# **FEEDING THINK U.S. Agriculture Will End World Hunger?**

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#### INTRODUCTION

The United Nations has gotten a lot of attention for making two stunning predictions: (1) that world population will exceed 9 billion by 2050.1 and (2) that global food production will have to double or at least increase by 60 percent to feed that swelling population.<sup>2,3</sup> In response, U.S. agricultural and agribusiness interests have been making the case, explicitly and implicitly, that America's farmers will have to double their production of grain and meat to "feed the world." They argue that this doubling will be necessary to provide food for the ballooning global population, especially in countries where hunger is already prevalent, as well as to supply enough meat and meat products to nations that are growing wealthier.

These same voices often claim that doubling American production is a moral imperative. not simply a market opportunity. They say people will go hungry if U.S. farmers don't respond (see sidebar). In some cases, they imply or even say outright that the collateral damage to natural resources, the environment, human health and ecosystems that would result from meeting this moral imperative would be regrettable but unavoidable. Finally, they argue that "modern" farming systems that rely heavily on biotechnology, fertilizers and chemicals are the only way U.S. farmers can meet this challenge, and that hewing to more agro-ecological methods of producing agricultural bounty will put countless people at risk of hunger and malnutrition.

Many farmers sincerely believe this. Others use this scenario more cynically to pursue political or business objectives. In either case, the "moral imperative" to feed the world has become an important rationale for maintaining the status quo in U.S. farm policy. It has also been deployed to deflect attention from the damage that "modern" agriculture does to the environment and human health, and to discredit calls for reform.

This self-serving narrative is being challenged, however. José Graziano da Silva, director-general of the Food and Agriculture Organization of the U.N., has argued compellingly that the persistence of hunger

#### PITCHING THE AGRIBUSINESS NARRATIVE

Agribusiness interests promote the "necessity" of greatly increasing food production by American farmers by the year 2050.

**Monsanto:** "At the current birth rate, experts predict we will reach more than 9 billion by 2050. To feed everyone, we'll need to double the amount of food we currently produce."

American Farm Bureau Federation former President Bob Stallman: "Many farmers feel strongly that it's the duty of the less than 1% of the U.S. population still directly involved in farming to help feed the masses."

National Crop Insurance Services President Tom Zacharias: "Much of the burden to feed the world rests with U.S. agriculture."

in the world, and the growing damage that "modern" agriculture does to soil and biodiversity demonstrate that this model of food production "is no longer acceptable."<sup>4</sup> Graziano and a host of other experts say the true solution to ending world hunger, while protecting environmental resources, is to improve the productivity and income of small farmers in the developing world, while promoting sustainable agriculture and "agro-ecology" everywhere.

EWG dug into agribusiness' oft-repeated mantra to assess whether it reflects reality. It is true, of course, that many people across the globe do suffer from hunger and malnutrition, and improving their diets while ensuring that millions more don't suffer the same fate is indeed a moral imperative. It is critical, therefore, that U.S. policies contribute effectively to ending hunger and malnutrition, but right now, these policies verge far from the truth.

Global demand for more diversified diets is expanding as millions of people in developing nations become affluent enough to afford a better, or at least different, diet. This is a welcome development and U.S. farmers have an important opportunity to serve this market through world trade. But meeting this demand—largely for meat, meat products and animal feed—does not carry the same moral imperative as lifting people out of poverty and hunger. The argument that we should accept the collateral damage from doubling U.S. production of grain and meat to satisfy a demand of this type hardly holds water.

As a first step toward improving understanding of America's role in combating hunger, EWG examined current agricultural export data in detail to determine who gets fed by U.S. agriculture, and with what products. We analyzed agricultural trade and production data from the U.S. Department of Agriculture, the international Organization for Economic Cooperation and Development, and the FAO of the U.N.. Export demand is driven by consumption, so export patterns provide key information about which agricultural products are consumed worldwide.

#### SPECIFICALLY, WE INVESTIGATED:

- 1. The top 25 agricultural products the U.S. exports.
- 2. The primary countries that receive U.S. agricultural products.
- 3. The amount of U.S. exports that go to countries considered to have high or very high rates of undernourishment.
- 4. The share of undernourished countries' food supply that comes from U.S. exports and food aid.

This report summarizes our findings.

