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What would a world without hunger and malnutrition be like? A world where no one worries about where the next meal will come from. A world where we are all nourished by safe, healthy, and affordable food.

We can find out within our lifetime.

At this very moment, a quarter of the world’s people suffer from malnutrition.1 Millions are going hungry, and millions more aren’t getting the nutrition they need.2 This takes a toll on individuals, families, communities, and countries. It frays the fabric of our world, and will only get worse as the world’s population grows.

There are four realities that are shaping the world’s food supply:

Population: Today, there are 7 billion of us on the Earth.3 When the ENOUGH report was first written, it was estimated that there would be 9 billion people on Earth in 2050. Recently, that original estimate for 2050 has risen 100,000,000 and is expected to surpass 9.5 billion by 2050.4 On this trajectory, the world’s population could hit more than 12 billion by 2100.5

Resource use: Two years ago scientific models showed we were using 1.5 Earths per year6, which was unsustainable. That number has gotten even more concerning as the estimates now show humans using the equivalent of 1.6 Earths per year.7

Animal health: Threats to animal health from disease are increasing.8

Perspective: Organic agriculture represents only 4 percent of the US market9 and 5.4 percent of the European Union’s10, and isn’t in the position to feed the number of neighbors we’ll have in 2050. We must keep actively pursuing other options to make sure the world is fed.

The ENOUGH Movement is a global community dedicated to finding practical solutions for a food-secure world. We’re the people—the farmers, consumers, businesses, governments, NGOs—who are going to solve the world’s most pressing problem. And working together is the only way we’re going to achieve it.

This report details how we currently view the food security problem and our ideas on how we can start solving it. But it’s also just the beginning. The ENOUGH Movement needs passionate advocates who can bring its message forward, people who are willing to speak out on the need for real solutions to a problem that touches every community, every country.

If you want to help build a food-secure world, join us. Visit www.ENOUGHMovement.com to learn more and discover ways you can become part of the solution.

Together, we can make a difference.

Sincerely

Jeff Simmons
President
Elanco Animal Health

Join the movement at www.enoughmovement.com
INTRODUCTION

It’s time for everyone to have enough.

Consider these alarming facts:

1. By 2050, the world’s population will have surpassed 9.5 billion, and the middle class is expected to increase by three billion.12
2. There will be a 60% increase in demand for high-quality, nutritious foods.13
3. And as we’re already overusing our planet’s resources,14 we must find solutions to produce more food with fewer resources.

FOOD SECURITY REALITIES

The middle class is expected to increase by 3 billion, with the fastest growth to occur between now and 2020

With an increase in demand for meat, milk, and eggs, we will need 60% more animal-sourced foods

By overusing our resources, it takes the Earth 1.6 years to regenerate the renewable resources we use in a single year

3 billion

60% more

1.6 years

The ENOUGH Movement envisions a future in which every one of our more than nine billion neighbors has access to foods that will keep them healthy and strong. A future where twenty-five thousand people no longer die each day from hunger.15 A future where our environmental resources are conserved.

There are 795 million undernourished people in the world today16 who are waiting and depending on a food-secure future.

The problem is real, but the solutions are practical. Small choices we each make every day can turn the tide on hunger. Everyone, from shoppers grabbing something for dinner on their way home to farmers raising that dinner for them, can extend a hand to stop food insecurity.
OUR MISSION

The ENOUGH Movement is a global community working to ensure everyone has access to nutritious, affordable protein—today and in the coming decades.
CREATING
A FOOD-SECURE WORLD

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THE GROWING POPULATION:
More than two billion people will enter our global population. That’s six times the population of the United States and two and a half times the population of Europe. Not only will the population be larger, the demographics will also have a high impact. The middle class will be much larger; the world will be more urban, meaning a smaller percent of the population engaged in growing food; and the fastest growing age sector of the population will be the elderly as life expectancy becomes an increasingly significant factor in global population growth.

