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Feature: Farm Economy

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## Developing Countries Dominate World Demand for Agricultural Products

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According to USDA's baseline projections, developing countries will account for much of the increase in projected growth in global consumption of meats and crops in 2013-22. The developing-country shares of the projected growth include 81 percent for meat, 83 percent for grains and oilseeds, and 95 percent for cotton. Furthermore, developing countries' demand for agricultural products is expected to increase faster than their production. As a

result, these countries will account for 92 percent of the total increase in world meat imports, 92 percent of the increase in total grains and oilseeds imports, and nearly all of the increase in world cotton imports.



Factors behind the rapid increase in developing countries' demand are high rates of population and income growth, accompanied by increased urbanization and an expanding middle class. Populations in developing countries, in contrast to those in high-income countries, tend to be younger and undergoing more rapid urbanization, which generally leads to more diversified diets. These consumption changes are expected to shift import demand from traditional staples toward feedstuffs and high-value food products.

#### Highlights:

- Strong income and population growth will spur rapid increases in per capita consumption of agricultural products in low- and middle-income countries over the next decade.
- These countries will account for most of the increase in world consumption and imports of agricultural products during the period.
- Projected increases in global demand for agricultural products will create opportunities to expand U.S. exports.

Rising import demand by developing countries will provide an opportunity for the United States to expand agricultural exports. However, U.S. exporters will face new challenges as they adapt in response to the import needs of a large number of small but rapidly growing markets.

### Economic and Population Growth Stimulate Demand for Agricultural Products

The macroeconomic assumptions underlying USDA's long-term projections reflect a dichotomy between relatively weak long-run sustainable growth in developed countries and relatively strong, above-average growth in developing countries. As a result, developing countries are projected to become a larger part of the world economy.

Gross Domestic Product (GDP) worldwide is projected to increase at an average annual rate of around 3.3 percent over the next decade. In developing countries, the projected growth rate is 5.6 percent per year. The developing-country share of global real GDP is expected to climb from 33 percent in 2010 to 42 percent by 2022. Robust economic growth is anticipated across most developing countries in Asia, the Middle East, Africa, and Latin America. China and India are expected to remain among the world's fastest growing economies, each averaging more than 7 percent a year.

World population growth is projected to continue to slow, dropping from an annual rate of 1.2 percent between 2001 and 2010 to about

1.0 percent per year during 2013-22. However, annual population growth rates in most developing countries (1.2 percent) will remain well above those in the rest of the world (0.4 percent). As a result, the developing-country share of global population will increase from 74 percent in 1980 and 80 percent in 2010, to 82 percent in 2022.

**Per capita income and population will grow faster in developing countries than in developed countries**

	Per capita income		Population	
	2012 level	2013-22 growth rate	2012 level	2013-22 growth rate
	<i>2005 dollars</i>	<i>Percent</i>	<i>Million</i>	<i>Percent</i>
World	7,745	2.4	6,913	1.0
High-income countries	37,594	1.7	927	0.4
All developing countries	2,906	4.4	5,582	1.2
Latin America	5,959	3.1	602	1.0
Asia (excluding Japan)	2,572	5.8	3,618	0.9
Middle East	6,743	2.5	298	1.4
Africa	1,254	2.6	1,052	2.2

Source: USDA, Economic Research Service, International Macroeconomic Data Set.

The combined region of Africa and the Middle East has the highest population growth rate of any region in the world and is projected to achieve strong economic growth during the next 10 years. Consequently, growth in consumption there is also projected to rise rapidly. However, growth in agricultural production in the region is expected to lag behind gains in consumption. As a result, in 2013-22, the region is projected to account for large shares of global increases in agricultural imports: more than 50 percent for poultry and beef, 53 percent for wheat, and 50 percent for rice. Strong policy support for domestically produced meat will also stimulate growth in feed grain and protein meal imports, especially by countries where land constraints or agroclimatic conditions limit expanding crop production. As a result, the region's shares of increases in world imports over the next 10 years are projected at about 20 percent for feed grains and 25 percent for soybean oil.