#### TOP 25 U.S. AGRICULTURAL EXPORTS

In 2015, just 25 products accounted for 73 percent (\$97.7 billion) of all U.S. agricultural exports (\$133.05 billion), according to the most recent data<sup>5</sup> (see Table 1 below). Besides the 26th product, all other agricultural products contributed less than

1 percent each. Over 100 of them contributed less than 0.5 percent each.

Ten years of data, from 2006 through 2015, show similar results, as do the five years of data from 2011 through 2015. However, the second smallest product in 2015's top 25—walnuts—dropped out of the top 25 over several years, overtaken by soybean oil or bovine hides. Grain sorghum was also more prominent in 2015 than in many of the previous years.

EWG classified the 25 top export products in five categories: (1) animal feed, (2) meat and dairy, (3) food grains, (4) fruits, vegetables and nuts, and (5) other-based on how the products are primarily used. Soybeans, for example, can be used as food for either animals or humans, but were assigned to the animal feed grouping because the vast majority of soybeans are fed to animals. Globally, about 85 percent of soybeans are "crushed" and turned into meal for animal feed and oil for human food.<sup>6</sup> The meal-to-oil ratio of soybean exports varies by country, but in the U.S., about 80 percent of crushed soybeans become animal feed.<sup>7</sup> Uncrushed soybeans, which comprise a relatively small amount of the total, have food, feed, seed and industrial uses.

Corn is also in the animal feed category. Much more corn is used as animal feed than as human food—about 44 percent is used for feed in the U.S., compared to only 12 percent for food.<sup>8</sup> Soybean meal and "other feeds and fodder" are also in the animal feed category.

Although wheat is used as animal feed in the European Union and some other parts of the world, EWG classified it in the food grains category because globally, the majority of the wheat supply is used for food. Other products in the food grains category include rice and "other grain products" such as millet, quinoa and pasta.

The meat and dairy category includes beef, chicken and pork, and dairy products like cheese and milk. The fruits, vegetables and nuts category is also self-explanatory and includes fruits, vegetables, nuts and "miscellaneous horticulture products" such as spices and vegetable byproducts.

Product	2015 Export Value (\$ Billions)	Percent of All Agricultural Exports
Soybeans	18.9	14%
Corn	8.3	6%
Other Feeds & Fodder	7.4	6%
Wheat, Unmilled	5.6	4%
Miscellaneous Horticulture Products	5.5	4%
Beef & Veal, Fresh & Frozen	5.2	4%
Almonds	5.1	4%
Soybean Meal	4.8	4%
Pork, Fresh & Frozen	4.0	3%
Cotton, Excluding Linters	3.9	3%
Other Grain Products	3.8	3%
Chickens, Fresh & Frozen	2.8	2%
Grain Sorghums	2.3	2%
Beverages, Excluding Juice	2.0	1%
Rice-Paddy, Milled	2.0	1%
Essential Oils	1.8	1%
Other Vegetables, Prepared & Preserved	1.8	1%
Other Dairy Products	1.7	1%
Other Vegetable Oils & Waxes	1.6	1%
Related Sugar Products	1.6	1%
Seeds, Field & Garden	1.6	1%
Chocolate	1.5	1%
Wine	1.5	1%
Walnuts	1.5	1%
Nonfat Dry Milk	1.5	1%
Total 25 Products	97.7	73%

Table 1: The top 25 products made up 73 percent of total U.S. agricultural exports.

Source: EWG, from USDA Foreign Agriculture Service 2015 data, Global Agriculture Trade System

The "other" category consists mostly of cotton, beverages, sugar products, waxes and oils.

In 2015, animal feed contributed 40 percent (\$39.3 billion) of the total value of the top 25 U.S. agricultural exports; meat and dairy contributed 16 percent (\$15.2 billion); "other" 16 percent (\$15.6 billion); food grains 14 percent (\$13.7 billion); and fruits, vegetables and nuts 14 percent (\$14.0 billion) (see Figure 1 below). Throughout the 2006-2015 decade, the breakdown of the top 25 exports was fairly consistent. On average, 41 percent of total value came from animal feed; 15 percent from meat and dairy; 18 percent from "other;" 15 percent from food grains; and 10 percent from fruits, vegetables and nuts. *Figure 1: In 2015, 40 percent of the top exports' total value came from animal feed.* 



Figure 2: Animal feed accounted for 31 percent of total value exported to the top 20 importers.



