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

Midwest Agriculture’s Ties to the Global Economy
Federal Reserve Bank of Chicago
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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
    - \[ \uparrow \] 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
GDP Growth for Major Regions:
Developing Economies Exhibit Strongest Growth

Source: USDA Agricultural Baseline Projections to 2026, February 2017.
United States Department of Agriculture, Economic Research Service
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.
United States Department of Agriculture, Economic Research Service
Population Growth And Urbanization In 5 Southeast Asian Countries Aggregate


United States Department of Agriculture, Economic Research Service
U.S. Agricultural Trade-Weighted Dollar Exchange Rate Projected to Slightly Depreciate 1/

Index values, 2010=100

Dollar appreciates: U.S. commodities more expensive on international market

Dollar depreciates: U.S. commodities less expensive on international market, therefore more competitive

Source: USDA Agricultural Baseline Projections to 2026, February 2017.
United States Department of Agriculture, Economic Research Service
International Trade:
U.S. Export Share in World Market:
Corn

Source: USDA Agricultural Baseline Projections to 2026, February 2017.
United States Department of Agriculture, Economic Research Service
U.S. Export Share in World Market: Soybeans and Wheat

Source: USDA Agricultural Baseline Projections to 2026, February 2017.
United States Department of Agriculture, Economic Research Service
Global Pork and Poultry Production 1970 - 2026

From 1971 to 2016
- Poultry increases by 98 mmt, 5.3% per year
- Pork increases by 31 mmt, 1.4% per year

Source: USDA Agricultural Baseline Projections to 2026, February 2017.
United States Department of Agriculture, Economic Research Service
Global Corn Exports (mmt)

Million metric tons

Source: USDA Agricultural Baseline Projections to 2026, February 2017.
United States Department of Agriculture, Economic Research Service
Global Corn Imports (mmt)

Source: USDA Agricultural Baseline Projections to 2026, February 2017.
United States Department of Agriculture, Economic Research Service
Southeast Asia: Corn, Soybeans & Meal Imports
(Vietnam, Thailand, Philippines, Indonesia & Malaysia)

Million metric tons

Source: USDA Agricultural Baseline Projections to 2026, February 2017.
United States Department of Agriculture, Economic Research Service
Global Soybean Production

Million metric tons

Source: USDA Agricultural Baseline Projections to 2026, February 2017
United States Department of Agriculture, Economic Research Service
Global Soybean Exports

Million metric tons

Source: USDA Agricultural Baseline Projections to 2026, February 2017.
United States Department of Agriculture, Economic Research Service
Global Soybean Imports

Million metric tons

- China
- Other
- N. Africa & Middle East
- Latin America
- East Asia
- EU

Source: USDA Agricultural Baseline Projections to 2026, February 2017.
United States Department of Agriculture, Economic Research Service
Global Soybean Meal Feed Demand:
By Regions, 50 Years of Growth

Indicator of:
1. Growing global meat demand, increasing incomes
2. Increasing global pork and poultry production
3. Changing global feed rations, a decrease in backyard production

United States Department of Agriculture, Economic Research Service
Greater Detail - Soybean Meal Feed Demand: By Regions, 50 Years of Growth

Million metric tons

- Global minus EU, North America, and East Asia
- Sub-Saharan Africa
- North Africa
- Middle East
- South Asia
- South America
- SE Asia
- China

United States Department of Agriculture, Economic Research Service
Greater Detail - Soybean Meal Feed Demand: By Regions, 50 Years of Growth

Million metric tons

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United States Department of Agriculture, Economic Research Service
Global Soybean Meal Exports

Million metric tons

Argentina

Brazil

Other

US

Source: USDA Agricultural Baseline Projections to 2026, February 2017.
United States Department of Agriculture, Economic Research Service
Global Soybean Meal Imports

Million metric tons


FSU & Other EU/1
Other
East Asia
South East Asia
Latin America/2
North Africa & Mid-East
European Union/3


Source: USDA Agricultural Baseline Projections to 2026, February 2017.
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.
United States Department of Agriculture, Economic Research Service
Global Wheat 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/ Excludes intra-EU trade.

Source: USDA Agricultural Baseline Projections to 2026, February 2017.
U.S. Meat Exports

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

- **Poultry:** Mexico, HK, Canada, Cuba, Taiwan
- **Pork:** Mexico, Japan, China, Canada, HK
- **Beef:** Japan, Mex, SKorea, Canada, HK

Source: USDA Agricultural Baseline Projections to 2026, February 2017.
Poultry Imports
(Major Regions and Selected Countries)

Million metric tons


Source: USDA Agricultural Baseline Projections to 2026, February 2017.
United States Department of Agriculture, Economic Research Service
Poultry Exports
(Major Regions and Selected Countries)

Million metric tons


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