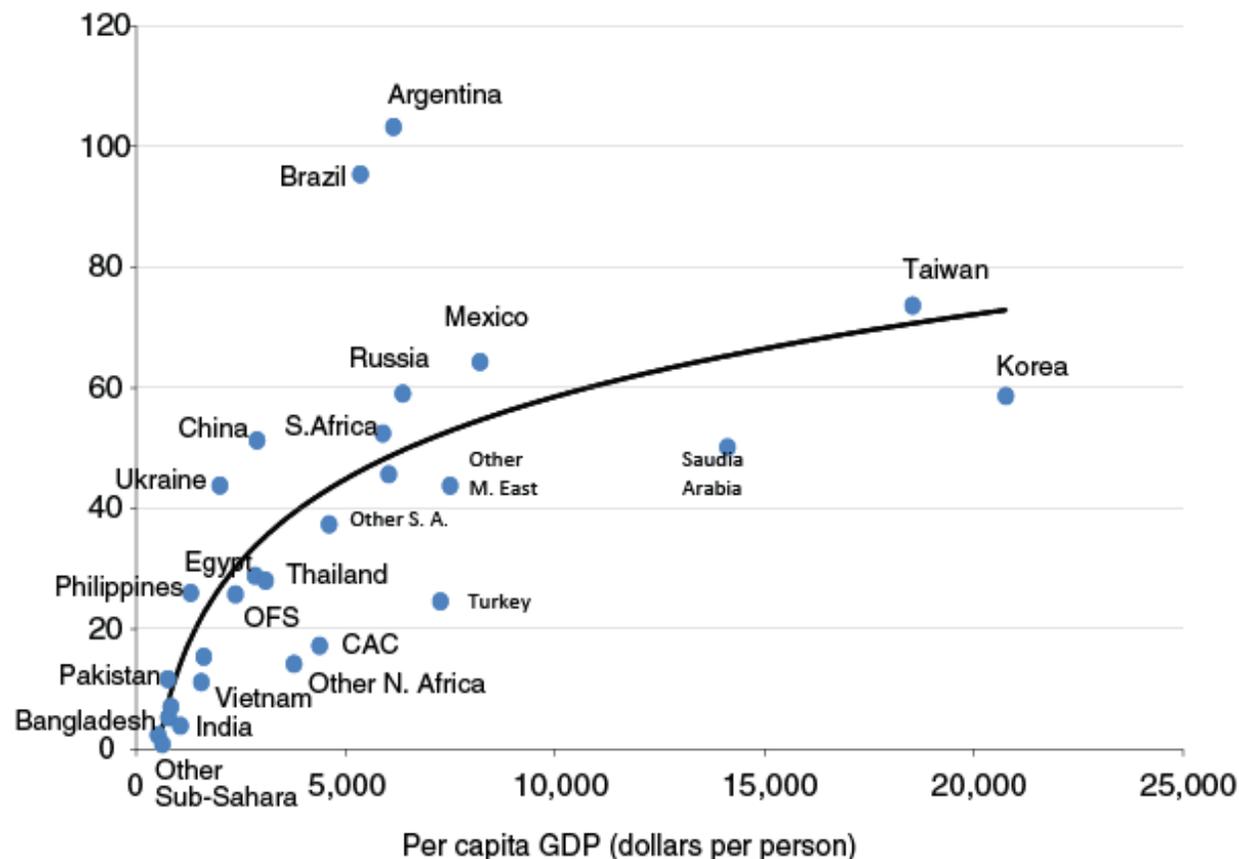
In Mexico, a projected sustained increase in per capita meat demand over the next decade will provide incentives for expanded livestock production as well as higher meat imports—beef, pork, and poultry imports are projected to rise by 67, 32, and 50 percent, respectively. In fact, Mexico is expected to account for about one-fourth of the growth in world pork and poultry imports. And with a growing domestic livestock sector, Mexico will see its corn imports increase at a rate second only to China's over the next 10 years.

### **Income Growth Feeds Demand for Livestock Products**

As incomes rise, consumers in low- and middle-income countries not only buy more food but also tend to eat more varied diets, increasing their consumption of meat, dairy products, eggs, vegetable oils, and processed foods.