Source: EWG, from USDA Foreign Agriculture Service 2015 data, Global Agriculture Trade System Together, animal feed, meat and dairy products yielded 56 percent (\$54.5 billion) of the value of the top 25 U.S. exports in 2015 and a striking 41 percent of the value of *all* U.S. agricultural exports. In all, over half of the value of the top 25 exports and almost half the value of *all* agricultural exports was from meat, meat products and animal feed.

EWG used the same five categories to analyze all U.S. agricultural exports—not just the top 25 products—in 2015 to the top 20 importers, and found that animal feed made up 31 percent of their total value. Meat and dairy accounted for 19 percent; fruits, vegetables and nuts 22 percent; food grains 10 percent and "other" made up 18 percent (see Figure 2 below).

Animal feed exports to the top 20 destinations were highly concentrated just seven products accounted for \$35.6 billion of total agricultural export value in 2015. Soybeans and soybean meal alone made up 18 percent (\$21.1 billion) of total exports. Other categories were much less concentrated: meat and dairy had 34 products for a combined \$21.3 billion value; food grains had 14 products for \$11.3 billion; fruits, vegetables and nuts had 57 products for \$25.4 billion; and "other" had 48 products for \$20.9 billion.

Together, meat, dairy and animal feed accounted for 50 percent (\$57 billion) of the value of all exports to the top 20 destinations, meaning that half the total export value was earned by products that help people in wealthier countries eat more meat.

For the 2006-2015 decade as a whole, 33 percent of the value going to the top 20 export destinations came from animal feed; 18 percent from meat and dairy; 11 percent from food grains; 18 percent from fruits, vegetables and nuts; and 20 percent from "other." The combined export value of meat, dairy and animal feed was very close to the 2015 figure averaging 51 percent.

#### DEVELOPED COUNTRIES ARE THE MAIN EXPORT DESTINATIONS

The U.S. only provides a small portion of total world agricultural production. According to the U.N. FAO, in 2013 (the most recent year available) the value of U.S. agricultural production made up only 9.5 percent of the global total.<sup>9</sup>

The U.N. Development Program uses a system of development indicators to rank each country's development status as **low, medium, high** or **very high** based on measures of life expectancy, income and level of education.<sup>10</sup>

In 2015, the top 20 importers of U.S. agricultural products—19 individual countries and the European Union—accounted for 86 percent (\$114.4 billion) of the total value of U.S. agricultural exports. Only 14 percent went to the other 100-plus destinations. On average, the top 20 importers accounted for 85 percent of all U.S. agricultural exports throughout the 2006-2015 decade. Most of the 20 importers were similar every year, with the exceptions of Russia dropping out in 2014 and 2015, and Guatemala and India being added in 2015. In 2015, most of the top value went to countries with **verv high** or **high** development scores, and none went to countries with high rates of hunger.

In 2015, 50 percent of the value of America's agricultural exports to the top destinations went to the European Union and seven countries the U.N. rates **very high** for development; 39 percent went to six countries rated **high**; and just 8 percent went to five countries rated **medium**. Taiwan, which did not have a human development rating due to a lack of data, accounted for 3 percent of the exports' value (see Table 2 below). (The United States is rated **very high** for development.)

Between 2014 and 2016, nine of the 20 top importers of U.S. agricultural products enjoyed **very low** rates of hunger, according to the FAO.<sup>11</sup> Nine countries had **moderately low** rates of hunger and only two had **moderately high** hunger. FAO ranks a country as suffering a **very high** hunger rate if 35 percent or more of the population is undernourished; **high** at 25 to 35 percent undernourished; **moderately high** at 15 to 25 percent; **moderately low** at 5 to 15 percent; and **very low** at less than 5 percent. None of the top 20 importers had **high** or **very high** rates of undernourishment, so U.S. agricultural exports mainly went to countries where less than 25 percent of the population is going hungry. (The United States is rated **very low** for hunger.)

