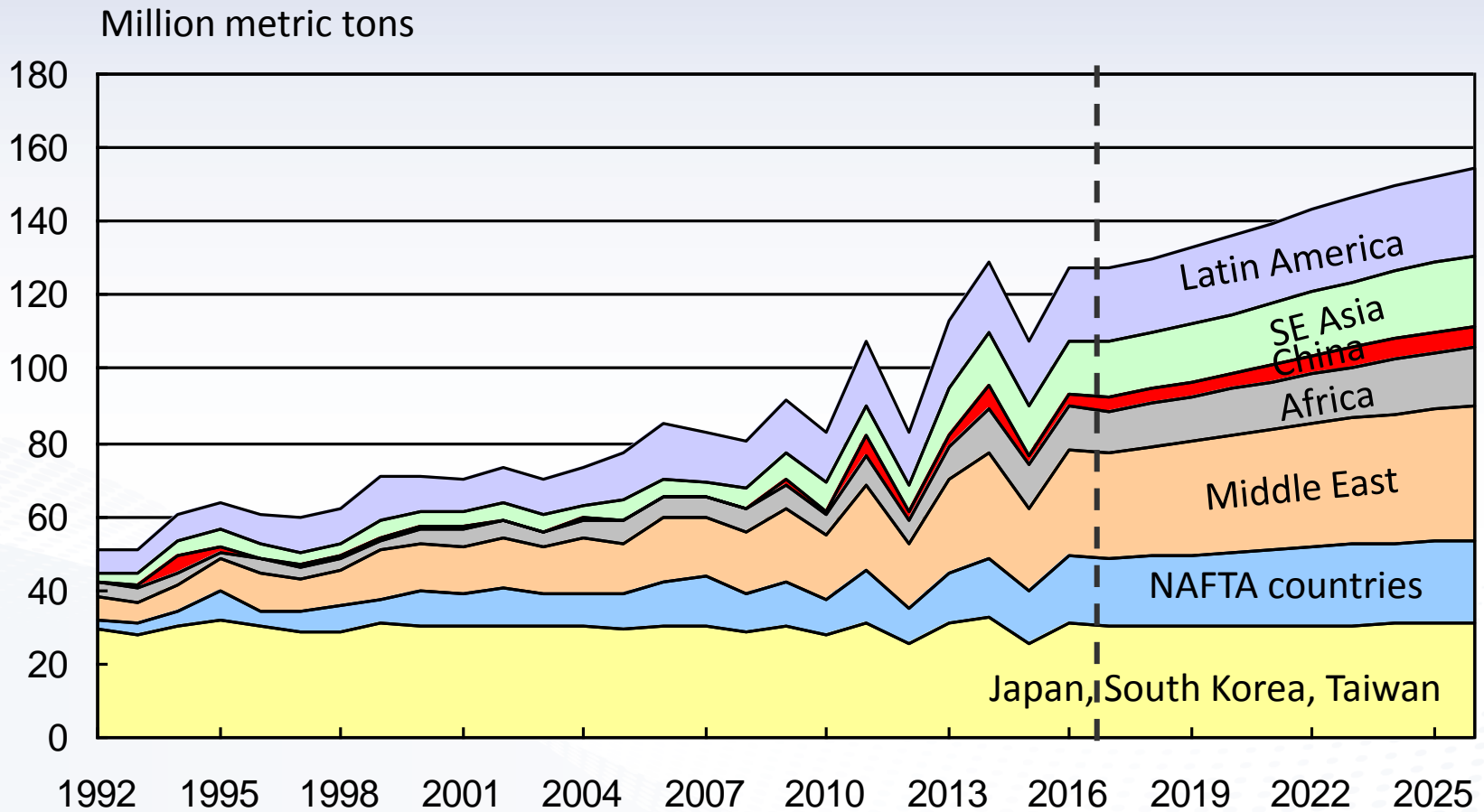
# Global Corn Exports (mmt)



Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.

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# Global Corn Imports (mmt)



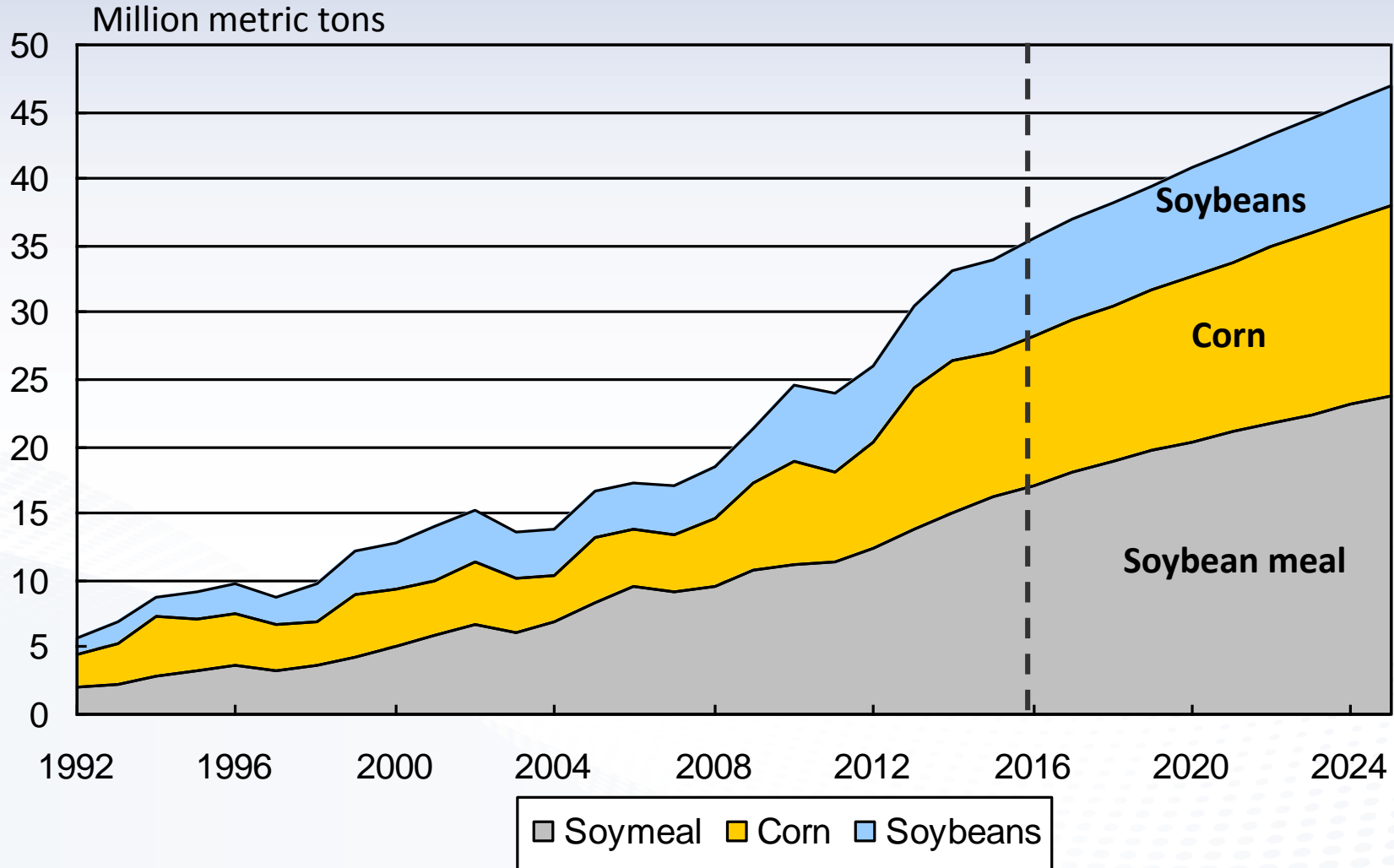
Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.