AN INCREASE IN DEMAND:
We’re not just talking about adding more people, but more people with improved lives. Three billion people will rise from poverty to enter the global middle class, and will improve their diets by increasing the variety and quality of the food they consume. The Food and Agriculture Organization of the United Nations (FAO) predicts an estimated 60% increase in demand for animal-sourced foods such as meat, milk, and eggs.

OVERUSING OUR RESOURCES:
Earth’s resources are not infinite and they take time to regenerate. Our rate of demand on them matters. It currently takes 1.6 years to regenerate the resources we consume annually. Our habits have been increasing this unsustainable number and if we continue on this course, by 2030 we’ll require double the planet’s resources to meet our annual consumption.

In the next 35 years, you’ll have more than nine billion neighbors. Think about what this means for our planet:

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A LACK OF FOOD SECURITY AROUND THE WORLD

North America
Nearly 50 million Americans lived in food insecure households in 2013, including 33.3 million adults and 15.8 million children.

Europe
Over 30 million households in the EU say they are unable to afford a high-quality meal — defined as one with meat, fish, chicken or a vegetarian equivalent — every other day.

Latin America and the Caribbean
Insufficient access to milk and meat has led to rates of anemia in Latin American countries ranging from 45% to 80% in children under 5 years of age and from 5% to 15% in women of childbearing age.

Africa
An estimated 220 million in Africa will be undernourished in 2014-16, a 25% increase from 175 million people in 1990-1992.

Asia and the Pacific
The Asia-Pacific region is home to nearly 12% of the world's undernourished people. 480 million people in the region suffer from chronic hunger.

Sources:
THE SPECTRUM OF FOOD INSECURITY:

A lack of food security is often associated with extreme hunger and malnutrition found too often in developing countries around the world. But in reality, it encompasses far more than hunger, and impacts individuals and families in every community around the world. It could mean famine in Asia or a food desert in the United States. It could be the 20 million people in the EU who are unable to afford a meal that includes a protein, such as beef, pork, fish, chicken, or a vegetarian equivalent at least once every other day.29 There’s likely not a day that goes by when you don’t come in direct contact with at least one facet of the spectrum.

Spectrum of Food Insecurity

<table>
<thead>
<tr>
<th>Disease</th>
<th>Deprivation</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starvation: Extreme malnutrition and death from hunger: 25,000 die each day due to hunger and its related diseases.</td>
<td>Accessibility: Food is not readily or consistently accessible, resulting in a pattern of starving and gorging; the daily search for food dominates life, preventing any other productive activities.</td>
<td>Quality: An unexpected life event—a short-term job crisis, a health problem—creates financial collapse and contributes to a lack of food security</td>
</tr>
<tr>
<td>Deficiency: Food intake consists of a few staples, and lack of animal protein in the diet negatively affects cognitive, behavioral, and muscle development in children.</td>
<td>Quality: Food deserts in urban and rural areas create a lack of access to whole, healthy foods, which contributes to obesity.</td>
<td>Trade-offs: Healthy, wholesome ingredients are often more expensive than cheap, over-processed food, enabling economics to dictate poor nutritional choices. Additionally a lack of education and cooking skills can decrease the likelihood of choosing whole foods.</td>
</tr>
</tbody>
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A FOOD-SECURE WORLD - WHAT IT MEANS

1. **Access**: Healthy, nutritious food is available everywhere in the world. Diets are varied and provide adequate nourishment.

2. **Affordability**: Cooking a meal using wholesome foods is affordable. As the middle class grows, better food options become more affordable, not less.

3. **Health**: People have access to the right quantity and quality of calories and nutrients. There are fewer deaths from hunger, less chronic disease, and greater human potential is realized.

4. **Resources**: By emphasizing innovation and efficiency, we can freeze our production footprint and preserve resources for future generations.