Despite their overall low rates of undernourishment, some countries among the top export destinations do struggle with malnutrition, resulting from a combination of undernourishment and obesity. Millions of people suffer from malnutrition in four countries—China, Indonesia, India and Mexico-that were main U.S. agricultural export destinations in 2015, according to the International Food Policy Research Institute's 2014-2015 Global Food Policy Report.<sup>12</sup> The Institute considers 11 percent (150.8 million) of China's population, 15 percent (190.7 million) of India's population and 9 percent (21.6 million) of Indonesia's population to be undernourished. But in China and Indonesia, the number of overweight or obese people is more than double the number who are undernourished, and 11 percent of India's population is overweight or obese.

Likewise, being overweight or obese are the main reasons people in Mexico are malnourished. The Institute reports that undernourishment affects a negligible percentage of Mexico's residents, but 69 percent (82.6 million) are overweight or obese. The Institute cites three main reasons why malnutrition is a problem in these countries despite their impressive rates of economic growth:

## growing inequality in wealth and education;

a surge in urbanization, and associated dietary shifts from cereals toward sugary, salty and fatty foods; and

domestic food security programs that do not target the neediest or focus on nutrition.

# Table 2: Most of the top 20 export destinations had **very high** or **high** development ratings.

Country	Rank	UN Human Development Score	FAO Hunger Score
Canada	1	Very High	Very Low
China	2	High	Moderately Low
Mexico	3	High	Very Low
European Union-28	4	Very High	Very Low
Japan	5	Very High	Very Low
South Korea	6	Very High	Very Low
Hong Kong	7	Very High	Moderately Low
Taiwan	8	NA	Moderately Low
Colombia	9	High	Moderately Low
Philippines	10	Medium	Moderately Low
Vietnam	11	Medium	Moderately Low
Indonesia	12	Medium	Moderately Low
Thailand	13	High	Moderately Low
Australia	14	Very High	Very Low
Turkey	15	High	Very Low
Saudi Arabia	16	Very High	Very Low
United Arab Emirates	17	Very High	Very Low
India	18	Medium	Moderately High
Dominican Republic	19	High	Moderately Low
Guatemala	20	Medium	Moderately High

Source: EWG, from UN Development Program, Human Development Reports and FAO of the United Nations, 2015 Hunger Map

U.S. agricultural exports to China, Indonesia and Mexico do nothing to alleviate these problems and may actually contribute to a rise in the overweight and obese populations. In 2015, most of the value of America's agricultural exports to these three countries came from meat, dairy and animal feed products: 70 percent of the value to China, 65 percent of the value to Indonesia and 60 percent of the value to Mexico. India, at 6 percent, was the only country in which meat, dairy and feed accounted for a low share of import value, mainly because 45 percent of its total imported value was from almonds alone.

#### A TINY AMOUNT OF U.S. EXPORTS GO TO THE HUNGRIEST COUNTRIES

According to the U.N. FAO, from 2014 to 2016 four countries were experiencing **very high** undernourishment and 15 had **high** undernourishment.<sup>13</sup> All had **low** or **medium** human development scores, which are correlated with undernourishment.

U.S. agricultural exports to these 19 hungry countries were valued at only \$719.3 million—a tiny 0.5 percent of total U.S. agricultural exports in 2015. Exports to the top 20 destinations were 158 times greater than those to the 19 undernourished countries (see Figure 3 below). The 10-year average data is not directly comparable because the list of undernourished countries has changed since 2006. However, the value of U.S. agricultural exports to the countries with **very high** or **high** undernourishment over the decade averaged only 0.7 percent of the value of total agricultural exports.

Many of these nations have small populations, and having fewer people corresponds to lower agricultural imports. However, some of the top 20 importers have smaller populations than the 19 hungriest countries but still import considerably more agricultural products from the U.S. In 2013, for example, a number of the 19 hungriest countries had larger populations than Hong Kong, but the value of Hong Kong's agricultural imports in 2015 was much greater.

Among the 19 hungriest countries, Haiti and Yemen together accounted for 63 percent of all U.S. agricultural exports to the group (see Table 3 below). Agricultural exports to the other undernourished countries were small and unevenly distributed.