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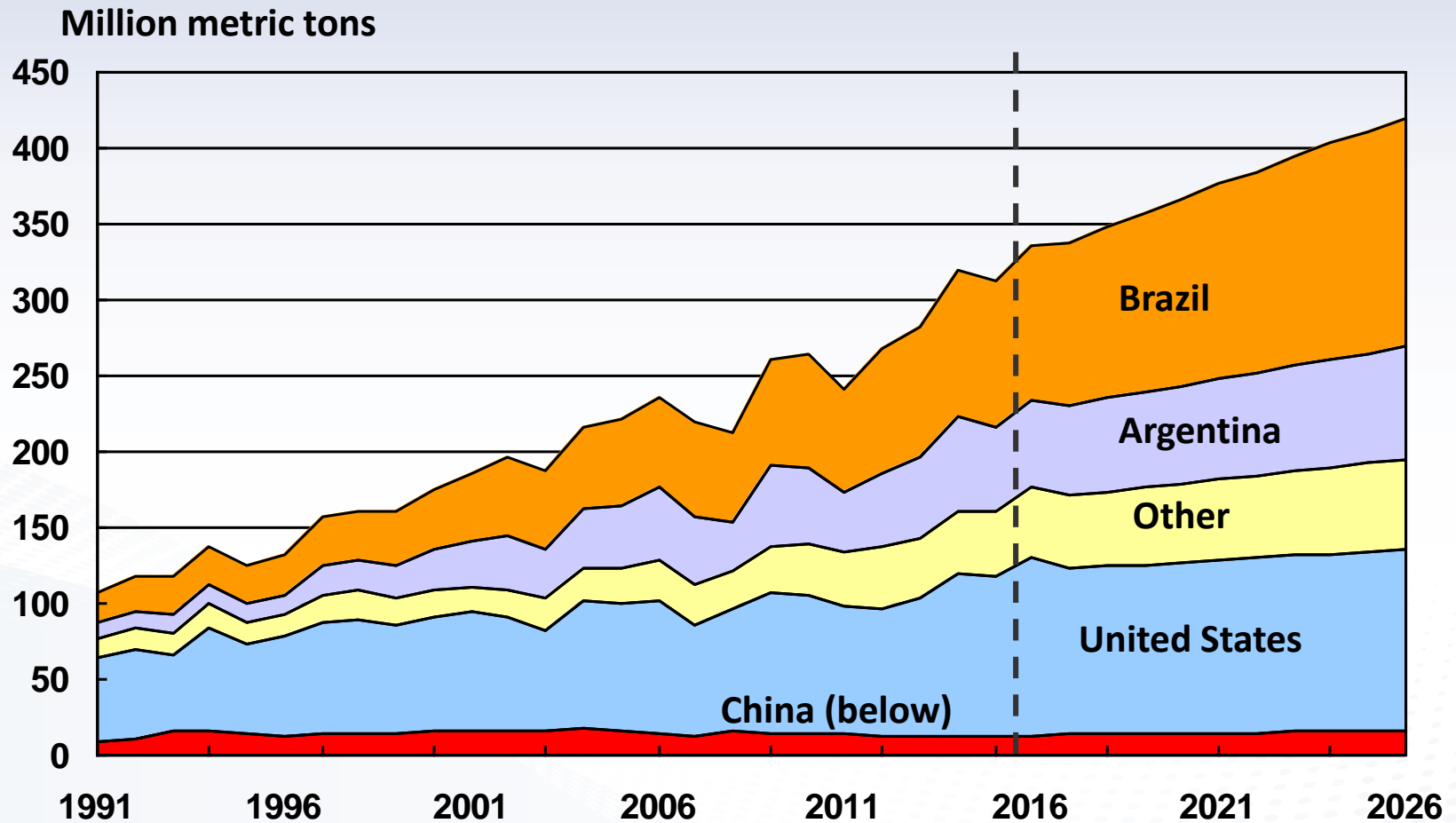
# Southeast Asia: Corn, Soybeans & Meal Imports

(Vietnam, Thailand, Philippines, Indonesia & Malaysia)



Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.  
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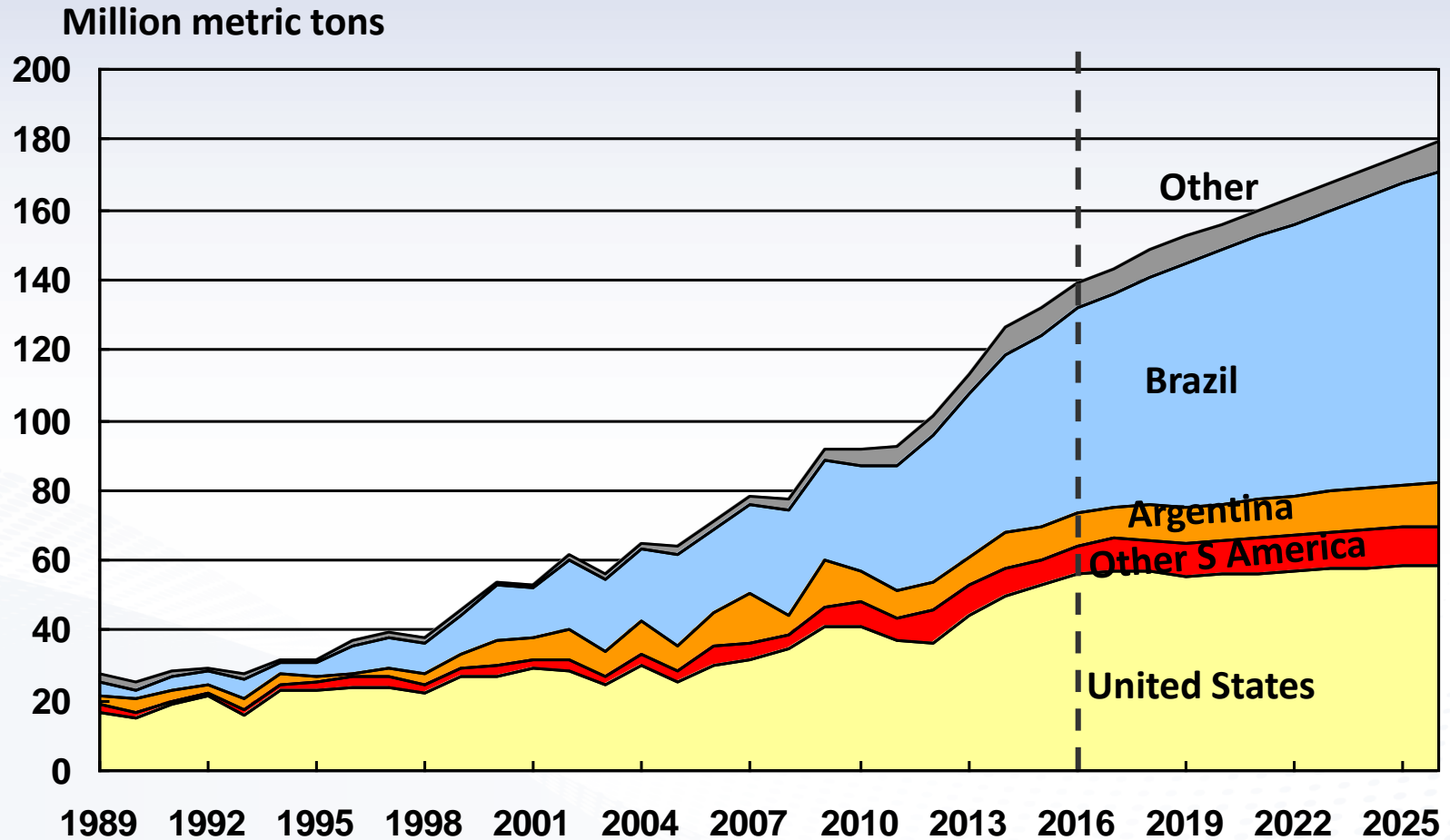
# Global Soybean Production