5. **Stability**: Consistent access to affordable, quality food can help reduce political instability and conflict, and create societies that are less vulnerable in the face of humanitarian disasters.
SOLVING THE CHALLENGE:

To change the way the world sustains, farms, and eats in 2050, we have to change the way we act today. To change the future for our children and our children's children, we have to implement the solutions proven to make a difference—and the time is now.

There is no single answer to the question of how we make our world more food-secure—and we won't all agree on the best ways forward. But, we can find common ground. By working together as consumers, farmers, policy-makers, thought-leaders, businesses, and activists, we can ensure a positive ending to this story.

Just as the lack of food security has multiple causes, there are also multiple solutions. The ENOUGH Movement starts with a foundation of sustainability—the solutions we implement must produce more food, but we must do so in a way that uses less land, less water, less feed, and less energy while ensuring animal welfare. Building on that foundation, ENOUGH focuses on four key pillars—Innovation, Choice, Access, and Nutrition—each offering modern approaches to tackling this global issue. At the heart of each pillar is collaboration: with the support of a global community of advocates, we will ignite a solution to food insecurity around the world.
WHAT DOES IT REALLY MEAN TO BE SUSTAINABLE?

Sustainability creates and maintains the conditions under which humans and nature can exist in harmony. In a sustainable world, the social, environmental and economic requirements of the present population are met in ways that protects the world that will feed future generations.

When it comes to food, over the past decades farmers and food producers have worked to meet the increase in demand in large part by adding more animals. More cows, more pigs, more chickens. But those animals require additional land, water, feed and energy. As the global population increases and billions more people demand access to a diverse and healthy diet, the toll on the environment and resources will grow exponentially. It’s simply unsustainable to keep adding animals to feed the population.

There is no way to build a truly food-secure world without implementing solutions that optimize food production while minimizing our use of environmental resources. So what’s the answer? It’s not more animals. And it’s certainly not denying billions of neighbors access to the healthy and nutritious food that will allow them to reach their full potential.

The four pillars of the ENOUGH Movement offer a sustainable blueprint for addressing some of the most pressing issues that contribute to food insecurity. By focusing on these pillars, the world CAN produce enough – while preserving our environment and respecting animal health.

Sustainability, as defined by the United Nations, is “meeting the needs of people today without compromising ability of future generations to meet their own needs” and is assessed by the three pillars of economic viability, environmental soundness, and social responsibility.32

ECONOMIC VIABILITY:
An economically viable agricultural system promotes an affordable and secure supply of food for the consumer and provides the opportunity for farmers and producers to make a living wage. Keeping animals healthy and productive means more protein at a more affordable price for consumers, and also helps farmers support themselves and their community. For example, a sick dairy cow may mean the loss not only of an important food source for a family, but also the loss of wealth and livelihood.

ENVIRONMENTAL SOUNDNESS:
Environmental soundness involves minimizing environmental impact through conservation of natural resources (water, land, energy) and the reduction of waste. It currently takes a little over one and a half years to regenerate the resources we consume annually.33 On this course, by 2030 we’ll require double the planet’s resources to meet our annual consumption.34

SOCIAL RESPONSIBILITY:
Animal health and welfare are linked to human health.35 We share one Earth, and sick animals directly impact humans. On every continent, individuals and families are struggling with finding reliable, affordable access to nutritious foods. This lack of food security has major consequences—not just for human health, but for our economies and societies. Ensuring safe food for growing populations requires having respect for animals so they remain healthy and well-cared.
Evolutions in technology, animal management, and innovation enable more efficient and resource-conscious production of nutritious food.

“Sustainable global food security is attainable if we have open minds on technology and focus on high productivity and efficiency. We cannot feed tomorrow’s world with yesterday’s technology.”

– Aalt Dijkhuizen, Animal Health Economics PhD
Wageningen University and Research Centre, The Netherlands

Current industry standards and practices simply aren’t productive enough to meet the expected 2050 agricultural demand, and adding more animals—along with the additional resources necessary to feed, water, and shelter them—are not sustainable. Farmers can’t meet demand the way they’ve done in the past.