The breakdown of products in the five export categories was very different for the 19 undernourished countries compared to the top 20 destinations. Hardly any of the agricultural export value going to the 19 hungriest countries was in animal feed in 2015, and over half of the value was in food grains (see Figure 4 below). In the hungriest countries, animal feed made up just 2 percent of the export value (\$16.8 million). Food grains were at 59 percent (\$426.4 million): fruits. vegetables and nuts were at 9 percent (\$67.5 million): meat and dairy were at 22 percent (\$156.9 million); and "other" was at 8 percent (\$56.5 million).

Combined, meat, dairy and animal feed accounted for a much lower percentage of export value to the 19 undernourished countries than to the top 20 export



Figure 3: Just 0.5 percent of U.S. exports went to the 19 undernourished countries in 2015.

Source: EWG, from USDA Foreign Agriculture Service 2015 data, Global Agriculture Trade System

Country	2015 Export Value (\$ Millions)	2014–2016 Undernourishment Status
Haiti	353.2	Very High
Yemen	102.2	High
Ethiopia	93.4	High
Congo	36.4	High
Afghanistan	32.8	High
Tanzania	31.8	High
Liberia	24.1	High
Mozambique	9.9	High
Namibia	8.9	Very High
Tajikistan	5.0	High
Swaziland	4.6	High
Madagascar	4.2	High
Zimbabwe	4.1	High
Uganda	3.3	High
Chad	2.9	High
Timor-Leste	0.9	High
Zambia	0.8	Very High
Central African Republic	0.7	Very High
Rwanda	0.02	High
Total 19 Undernourished Countries	719.3	

# Table 3: Haiti and Yemen imported the most U.S. agricultural products among the hungry countries.

Sources: EWG, from FAO of the U.N., 2015 Hunger Map and USDA Foreign Agriculture Service 2015 data, Global Agriculture Trade System

destinations. Those two categories accounted for 50 percent of the top importers' values but only 24 percent of the hungry countries' values. Overall, U.S. exports delivered little meat to the hungry countries.

On average for the 2006-2015 decade, 3 percent of the undernourished countries' imported values came from animal feed; 18 percent from meat and dairy; 59 percent from food grains; 8 percent from fruits, vegetables and nuts; and 13 percent from "other." The average value of the meat, dairy and animal feed breakdown for the decade was 21 percent—a little less than in 2015.

#### U.S. EXPORTS AND AID PROVIDE LITTLE OF HUNGRY COUNTRIES' FOOD

U.S. food exports and food aid made up a tiny portion of the total food supplies of the 19 hungriest countries. EWG calculated the value of each country's total food supply by adding net domestic food production and net food import values reported by the U.N. FAO<sup>14</sup> to total food aid reported by the OECD, in accordance with FAO methodology.<sup>15</sup> The Organization's food aid data Figure 4: Over half of the undernourished countries' export value came from food grains.



Source: EWG, from USDA Foreign Agriculture Service 2015 data, Global Agriculture Trade System

encompassed official development assistance in the form of food aid, food security assistance and emergency food aid.<sup>16</sup> Due to the combination of different data sources, the food supply calculations are estimates and may not represent exact values.

On average, in 2013 (the most recent year with data), gross food imports from all exporting countries contributed 22.9 percent of the undernourished countries' food supplies. U.S. food exports made up just 1.2 percent of the total.

Although the U.S. provided almost half of all food aid to the hungriest countries, total food aid made up a diminutive fraction of these countries' food supplies. In 2013, the share of the total food supply from food aid provided by OECD countries averaged only 2.2 percent. The United States provided 48.9 percent of that food aid, but U.S. aid accounted for only 1.1 percent of the total food supplies in the 19 hungriest countries.

Together, food exports and food aid from the U.S. constituted an inconsequential amount of the 19 undernourished countries' total food supplies—averaging 2.3 percent. The U.S. contribution to food supplies ranged from a high of 17 percent in Haiti to a low of almost zero in Timor-Leste (see Table 4 below). Overall, food aid and gross food imports to the 19 undernourished countries accounted for 25.1 percent of their total food supplies, dwarfing the 2.3 percent U.S. contribution.

America's contribution to the total food supply of countries with high and very high undernourishment has not changed significantly since 2004, ranging from a low of 2 percent to a high of 4.4 percent from 2004 through 2013, but the U.S. share of total food aid has dropped. In 2004, the U.S. contributed 78.1 percent of the food aid to the hungriest countries, but by 2013 it was down to 48.9 percent. The share of the hungriest countries' total food supplies provided by food aid and food exports from all sources increased from 16 percent in 2004 to 25.1 percent in 2013.