Source: *USDA Agricultural Baseline Projections to 2026*, February 2017

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# Global Soybean Exports

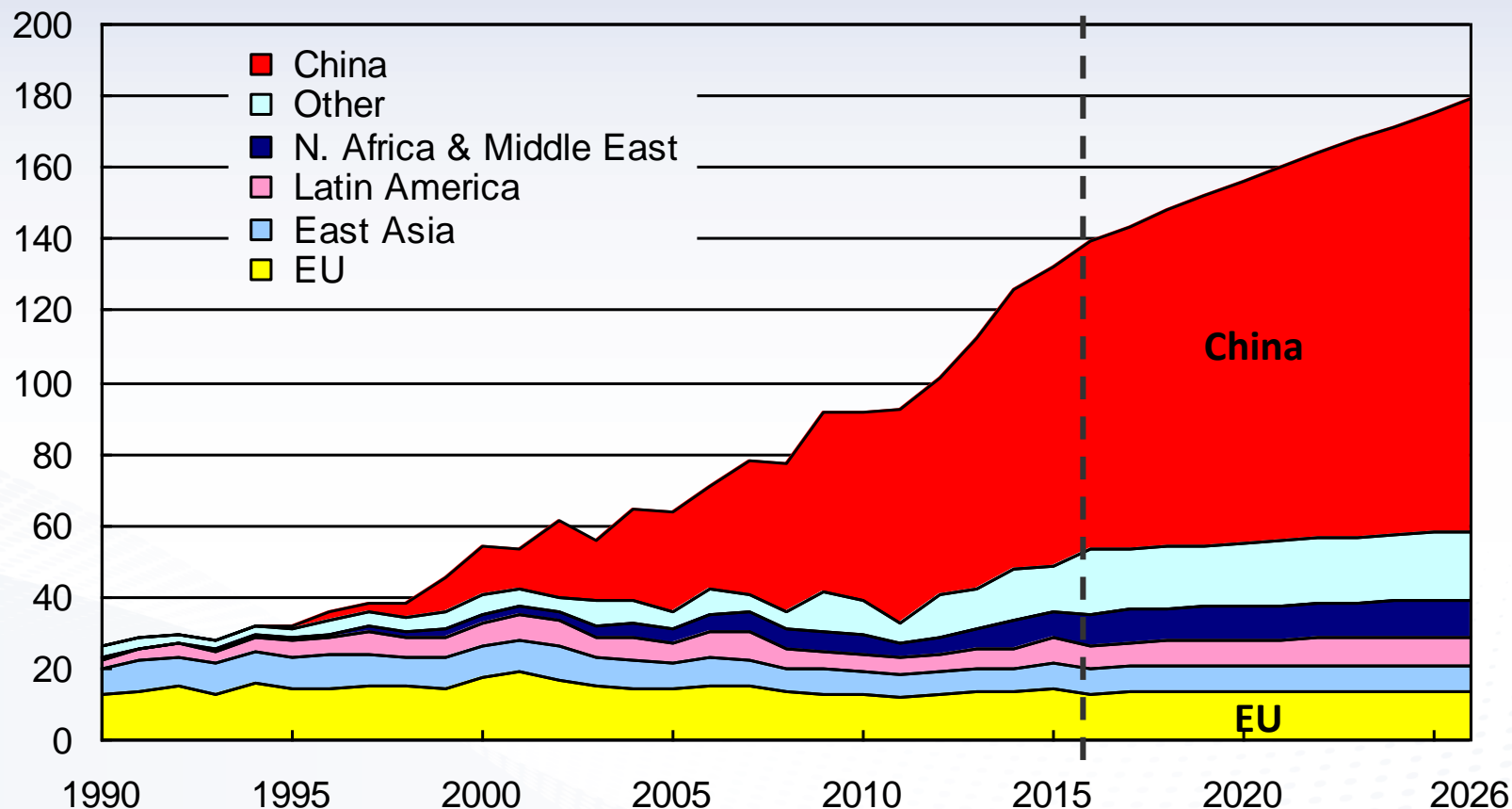


Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.

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# Global Soybean Imports

Million metric tons

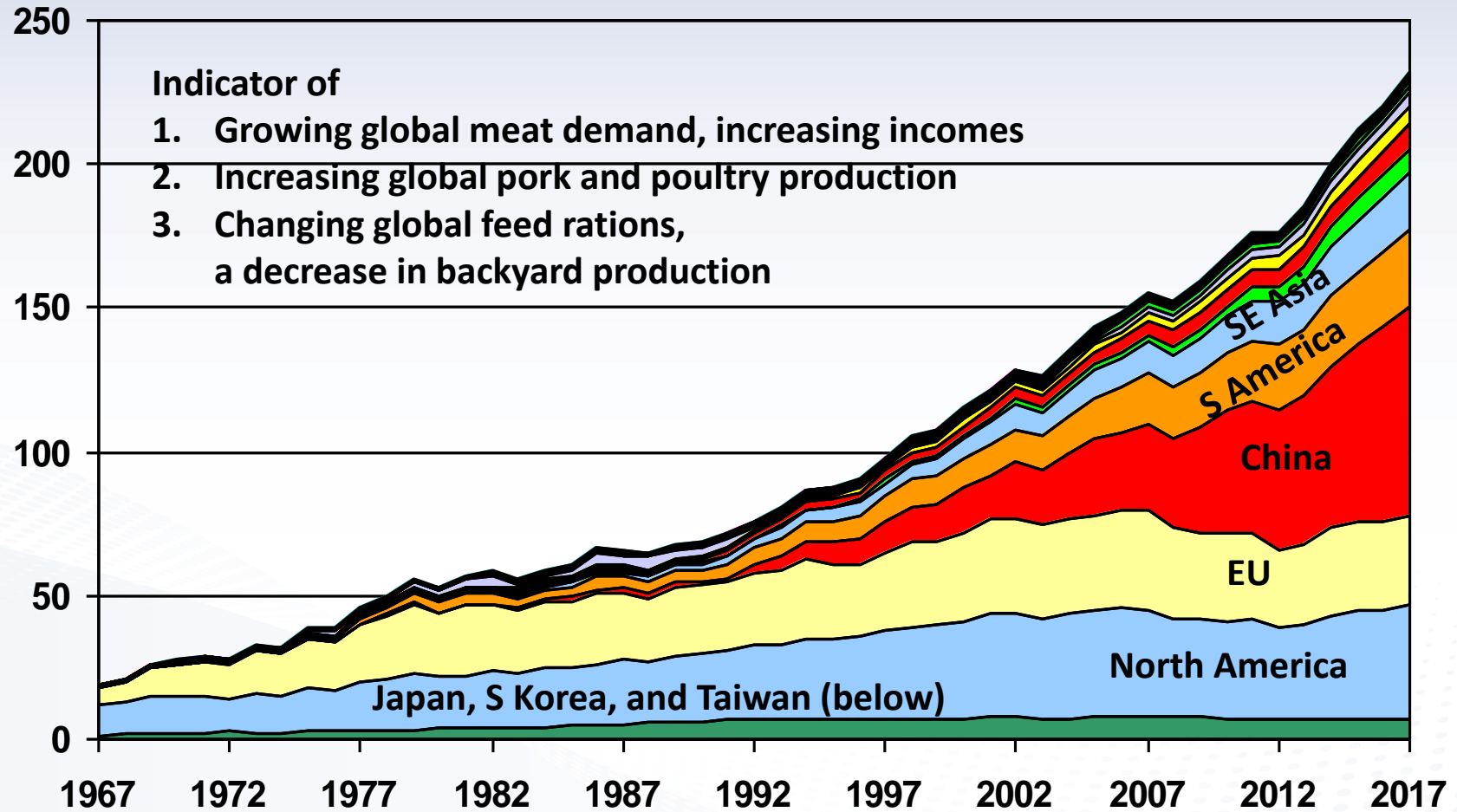


Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.