## Per capita meat consumption and income, by country, 3-year average centered on 2010\*

Per capita meat consumption (kg per year)



Note: Data are 2009-11 averages for selected developing countries. Logarithmic growth curve based on both developing and developed countries. GDP = Gross Domestic Product.  
Source: USDA, Economic Research Service using *USDA Agricultural Projections to 2022* and supporting data.

**\*On November 25, 2013, the chart titled "Meat consumption generally increases with higher income" included in the August 2013 Amber Waves titled "Developing Countries Dominate World Demand for Agricultural Products" was revised to correct an error in the vertical axis scale.**

Over the next decade, increases in meat consumption in developing countries are projected to average 2.4 percent annually, compared with 0.9 percent in developed countries. Per capita poultry meat consumption in developing countries is projected to rise 2.8 percent per year during 2013-22, much faster than that of pork (2.2 percent) and beef (1.9 percent).

Imports of meat by developing countries will also rise rapidly because consumption is expected to increase faster than domestic production. Imports are projected to rise 3.4 percent per year for poultry, 2.9 for pork, and 4.1 percent for beef.

Poultry meat imports are projected to rise steadily in nearly all developing countries in the next decade, particularly in the Africa and the Middle East region, which is expected to account for 64 percent of the rise in world poultry imports. While population and income growth in the region will boost demand, concerns over animal disease outbreaks in a number of countries are expected to slow growth in poultry production and further increase demand for imports. As a result, the region's poultry imports will grow more than the combined rate for the rest of the world, and by 2022, Africa and the Middle East will account for over half of world poultry imports.

Since 2009, pork imports by China have risen sharply and are projected to continue rising steadily, accounting for over half of the growth in world pork imports in 2013-22. Asian countries, excluding China and Japan, and Mexico are likely to account for most of the rest of the increase in world pork imports during the period. Some higher income countries in East Asia, such as Korea and Taiwan, are expected to increase pork imports to satisfy rising demand for selected cuts of pork.

Some developing countries are also meat exporters. Exports of lower priced beef from India and Brazil to a number of low- and middle-income countries are expected to account for nearly two-thirds of the projected increase in world beef exports in 2013-22.

### **Demand for Livestock Feed Also Expands**

The expansion of livestock production in feed-deficit countries continues to be a major driver of trade in coarse grain and protein meal, particularly in the Middle East, North Africa, and Asia. Larger and more effectively managed livestock production facilities and improved feeding practices have played a large role in the growing dominance of corn in international feed grain markets. Ruminants, such as cattle and sheep, are capable of digesting a broad range of feedstuffs, making demand sensitive to prices across alternate feed sources. However, the shift of pork and poultry production to larger and more modern operations will likely result in the use of higher quality feed, boosting demand for corn and soybean meal.

Coarse grain consumption in developing countries is projected to increase by 22 percent and account for 82 percent of the gain in world coarse grain consumption over the next decade. To meet this demand, imports by developing countries are projected to increase 34 percent and account for 93 percent of the growth in coarse grain imports worldwide.

Imports by China are projected to account for 40 percent of the growth in world corn trade in the next decade. China's rising demand for

corn is driven by its expanding livestock and industrial sectors. In contrast, potential expansion of livestock production in other East Asian countries is constrained by environmental concerns, such as the control of swine manure and restrictions on large pork production facilities in Korea and Taiwan, and competition from growing imports of selected cuts of meat, which will limit gains in projected coarse grain consumption and imports. Imports by Africa and the Middle East are expected to account for about 20 percent of the growth in world coarse grain trade through 2022/23, as increasing population and rising incomes sustain strong demand growth for livestock products.

Feed use of protein meals, another important livestock feed ingredient, is also projected to grow. Protein meals, along with vegetable oils, are joint byproducts resulting from crushing oilseeds; when the production of one increases, so does production of the other. In the projections, world demand for vegetable oils is projected to rise even more rapidly than demand for protein meals. As a result, the price of protein meals will rise more slowly than prices of vegetable oils and oilseeds, as well as grains. Comparatively lower prices for soybean meal imports relative to grain imports provide incentives for producers to use a higher percentage of soybean meal in feed rations. Combined with continued growth in the demand for livestock products and limited capability to increase domestic oilseed production, imports of protein meals by developing countries are expected to increase in 2013-22.