#### U.S. Agricultural Production Affects Food Prices

Although the United States does not provide much of the 19 hungriest countries' food supplies, U.S. agricultural production does help keep food prices down. In general, the larger the supply of agricultural products, the lower the global market prices will be. It follows that if the U.S. were to produce less while demand stayed the same, global food prices would rise, hurting the 19 undernourished countries.

In 2012, in fact, the drought that slashed U.S. crop production drove up food prices globally. At the height of the drought in July 2012, global food prices were 6 percent higher than in previous months.<sup>17</sup> Such price increases hit the hungriest nations the hardest. U.S.

Country	2013 U.S. Food Exports & Aid (\$ Millions)	2013 Total Food Supply (\$ Millions)	U.S. Share of Food Supply
Haiti	414.1	2,469.9	17%
Swaziland	6.6	100.5	7%
Liberia	39.7	681.0	6%
Congo	51.1	957.6	5%
Chad	94.6	2,008.3	5%
Yemen	255.9	5,584.9	5%
Ethiopia	281.8	12,436.6	2%
Afghanistan	112.4	5,270.7	2%
Zimbabwe	44.5	2,248.6	2%
Central African Republic	19.1	1,179.8	2%
Mozambique	59.4	4,284.0	1%
Namibia	8.9	719.4	1%
Uganda	40.5	6,484.4	1%
Tanzania	58.1	10,293.2	1%
Tajikistan	7.8	2,004.2	<1%
Rwanda	8.4	2,952.9	<1%
Madagascar	9.7	4,023.5	<1%
Timor-Leste	0.5	260.4	<1%
Zambia	0.9	1,823.3	<1%
Share of Total			2.3%

# *Table 4: U.S. food exports and aid made up 2.3 percent of hungry countries' 2013 food supplies.*

Sources: EWG, from USDA Foreign Agriculture Service 2013 data, Global Agriculture Trade System, U.N. FAO 2013 data, FAOSTAT Production and Trade and OECD 2013 data, International Development Statistics

production does help hungry populations by keeping food prices relatively low, but the United States cannot rely solely on its impact on prices to help feed the hungry.

#### Other Strategies to Combat Hunger

Increasing food supplies in undernourished countries would help reduce hunger, but what's needed most is development aid. Improving undernourished populations' access to food through infrastructure developments, such as improving roads and building markets, is important for reducing hunger. Economic growth and increased income for women and the very poor would greatly improve undernourishment and help alleviate poverty. Better education and training in health and nutrition, as well as resolving or avoiding wars and other conflicts, would also be extremely helpful.<sup>18</sup> Such strategies are often complicated, expensive and hard to implement, but they are absolutely necessary for reducing undernourishment.

The "moral imperative" of increasing food production at the expense of the environment does not fit into these strategies. Implementing the strategies listed above, and sustainably increasing the food supplies of undernourished countries would go much farther in solving hunger.

#### CONCLUSION

Today, most agricultural exports from the United States go to countries whose citizens can afford to pay for them. Meat and dairy products, along with animal feed, accounted for 50 percent of all U.S. agriculture exports to the top 20 destinations in 2015. Most of the top importers of U.S. exports had **very high** or **high** human development scores, and **low** levels of hunger. Agricultural exports from the U.S. chiefly meet the demand for more meat and more diverse diets from already affluent countries, or those with growing personal wealth.

Less than 1 percent of America's agricultural exports go to the 19 countries with the highest levels of undernourishment. Even though we provide almost half of all food aid to those countries, U.S. exports and food aid together constitute only 2.3 percent of their food supplies.

However, food supplies and access to food are not the only causes of undernourishment. A number of other factors—including the poverty rate, level of education, knowledge of nutrition, and the occurrence of war and conflict—are also important in determining how best to alleviate hunger in the 19 undernourished countries. Increasing food supplies alone will not ease undernourishment as long as too many people remain poor and have low levels of education.