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# Global Soybean Meal Feed Demand: By Regions, 50 Years of Growth

Million metric tons

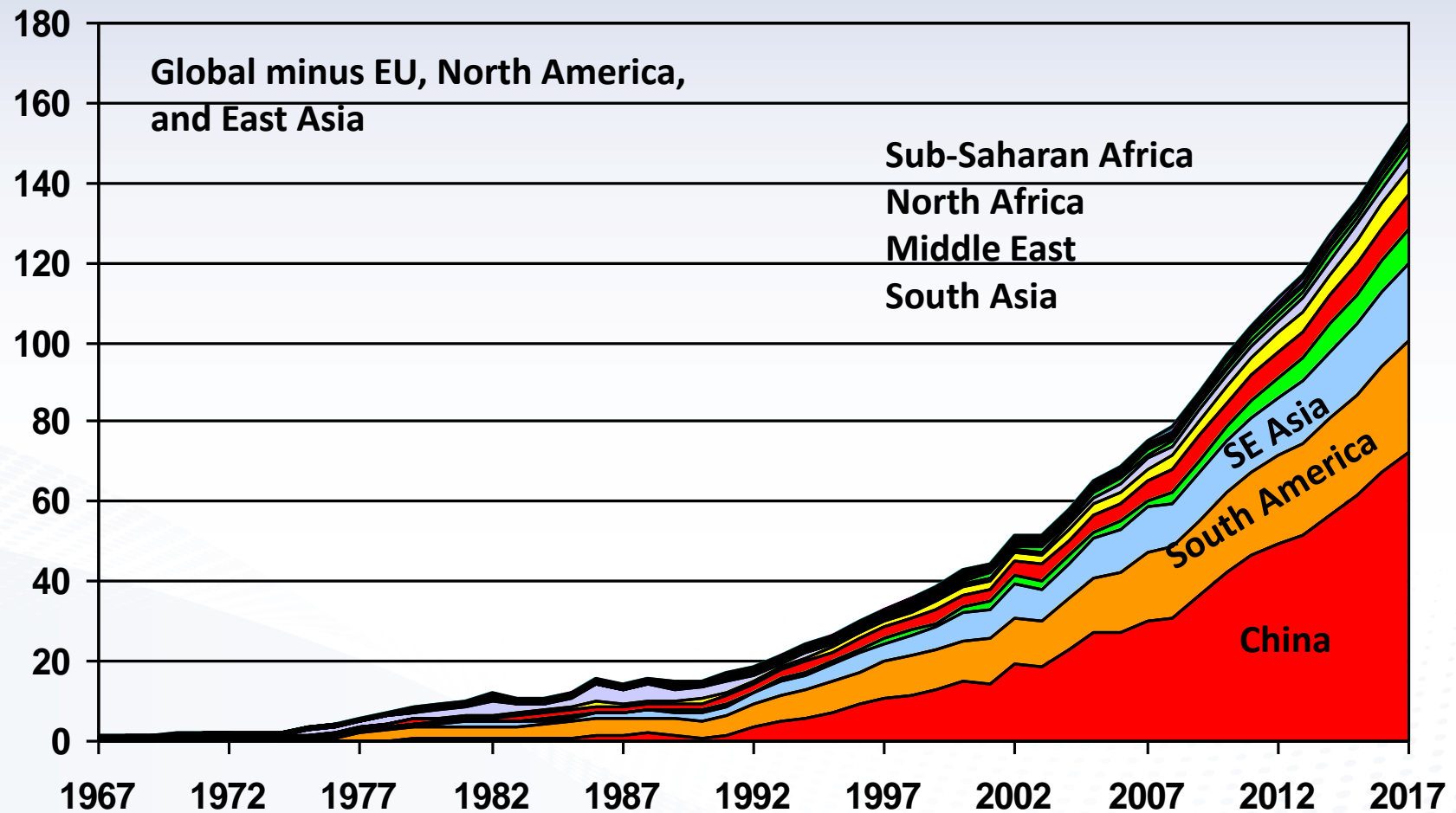


Source: USDA FAS PS&D Data, 2017.

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# Greater Detail - Soybean Meal Feed Demand: By Regions, 50 Years of Growth

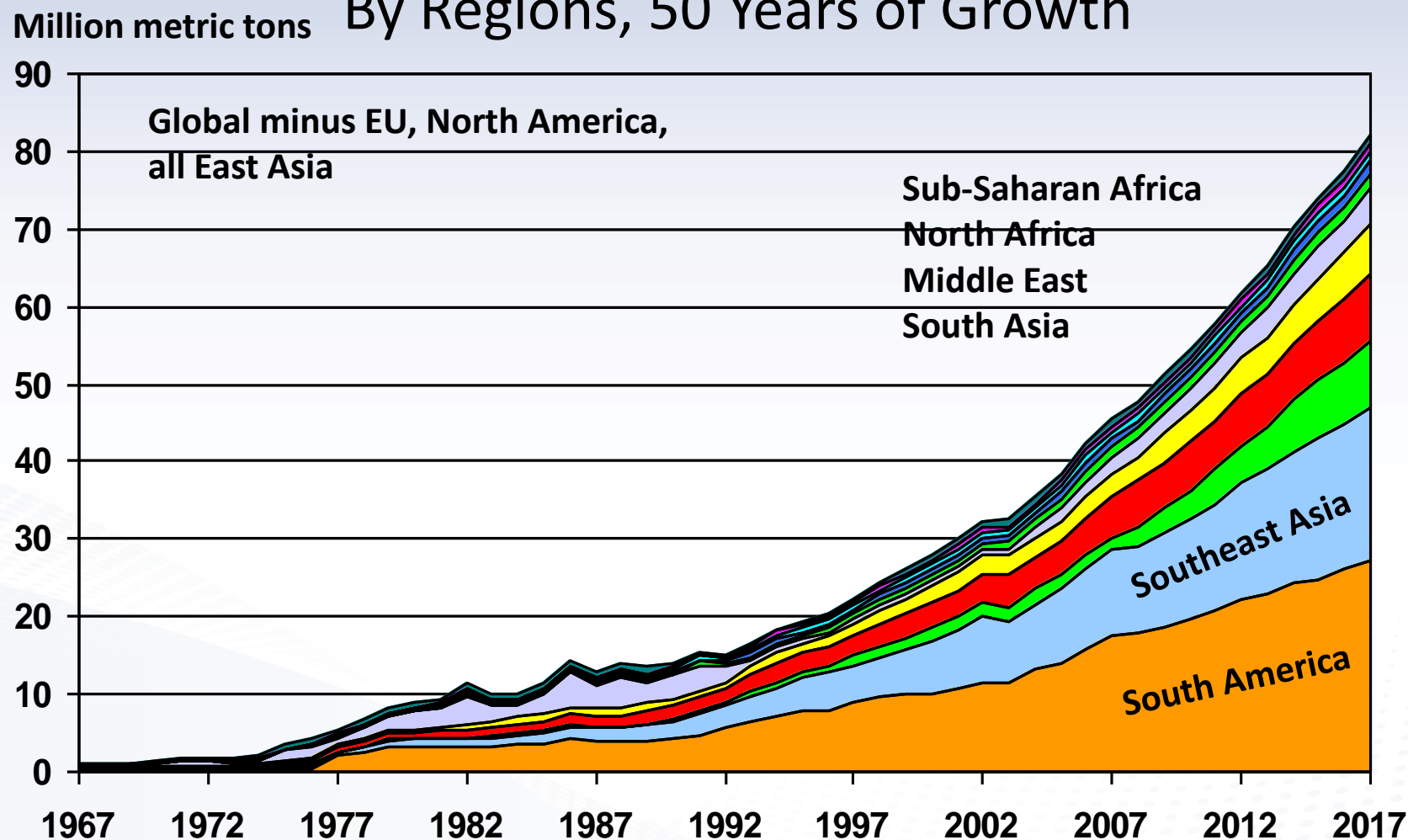
Million metric tons



Source: USDA FAS PS&D Data, 2017.