The answer isn’t more animals; it’s increasing efficiency by implementing innovative, modern farming practices in more areas of the world. In the past 60 years, a wide range of innovations have allowed farmers to produce more while freezing the environmental footprint. In fact, in the United States, output from agriculture has grown 250% using the same level of input.

There are success stories to learn from. Since 1972, the availability of chicken has tripled: from 2.6 oz. per person to 8.6 oz. Thanks to farming innovations such as nutritional advancement and improved animal health and production practices, farmers are raising more chickens that are healthier and more productive than in 1972.

But the battle isn’t over. As the population grows and incomes increase, demand for chicken will rise substantially. If we continue down the path we’re currently on—adding more animals—we will need a total of 131 billion chickens to meet demand – 75 billion more than we have today.

But by implementing innovation and efficient farming practices, we can reduce the number of chickens we’ll need along with the resources required to support them. We can meet future demand with 99 billion chickens—that’s 24% fewer chickens and 20% less feed, land, and water than we would need otherwise.

Join the movement at www.enoughmovement.com
The global recommended intake is two 8-oz glasses of milk per day, and on average around the world, we have access to about one. But this can change. Today, one cow produces an average of 2 gallons of milk per day. But in leading areas, it’s more than 7 gallons a day. Researchers predict that we can have enough milk and freeze our environmental footprint if every year, every cow increases her daily production just 4.75 oz. Many countries around the globe are already increasing at rates 3-4 times this through their use of innovation and improved cow husbandry.

The next step: implement these solutions across the globe. A lack of access to innovation, science, and productivity-enhancing methods has prevented regions such as sub-Saharan Africa and South Asia from achieving their agricultural output potential. With proper tools and investment needed to increase production, agricultural output from Africa could increase from $280 billion per year in 2010 to $880 billion in 2030.

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Combining grass-grazing with automated milking

Autograssmilk uses information technology to solve a growing problem in dairy farming. Now that milk production quotas are removed in the EU, many European dairy farmers are looking to expand production and are increasingly turning to automated milking systems.

Can grass-grazing and automatic milking be combined for an affordable price? That is what Autograssmilk is trying to work out, developing and testing a variety of cow movement systems. One device electronically identifies where grass density is highest and a gate selectively allows tagged cows into the milking areas or new paddocks – better foraging makes for better milk. A second project is testing virtual GPS-linked fences. Aside from the technical systems it is developing, Autograssmilk has focused attention on using digitization to solve an issue of direct relevance to farmers and food security in Europe. And it has highlighted the need to ensure that technologies which bring benefits in some areas, don’t lose them in others.

INNOVATION: PRODUCING ENOUGH, USING LESS

CHOICE:
Consumers deserve the ability to choose the food that fits their budget, taste, and nutritional needs, while farmers ought to be able to choose the production methods that work best for them and their animals.

CHOICE FOR THE CONSUMER:
In developed countries, consumers often have choices when it comes to their food supply; the stores they choose, the variety of apple they buy. But those choices have ripple effects. By supporting farmers using sustainable practices that maximize the amount of meat, milk and eggs animals can produce while ensuring animal health and welfare, consumers can be that pebble whose ripples are felt far beyond the supermarket aisle. By choosing meat and dairy that is grown using less land, water and energy, you are in turn reducing your footprint on this Earth. Given that in 2015, Earth’s “overshoot” date – the date which humans use the amount of resources the Earth can renew in a year – ran out after a mere eight months, these small changes made at the checkout counter can make a huge difference.54

The International Consumer Attitudes Study analyzed what’s most important to consumers when they purchase food. 95% of shoppers value taste, cost, and nutrition most when they make purchases; another 4% purchase food primarily based on lifestyle factors.55 What these groups have in common—unlike the remaining fringe, a small group that seeks to take choice away from the majority—is that they both want the right to choose, a right that belongs to the consumer, as well as the farmer, but it should be based on informed sound science that supports the claims being made.