Another factor contributing to growth in soybean meal use and imports by developing countries is a shift in livestock production to larger, more modern facilities that tend to feed rations with higher proportions of protein. China, for example, is moving to more commercial feeding operations. China also has a modern, efficient, but underutilized oilseed crushing capacity and is therefore expected to import mostly oilseeds for crushing rather than large amounts of oilseed meals and oils. In the next decade, China is projected to account for more than 90 percent of the global gains in soybean imports.

Per capita consumption of dairy products and eggs is also steadily rising in many developing countries as higher incomes and increased awareness of nutrition lead consumers to diversify and improve their diets.

### **Rising Population Boosts World Demand for Wheat and Rice, Offsetting Declines in Per Capita Use**

Wheat and rice are staple food grains in many low- and middle-income countries. Average global per capita use of both wheat and rice is projected to decline slightly in the next decade as rising incomes enable consumers to shift to more diversified diets. However, despite declining per capita use, rising population, particularly in developing countries, is expected to lead to increases in overall global demand for wheat and rice.

Among predominately rice-eating populations, such as Indonesia, Vietnam, and many other Asian countries, wheat is increasingly being substituted for rice to vary consumption. Meanwhile, diet diversification in traditionally wheat-consuming countries, such as those in North Africa, the Middle East, and the former Soviet Union, has resulted in some substitution of rice for wheat.

Developing countries are expected to account for 82 percent of the increase in world wheat consumption and 93 percent of the increase in world wheat imports in 2013-22. The largest growth markets for wheat include Indonesia, Vietnam, and Africa and the Middle East. Increased imports in Africa will be driven by population growth, while rapid income growth will stimulate increased imports by Asian countries. Most of these countries have limited ability to expand wheat production.

Egypt remains the world's largest wheat-importing country, but imports by the rest of Africa and the Middle East are projected to grow more rapidly than Egypt's in 2013-22. Saudi Arabia has adopted a policy to phase out wheat production by 2016 because of water-scarcity concerns, and imports there are projected to rise 47 percent from 2.3 to 3.4 million tons over the next 10 years.

Among countries in Asia, Indonesia has the fastest growing wheat imports and is expected to replace Brazil as the world's second-largest wheat-importing country. Historically, India has been a big wheat importer in some years and a big exporter in others. In the past 2 years, India exported significant amounts of wheat, partially as a result of high price-supports and large government stocks. Exports from India are expected to be larger than usual for several years until stocks are drawn down from high levels.

Nearly all projected growth in world consumption and imports of rice is attributed to developing countries. In Africa and the Middle East, continued strong rice demand will be driven by population and income growth and limited prospects for production growth. In North Africa and the Middle East, rice production is primarily limited by climate. In Sub-Saharan Africa, expanding production will be constrained by infrastructure deficiencies and resource limitations. Altogether, the entire Africa and Middle East region is expected to account for nearly half of the increase in world rice imports in the next decade.

Indonesia and the Philippines are projected to become the world's largest individual rice-importing countries. Together, they represent 25 percent of the projected 2013-22 increase in world rice imports.

### **Rise in Vegetable Oil Imports Driven by Demand for Food and Biodiesel**

Demand for vegetable oils for food, cooking, biodiesel production, and other industrial uses is projected to increase rapidly in low- and middle-income countries in 2013-22. Vegetable oil consumption in these countries is projected to expand 32 percent and account for 78

percent of the increase in world consumption. Developing-country imports of vegetable oils are projected to expand 34 percent and account for 79 percent of the increase in world imports. Growth in world soybean oil trade will be constrained by competition from lower priced palm oil, which accounts for about 63 percent of world total vegetable oil trade.