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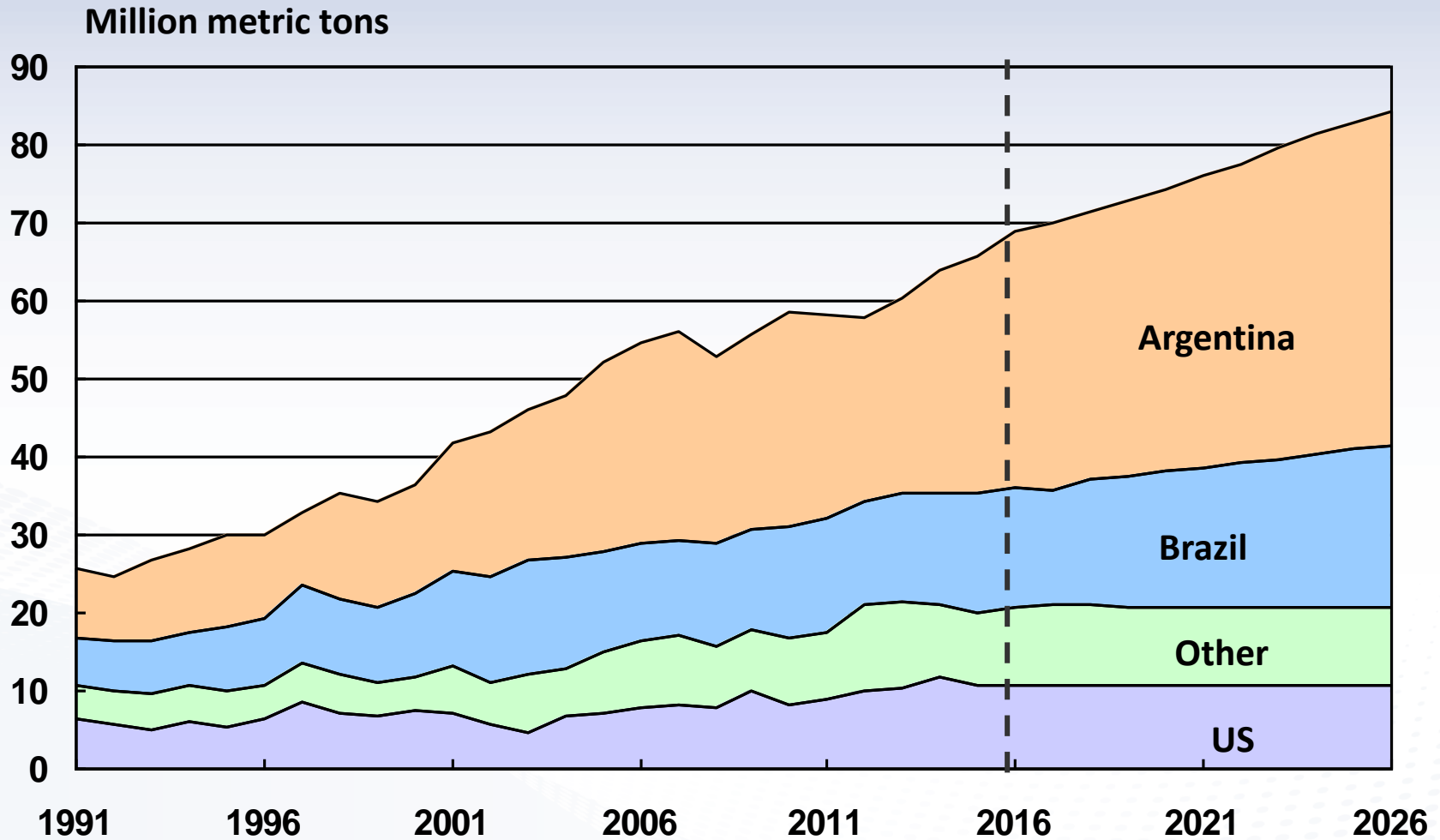
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Source: USDA FAS PS&D Data, 2017.

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# Global Soybean Meal Exports