FACT
According to an October 2013 online study by Nielsen, eighty-five percent of global consumers said rising food prices will affect their choice of grocery products.56
CHOICE FOR THE FARMER:

Farmers need the freedom to responsibly operate their farms in the way that makes the most sense for their businesses and their customers. Farm productivity directly affects food access, diversity, and nutritional quality. According to The Chicago Council on Global Affairs, "making agriculture more productive raises incomes for farming families, which can increase access to nutrient-rich food." For example, small farms produce 80% of the food consumed in developing nations and are the stewards of 75% of all agricultural resources in the world. Numbering more than 500 million, these farms are far from few, supporting upwards of 2.5 billion people and driving our global economy.

EXAMPLES OF FARMER AND CONSUMER CHOICES:

1. Antibiotics: When an animal becomes sick, the animal suffers and the quality of our food declines; the quantity of safe, affordable, nutritious food decreases; and increased feed, land, and water resources are required. Used responsibly with comprehensive animal care practices, antibiotics enhance food safety, prevent disease and promote animal health, treat sick animals and protect animal welfare and human well-being. While being safe for the consumer.

2. Organic farming: Farmers need the freedom to run their operations, and consumers need the freedom to purchase foods that fit their price, taste, and nutritional needs. For some, this means turning to organic farming as their best solution. But, scientific publications suggest that organic farming produces lower yields than conventional farming, meaning more animals are needed for the same amount of meat, milk and eggs. There are lessons to be learned from organic farming, as long as they are supported by sound science.

3. Animal welfare practices: The people-animal interactions in dairy cattle are a great example of the positive relationship between animal welfare and sustainability, which is a conscious choice within the farming community. By understanding and acting in accordance with behaviors animals prefer, the animal benefits from reduced stress, the handler benefits from increased job safety and the environment benefits from efficient use of resources per unit of food produced by the animal. Additionally, there are economic benefits from fewer health costs and balanced improvements in efficiency of production.

Join the movement at www.enoughtomovement.com
Food should move from places of plenty to places of need; eliminating international trade barriers can help ease access to affordable, nutritious food.

While adequate, nutritious, and affordable food is a key component of achieving food security, ensuring that food can reach susceptible populations is equally important. Eliminating barriers to the international movement of food is one of the most consequential ways to improve the lives of billions of people. In order to feed the world’s growing population, food must move from the most to the least productive areas.

According to the 2014 Global Harvest Initiative GAP Report, “The role of trade will be critical in closing the gap between areas of high food and agriculture demand and those areas able to supply more food, feed, fiber and fuel. Continual improvement in global and regional supply chains and greater harmonization of trade rules across nations will assure that all countries have access to the agricultural goods they need.”

The impact: when greater quantities of safe, nutritious food are available at affordable prices, consumer consumption increases. For example, since the North American Free Trade Agreement was taken into effect in 1994, Mexico’s per capita pork consumption has increased by almost 50%. That means millions of people with improved diets and lives—all because of trade! Meanwhile, domestic pork production has increased, proving that imports can improve consumer access and affordability without harming the local industry. In fact, in most cases, the local producers increase efficiency, ultimately leading to increased local production growth.

Trade increases food availability and affordability by creating opportunity for farmers to enter larger markets, by integrating economies, and by moving food from the most to the least productive areas. Greater quantities of food availability leads to more affordable prices, allowing consumers to buy more of the food they need to feed their families an adequate, nutritious meal.
THE ROLE OF TRADE: FOOD HAS TO MOVE

The growth in the trade of food has improved the affordability, safety and variety of foods consumers can access. However, barriers exist that can prevent food from affordably entering countries. Poor infrastructure and bans can all make it difficult for a farmer to move food to those who need it. Many countries also maintain tariffs, which are taxes on imported food. Some are modest, but some are large enough that trade is impacted.