India is expected to replace China as the world's largest soybean oil importing country as its soybean oil imports climb 28 percent to 1.4 million tons in 2022-23. Factors contributing to the continued growth of India's soybean oil imports include burgeoning demand for vegetable oils and limited area for expanding domestic oilseed area. Low yields, associated with erratic monsoon rainfall and low input use, will also inhibit growth of oilseed production.

Income and population growth in North Africa, the Middle East, and Latin America will contribute to gains in soybean oil demand and imports, although rising international prices for soybean oil are expected to temper consumption. Nevertheless, in the next decade, the North Africa and Middle East region is projected to become the largest soybean oil importing region, followed by Latin America.

Biodiesel production in developing countries is also expected to increase demand for vegetable oils. Soybean oil is used as the feedstock for biodiesel production in Argentina and Brazil. Argentina is projected to remain the world's largest biodiesel exporter. Nearly all biodiesel production in Brazil is expected to be consumed domestically. In Indonesia and Malaysia, palm oil is the principal feedstock used for expanding biodiesel production.

Some countries with limited opportunities to expand oilseed production have invested heavily in crushing capacity. As a result, their import demand for oilseeds has grown rapidly, and this growth is projected to continue. During the next decade, global soybean trade is projected to increase by 37 percent, soybean oil trade by 21 percent, and soybean meal trade by 19 percent.

Mexico is projected to increase annual soybean imports by 21 percent to 4.5 million tons in the next 10 years. These imports will support the production of soybean meal for the Mexican poultry and pork industries and soybean oil for domestic food consumption.

Egypt and many other countries in North Africa and the Middle East have a limited ability to expand oilseed production. Thus, they are expected to increase soybean imports to fill growing feed and food needs.

### **Cotton Demand Also Increasing**

World demand for cotton is projected to rise 15 percent to 122 million bales during the next 10 years. Most of the world's demand for

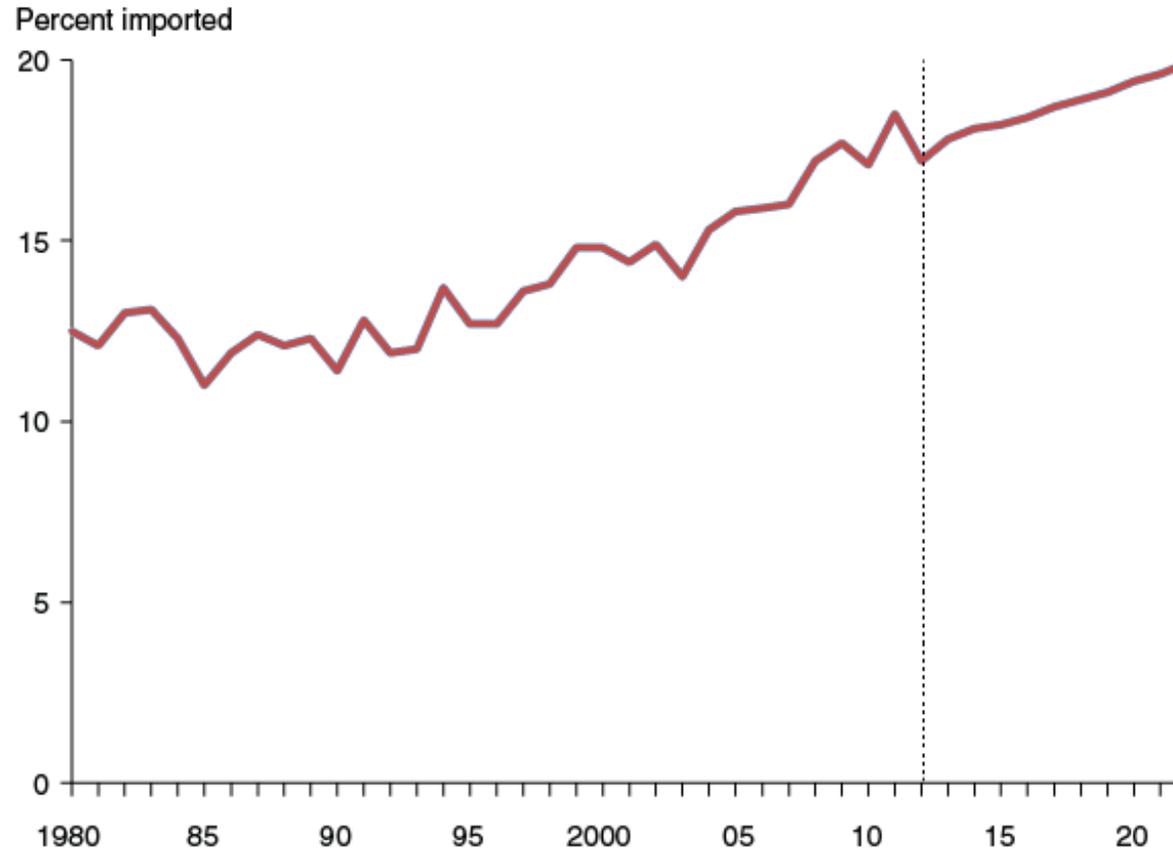
cotton comes from developing countries with low labor costs for production of textiles and apparel. Cotton use in developing countries is projected to expand 17 percent over the next decade and account for 95 percent of the increase in world use. Imports of cotton by these countries are projected to expand 12 percent and account for nearly all of the growth in world imports.