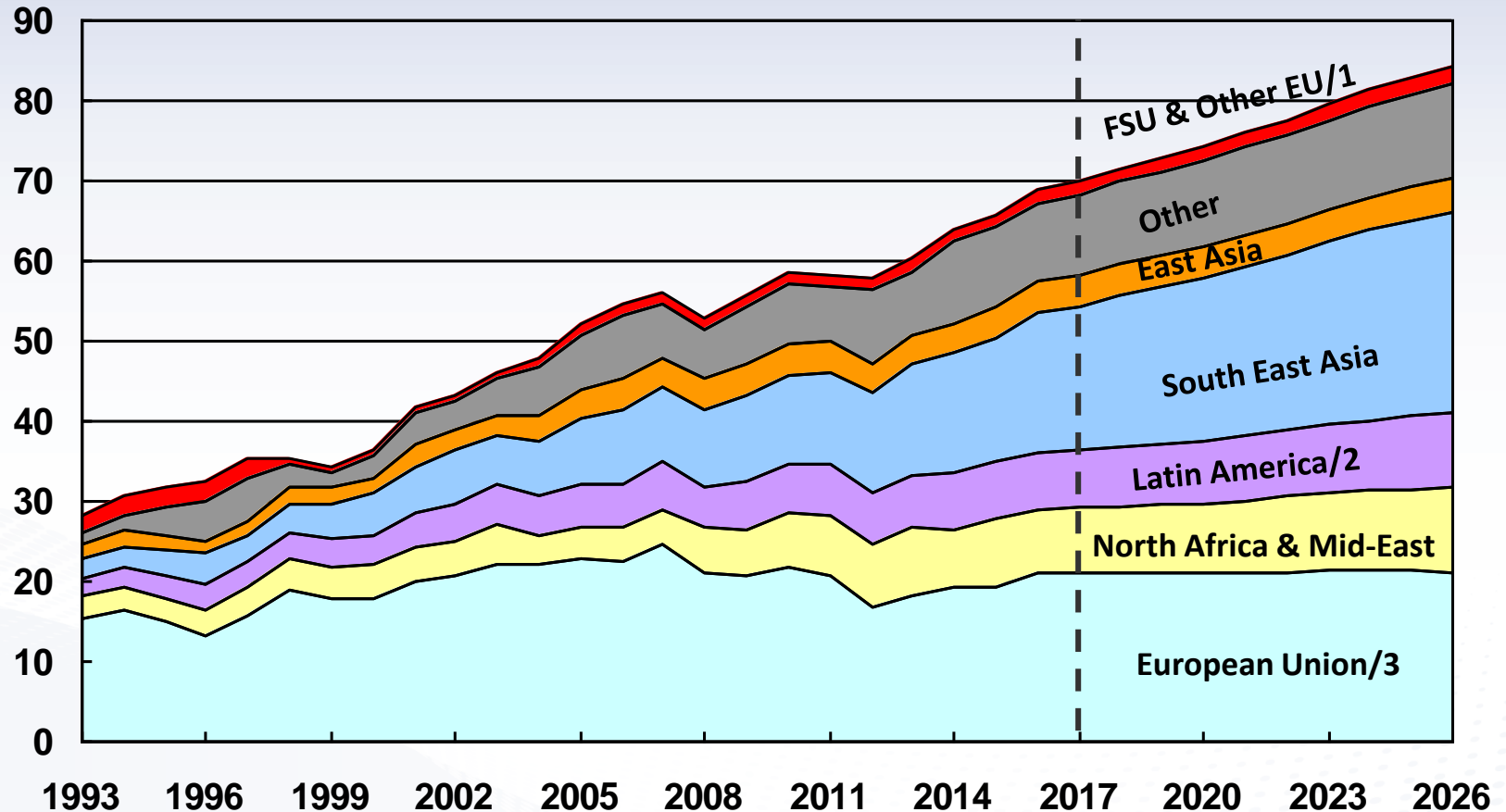


Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.  
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# Global Soybean Meal Imports

Million metric tons



1/ Former Soviet Union and Other Europe; prior to 1999, includes Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. 2/ Includes Mexico.

3/ EU-28 excludes intra-trade after 2002, EU-15 intra-trade before 2003, Slovenia before 1992.

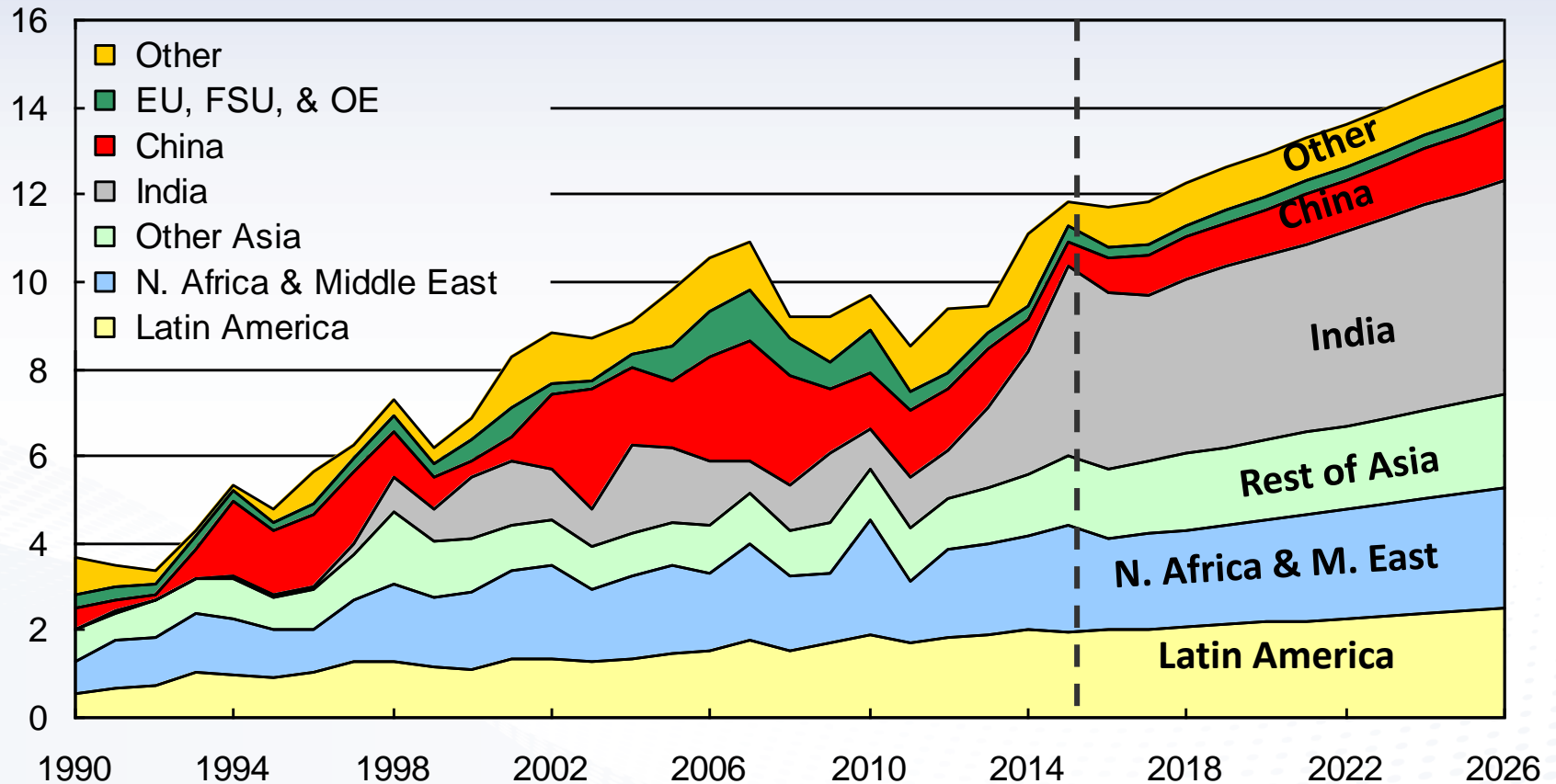
Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.

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# Global Soybean Oil Imports

Million metric tons



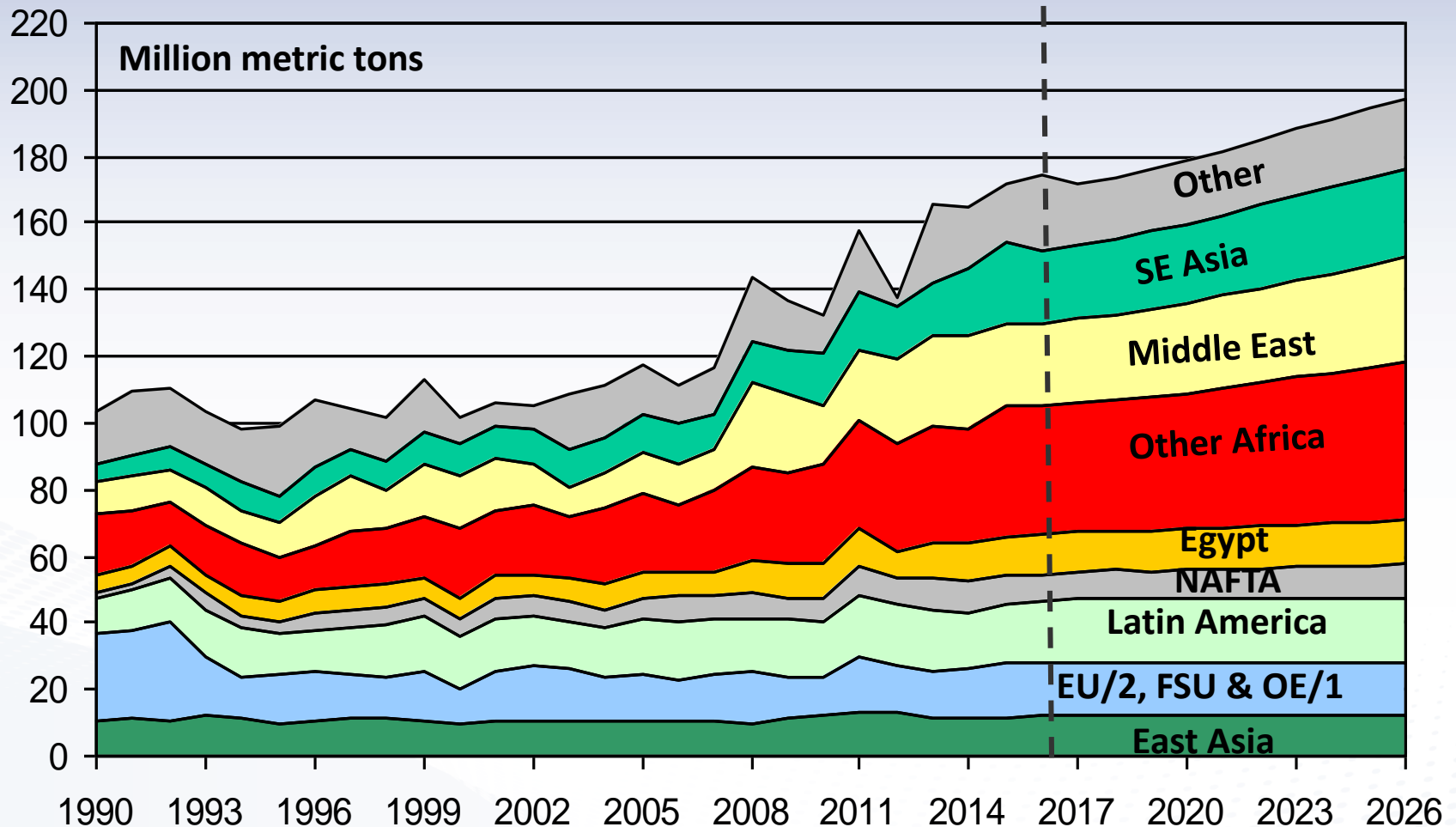
1/ European Union, former Soviet Union, and other Europe.