Tariffs on agricultural products – particularly dairy – tend to be higher than those on manufactured products globally, creating a cost barrier. These higher tariffs can hurt consumers by making food less affordable for those most in need. High tariffs also hurt farmers in the developing world by limiting their ability to compete in new markets. Excessive barriers to trade create a lose-lose situation, where consumers can’t access food to feed their families and farmers can’t access markets for their product of their labor.

According to the International Chamber of Commerce’s (ICC) Open Market Index, only one G20 nation ranks among the world’s top 20 open trade markets. This means that of the 20 major economies in the world, only one meets the ICC’s criteria of fostering openness to trade.

While trade policy has long-term effects on trade, it is no more acutely felt than during times of disaster. Most of the world’s least food-secure people live in areas prone to natural disasters. When disaster strikes, communities lose livestock, crops, food stocks, valuable agricultural inputs and vital infrastructure, severely undermining their ability to produce their own food. In times of crisis, trade becomes even more critical to ensuring that affected residents receive the resources they need to survive.

“The ability of food to flow across borders is an important mechanism for coping with the global food crisis. This will only become more important as the population grows, and more and more food will need to move from areas of surplus to those of deficit.”

A person’s diet should meet more than simple caloric needs; it should provide the protein and nutrients that support healthy growth and development in children and health in adults.

Nutrition—providing or obtaining the food necessary for health and growth—is a critical element of a healthy life.

While progress has been made in reducing global hunger, there remain 795 million hungry people in the world today, and according to the FAO, hunger is responsible for more deaths every year than AIDS, malaria, and tuberculosis combined.

But it’s more than just extreme hunger that’s a problem. Chronic undernourishment and malnutrition—a lack of sufficient and/or healthy food—affects nearly every country on Earth and more than a quarter of the world’s population. According to the World Health Organization (WHO), one out of three people in developing countries suffer from vitamin and nutrient deficiencies that cause stunting, blindness, anemia, reduced immunity and other potentially deadly conditions. While less stark than physical manifestations, the emotional stress of food insecurity can also have psychological ramifications, which may be related to higher cortisol levels that could potentially cause depression, cognitive deficits, and brain structure damage.

And, malnutrition is not just an issue within developing countries. The prevalence of households with children and adolescents who are food insecure has increased since 2000 in the United States. A 2015 survey of U.S. children showed that the frequency of cow’s milk intake consistently ranked lower among food insecure children than children who were food secure.

The depths of hunger and malnutrition effects are truly global, causing serious health risks, undermining the success of national economies, and imperiling cultures and societies. For example, poor nutrition causes nearly half (45%) of deaths in children under five-years-old—3.1 million children each year—and adults without access to adequate nutrition are less productive and more susceptible to infectious disease. The elderly are susceptible to fatigue, inability to fight common infections, and bone fractures, which makes nutrition important across all ages.

Efforts to achieve food security have often focused simply on “filling bellies.” While this helps to address caloric insufficiencies, it fails to provide people with the balanced diets and range of nutrients needed to thrive. Food security isn’t just about providing hungry people with food. It’s about ensuring that people are nourished with the nutrients their bodies need.
PROTEIN: THE MISSING INGREDIENT

Protein, including animal protein, is a vital component of a healthy, nourished diet. In fact, the WHO recommends a minimum protein intake of 46-56 grams per day. At present, there is a large gap in meeting that demand. This gap is particularly large in developing regions of the world, such as Northern and Sub-Saharan Africa and Asia, where protein consumption is the lowest in the world. For example, the typical meal of a child living in poverty in Kenya is made up of corn flour-based bread and cabbage, resulting in a diet that is inadequate in key nutrients like iron, vitamin A, and iodine. This has serious ramifications for their health and development and creates an unequal, tiered food system that fails our most vulnerable populations.