### **Rising Global Demand Creates U.S. Export Opportunities**

Demand for agricultural products in developing countries is projected to rise faster than production, since most of these countries have only limited potential to increase production. The growth rate for developing-country consumption of total grains and oilseeds is projected to be about 17 percent faster than the rate for production. As a result, the gap between consumption and production will continue to widen.

As a result, these countries will become more import dependent. The share of imports in developing-country consumption of total grains, oilseeds, cotton, and meats was 10 percent in 1975 (based on metric tons), and averaged 17.7 percent in 2010-12; the share is projected to reach nearly 20 percent in 2022.

**The import share of developing countries' consumption of total grains, oilseeds, cotton and meat is projected to rise**



Source: USDA, Economic Research Service using *USDA Agricultural Projections to 2022* and supporting data.

Thus, developing countries will have a growing role in the global economy and food demand. They will continue to account for most of the growth in world food consumption and in world and U.S. agricultural exports.

**Developing countries dominate world consumption and import growth, 2013-22**

	Share of projected growth	
	Consumption	Imports
	<i>Percent</i>	

Grains	87.9	94.0
Wheat	81.1	92.8
Rice	99.6	97.9
Corn	82.4	93.7
Sorghum	117.1*	365.0*
Barley	56.7	91.7
Oilseeds	78.5	90.0
Soybeans	91.9	78.8
Total protein meals	80.6	81.6
Soybean meal	86.5	78.8
Total vegetable oils	78.2	79.4
Soybean oil	90.0	58.1
Cotton	95.1	99.8
Meats	81.2	92.3
Beef	80.0	77.5
Pork	86.8	103.0*
Poultry	77.2	99.7
*Indicates that the level for developed countries is projected to decline. Source: USDA, Economic Research Service using <i>USDA Agricultural Projections to 2022</i> and supporting data.		

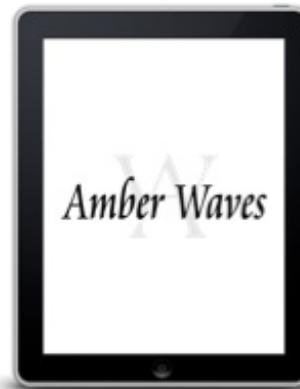
While these trends will create new opportunities for the United States to expand agricultural exports, they also present new challenges to U.S. exporters. Instead of a limited number of large importing countries, the global market now includes more numerous countries with smaller import needs. Responding to these needs will require new marketing strategies by U.S. and other exporters.

This article is drawn from...

**USDA Agricultural Projections to 2022**, by Paul Westcott and Ronald Trostle, USDA, Economic Research Service, February 2013

You may also be interested in...

**International Food Security Assessment, 2012-22**, by Stacey Rosen, Birgit Meade, Shahla Shapouri, Anna D'Souza, and Nicholas Rada, USDA, Economic Research Service, July 2012



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