2/ Includes Mexico. 3/ Asia excluding India and China.



Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.  
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# Global Wheat Imports



1/ Former Soviet Union and other Europe; prior to 1999, includes Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia.

2/ Excludes intra-EU trade.

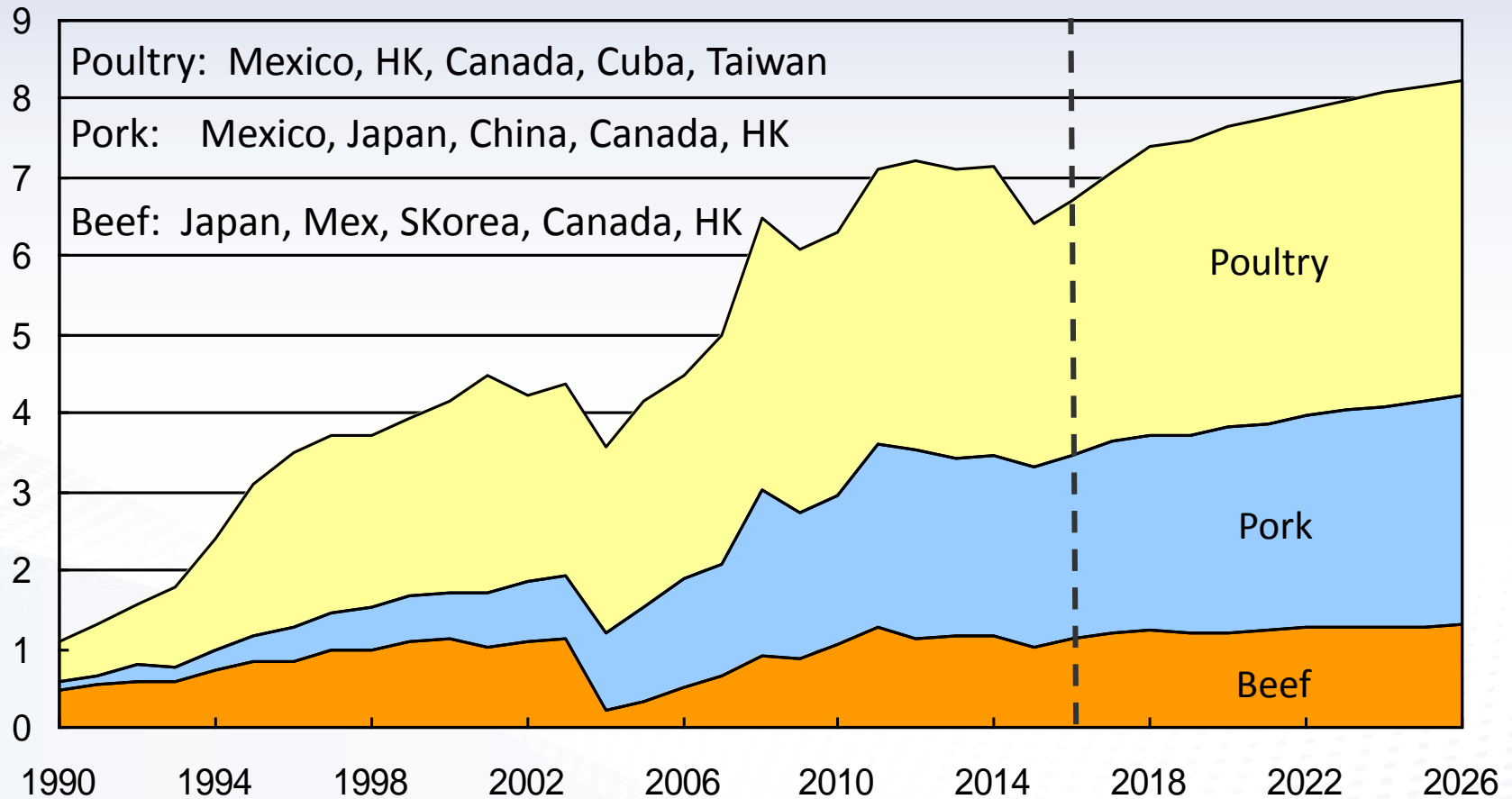
Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.



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# U.S. Meat Exports

Million metric tons (2016 top 5 U.S. export markets)