Compared to diets based only on carbohydrates and the low-quality proteins found in plant foods, diets containing meat, milk, and eggs offer more of the nutrients critical for proper growth and development—both physical and cognitive. A landmark observational study in Kenya demonstrates that when children’s diets are supplemented with meat or milk, learning and resulting test scores improve.

THE ROLE OF ANIMAL-BASED PROTEINS AND AMINO ACIDS

Animal-based proteins provide the full complement of essential amino acids, which carry out many important functions: giving cells their structure, transporting and storing nutrients, and healing wounds and repairing tissue. Additionally, the iron in animal source foods, such as beef and eggs, is more easily absorbable and assists with the absorption of zinc from other foods.
The Egg Production Reality

Innovation will help meet demand while saving resources.

There are 6.5 billion hens in the world today

Each hen produces 184 eggs a year.

For decades, production increased

1.75 eggs/year

But since the late 1990s
the productivity trend has reversed due to disease,
changing practices, and less innovation.

0.8 eggs/year

1995 2015

The Production Opportunity

Today, we’re meeting demand by adding hens. If we continue on this path, we will need to double the global number of hens to meet 2050’s demand. Or, we can put innovation to work—and meet demand without adding hens.

Just ONE more egg per hen per year helps meet demand and requires 4 billion fewer hens

Using innovation rather than adding hens would save:

113 million tons of feed
74 billion gallons of water
65 million acres of land

CONCLUSION

In just 35 years, we’ll have more than 9 billion neighbors\(^1\) and an expansive middle class\(^2\); the global demand for animal-sourced foods such as meat, milk, and eggs will increase by 60\(^\%\); and we will require more of our planet’s resources than it can give us\(^3\). The facts are clear, and we can’t continue down the path we’re on to reach the goal of a food-secure 2050. But by implementing innovative farming techniques that increase efficiency, reducing both pre- and post-harvest waste through improved animal care, health and welfare, we can enable both farmer and consumer choice, eliminate global trade barriers, and ensure nutrient rich food is accessible to all. We can ensure a positive ending to this story.

THE ANSWERS ARE HERE AND THE SOLUTIONS EXIST.
A FOOD-SECURE FUTURE IS POSSIBLE.
IT’S TIME TO SOLVE THE GREATEST ISSUE OF OUR TIME—TOGETHER.

Join the movement at www.enoughmovement.com
Visit the ENOUGH website to:

- **Learn** more about the challenges and opportunities in building a food-secure world.
- **Act** now to voice your opinion, donate to a cause, or volunteer your time—all of which can help ensure that everyone has access to nutritious food.
- **Partner** with the organizations that have joined us in the fight for a food-secure tomorrow.
**Hunger** occurs when a person does not have enough to eat to meet energy requirements.\textsuperscript{116}

**Malnutrition** is caused by inadequate, unbalanced, or excessive consumption of macronutrients and/or micronutrients, including undernutrition and overnutrition.\textsuperscript{117}

**Modern food production** refers to farming methods that optimize the amount of production per unit (per acre or per animal) while conserving soil and water resources to meet the food demands of global populations both today and long into the future.\textsuperscript{118}

**Sustainability** as defined by the United Nations, is “meeting the needs of people today without compromising ability of future generations to meet their own needs” and is assessed by the three pillars of economic viability, environmental soundness, and social responsibility.\textsuperscript{119}

**Trade barriers** are government-imposed restraints on the flow of international goods or services.\textsuperscript{120}

**Food deserts** are neighborhoods and rural areas with limited access to fresh fruit, vegetables, and other healthful whole foods, usually found in impoverished areas.\textsuperscript{121} This is largely due to a lack of grocery stores, farmers’ markets, and healthy food providers.\textsuperscript{122}

**Smallholder farmers** own small plots of land on which they grow subsistence crops or small cash crops.\textsuperscript{123}
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