There is nothing wrong with producing agricultural exports to meet the demand for more meat and more diverse diets from an increasingly wealthy global population. Meeting that demand can improve the quality of life for those consumers, and creates economic opportunities for American farmers and agribusiness. But this does not carry the same moral imperative as raising millions out of hunger and poverty. To claim that U.S. farmers and agribusinesses must go all-out to feed the world—regardless of the consequences to human health and the environment amounts to wrapping a business opportunity in the cloak of moral necessity.

The United States has a critically important role to play in combating global hunger and poverty, but there is no moral imperative attached to sending more and more meat, animal feed and other agricultural products to parts of the world that have the means to afford those products. Worse, rhetoric about U.S. farmers and agribusinesses feeding the world distracts us from seeing what we could and should do that would really help to end hunger. Even the hungriest countries produce most of their own food. The most important roles the United States can play are in helping them do a better iob of feeding themselves and ensuring that their farmers make a good living.

#### SOURCES

- United Nations, Department of Economic and Social Affairs, Population Division, World Population Prospects: the 2015 Revision, Key Findings and Advance Tables. Working Paper No. ESA/P/WP.241, 2015. Available at esa. un.org/unpd/wpp/Publications/Files/Key\_Findings\_ WPP\_2015.pdf
- 2. United Nations, Food Production Must Double by 2050 to Meet Demand from World's Growing Population, Innovative Strategies Needed to Combat Hunger, Experts Tell Second Committee. Sixty-Fourth General Assembly, Second Committee, Panel Discussion, Oct. 2009. Available at www.un.org/press/en/2009/gaef3242.doc.htm
- Nikos Alexandratos and Jelle Bruinsma, World Agriculture Towards 2030/2050: The 2012 Revision. United Nations, Food and Agriculture Organization, June 2012. Available at www.fao.org/docrep/016/ap106e/ap106e.pdf
- United Nations, Food and Agriculture Organization, Agriculture Must Change. International Forum on Agriculture and Climate Change, Feb. 2015. Available at www.fao.org/news/story/en/item/278192/icode/
- United States Department of Agriculture, Foreign Agriculture Service, 2013 Foreign Agricultural Trade of the United States (FATUS) Exports. Global Agricultural Trade System, 2015. Available at apps.fas.usda.gov/GATS/ default.aspx
- Soyatech, Soy Facts. Available at www.soyatech.com/ soy\_facts.htm
- Wisconsin Soybean Association and Wisconsin Soybean Marketing Board, Did You Know? U.S. and Wisconsin Soybean Facts. Available at www.wisoybean.org/news/ soybean\_facts.php
- 8. United States Department of Agriculture, Economic Research Service, Corn. Nov. 2015. Available at www.ers. usda.gov/topics/crops/corn/background.aspx

- 9. Food and Agriculture Organization of the United Nations Statistics Division, Production Data. FAOSTAT. Available at faostat3.fao.org/home/E
- 10. United Nations Development Program, International Human Development Indicators. Human Development Reports. Available at hdr.undp.org/en/countries
- 11. Food and Agriculture Organization of the United Nations, the FAO Hunger Map 2015. The State of Food Insecurity in the World 2015. Available at www.fao.org/hunger/en/
- 12. International Food Policy Research Institute, 2014-2015 Global Food Policy Report. 2015. Available at www.ifpri. org/publication/2014-2015-global-food-policy-report
- 13. Food and Agriculture Organization of the United Nations, the FAO Hunger Map 2015, op. cit.
- 14. Food and Agriculture Organization of the United Nations Statistics Division, Production and Trade Data. FAOSTAT. Available at faostat3.fao.org/home/E
- Food and Agriculture Organization of the United Nations, Supply Utilization Accounts and Food Balance Sheets-Background Information for your Better Understanding. 2016. Available at www.fao.org/economic/the-statisticsdivision-ess/methodology/methodology-systems/supplyutilization-accounts-and-food-balance-sheets-backgroundinformation-for-your-better-understanding/en/
- 16. Organization for Economic Cooperation and Development, Query Wizard for International Development Statistics. Available at stats.oecd.org/qwids/
- Aaron Smith, U.S. Drought Drives up Food Prices Worldwide. CNN Money, Aug. 2012. Available at money. cnn.com/2012/08/09/news/economy/food-prices-index/
- International Food Policy Research Institute, 2014-2015 Global Food Policy Report. 2015. Available at www.ifpri. org/publication/2014-2015-global-food-policy-report