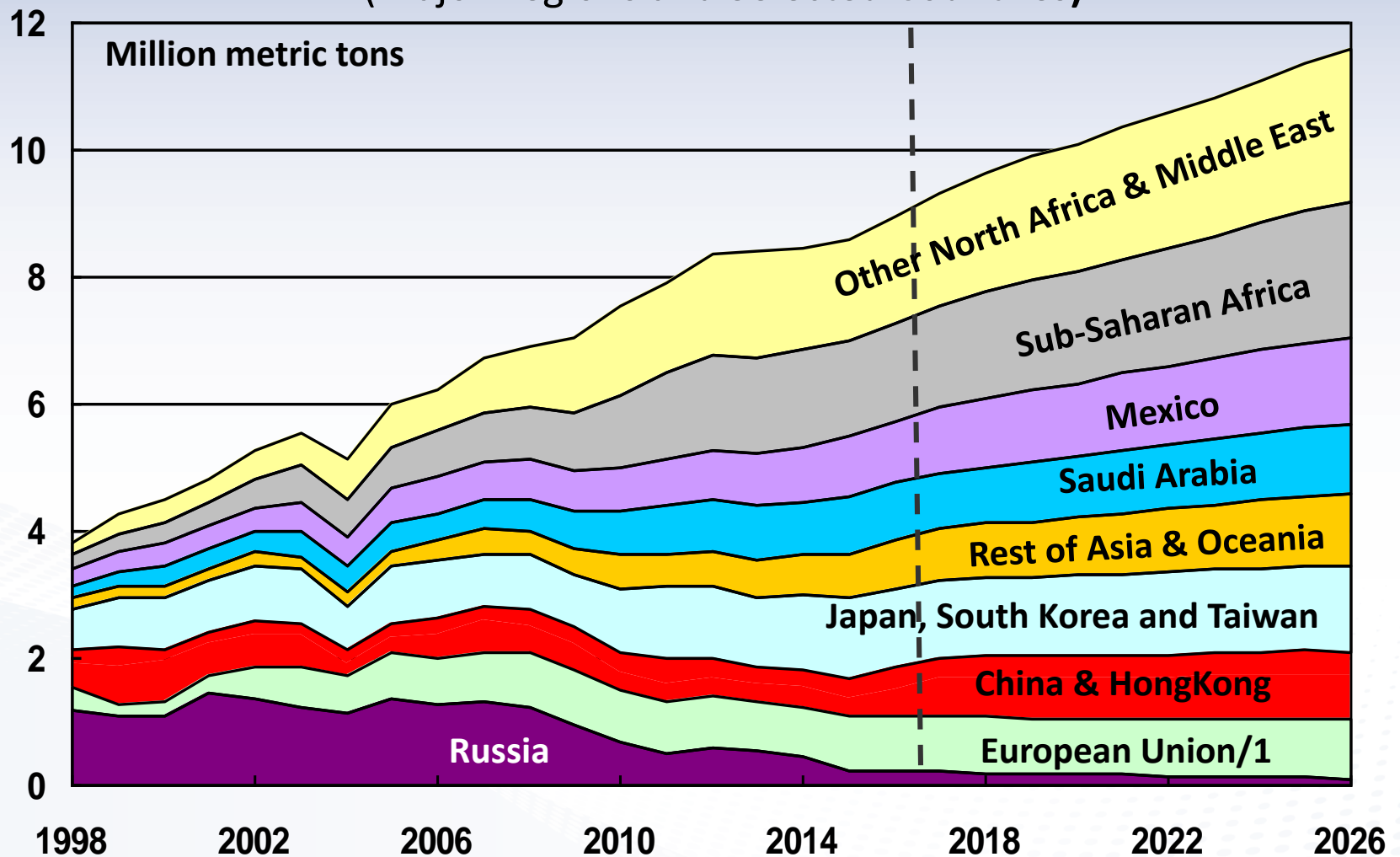


Source: *USDA Agricultural Baseline Projections to 2026*, February 2017.

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# Poultry Imports

(Major Regions and Selected Countries)



1/ EU-28 excludes intra-trade after 2002, EU-15 intra-trade before 2003, Slovenia before 1992.

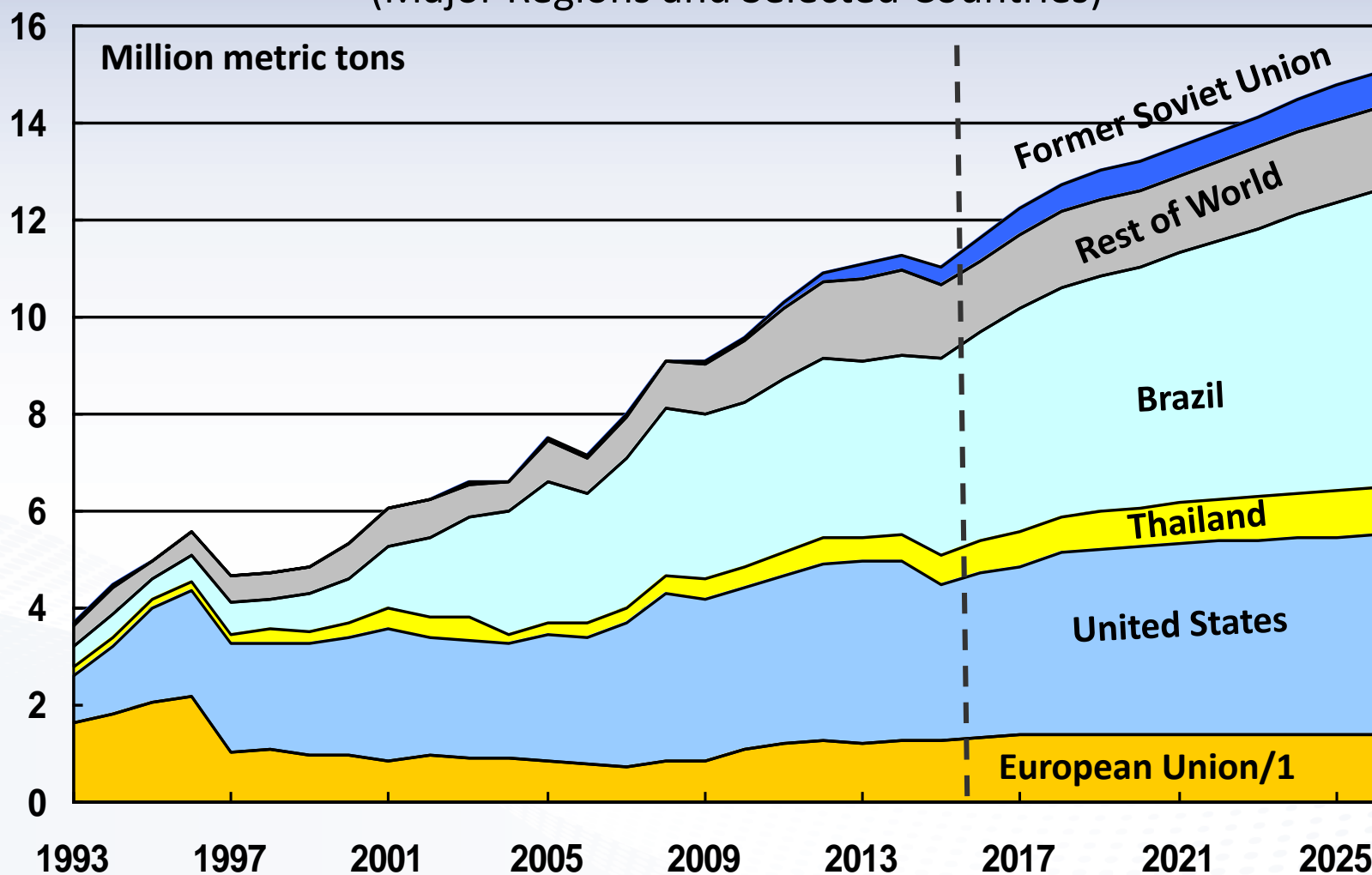


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# Conclusions and Summary:

- Continued global trade growth in agriculture commodities. Assumed normal weather conditions. There are no significant increases in real world commodity prices. Prices are flat in early years.
- Strong income and population growth in many developing countries and urbanization lead to increased import demand for grains, soybeans and High Value Products. Countries have large income elasticities for food, elastic.
- Trade to remain very competitive
  - Expanding production potential in Brazil & Argentina, FSU, India and EU
- Mature markets / developed economies are not expanding imports, but maintain stable consumption patterns, such as East Asia (Japan, S Korea, Taiwan) and EU
- United States Midwest is major producer of corn, soybeans and wheat, will be competitive in global markets, maintain and increase exports, but market share still declines.
- Uncertainty
  - Energy prices and costs of agriculture production
  - Policy changes by importers and exporters
  - Disease impacts, especially avian influenza
  - Weather impacts, increasing volatility in weather patterns



# USDA Agricultural Projections to 2026

[Search: USDA ERS Agriculture Projection Baseline](#)

[Search: USDA ERS International Baseline Data](#)

(This is detail projection data by country, complete balance sheets)

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