



## AGree: Transforming Food and Ag Policy *Challenges & Opportunities*

AGree aims to advance the well-being and prosperity of people in the United States and abroad by transforming food and agriculture policy. Our integrated approach will:

- Improve the productivity and environmental performance of agriculture;
- Increase the availability of and access to nutritious food; and,
- Promote opportunities for rural communities to succeed economically.

To achieve these goals, AGree will:

- Bring new information and analysis to bear on key policy issues;
- Build bridges among groups that have not traditionally worked together;
- Create a new vision for a food and agriculture system that achieves these goals;
- Identify specific and actionable policy enhancements that align with this vision;
- Build and strengthen constituencies that can advocate for reform; and,
- Inform and educate policy makers.

This approach is needed because policy reform efforts targeting the food and agriculture system have traditionally operated in many independent silos – governmental, political, stakeholder, geographic and substantive – that have made transformative change impossible. Stakeholders rarely work outside of and across these silos. AGree will, therefore, engage diverse stakeholders and have a broad policy scope that includes but is not limited to: the Farm Bill; the Child Nutrition Act; the Clean Water Act; energy policy; trade policy; foreign assistance legislation; and rural development policies. AGree focuses on the impacts of these policies on both domestic and international food and agriculture.

While AGree's scope is broad, its actions will be specific, targeted and designed for the current economic and political environment. The broad scope provides an opportunity for systematic analysis of the overall policy landscape, while not precluding opportunities for targeted interventions in specific policy areas. AGree's efforts will work to avoid a scenario where efforts to address one part of the system results in costs to other parts. For example, more funding for nutrition programs can come at the expense of funding for rural

development; or, policies to enhance the security of farmers in the United States may take a toll on poor farmers in developing countries.

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## **Trends in the United States and Abroad Affecting the Food & Ag System**

**The global food and agricultural system has achieved extraordinary successes in the past several decades**, but a rapidly growing and increasingly affluent global population will most likely demand at least twice as much agricultural production by 2050. Malnutrition – whether from lack of food or insufficient nutrients – already robs hundreds of millions of children of the chance for a healthy and full life. Persistent poverty in rural areas and changing rural economies undermine the integrity of communities and places stress on people in the United States and around the world.

**The United States faces the need** to improve health and nutrition, reduce hunger and expand economic opportunities for people in rural areas of the United States and in the world's poorest countries. Agriculture will be critical to solving some of the most pressing environmental problems while also needing to produce significantly more food.

**While these challenges mount, the resources to address them are shrinking.** Federal and state governments have diminishing resources to assist farmers, ensure sufficient nutrition for all and protect the environment. And societies unable to ensure adequate and affordable food for their populations face social instability and mass migration that can undermine global stability.

**In this changing and uncertain future, federal policy can play a pivotal role.** Yet the nation's existing food and agriculture policies will be increasingly strained as we strive to meet these multiple demands and evolving trends. Domestically and internationally, the food and agriculture system is influenced by many trends, including but not limited to: Population Growth and Urbanization; Changing Rural Communities; Income Growth; Health Care Challenges; Malnutrition; Food Insecurity; Price Volatility; Trade Barriers; Budget Deficits and Fiscal Pressures; an Expanding Local and Regional Food Movement; Climate; Energy; Water; Soil Health and Arable Land; Advances in Science and Technology; and Supply Chain Initiatives. AGree will work to more deeply analyze these trends as the basis for developing a vision for an improved food and agriculture system and aligning federal policy with this vision. Below is a snapshot of some of these trends.

### *Population Growth and Urbanization*

- Most of the population growth projected to bring the global population to 9 billion around 2050 will occur in countries with low per capita income.<sup>1</sup>

- While India, China and the United States are expected to remain the most populous countries, Pakistan and Nigeria are expected to join the top five.<sup>2</sup>
- Urban areas in the United States more than doubled between 1960 and 1990, from 25.5 million acres to 55.9 million acres.<sup>3</sup>
- In 2010, 50% of the world's population lived in urban areas. By 2050, this will rise to 70%.<sup>4</sup>
- The demand for clean water for drinking, sanitation, household use, manufacturing and energy production will increase dramatically with the rising lifestyle expectations of rapidly growing urban populations, directly competing with agriculture for this limited resource.<sup>5</sup>
- In the United States, the land with the best soils are urbanizing first.<sup>6</sup>

### *Changing Rural Communities*

- In the United States, 6.5% of the rural labor force works on farms.<sup>7</sup>
- Internationally, of the 1.4 billion people living on less than \$1.25 per day, the overwhelming majority lives in rural areas, and most rely directly on farming for sustenance and income.<sup>8</sup>
- In Africa, more than 60% of the rapidly growing population live and work as small-holder farmers or animal herders.<sup>9</sup>
- In Sub-Saharan Africa, average income is low, about \$1 per day. Researchers project a 30% increase by 2020 of undernourished people, even with low food prices. There are roughly twice as many poor and hungry in the African countryside as there are in urban areas.<sup>10</sup>
- The share of U.S. foreign assistance going to agriculture has shrunk dramatically in the past several decades. In the 1980s, 25% of U.S. foreign aid was targeted toward agriculture. By 1990, this figure had dropped to 6% and in 2007 it was down to 1%.<sup>11</sup>

### *Income Growth*

- In the United States, net cash farm income is forecast at a nominal record of \$99 billion in 2011, up \$7 billion from 2010 and nearly \$30 billion from 2009.<sup>12</sup>
- Farm sector assets in the United States are expected to rise by 6.1% in 2011, influenced mainly by a projected 6.3% increase in farm real estate assets. Farmland values should continue to rise given the strength of returns to farm assets, accommodating interest rates, expectations of continued favorable net returns (profit margins) on investments, growth in agricultural exports and strong returns both from the market and from government programs.<sup>13</sup>
- As general income levels in developing countries rise, demand for protein and nutrient rich foods will increase rapidly. This increase in demand primarily occurs as people move from earning \$2 per day to \$10 per day.<sup>14</sup>

- In 2050, there will not only be 2.6 billion more people to feed, but many of them will have higher per capita demand for meat, dairy, fruits and vegetables.<sup>15</sup>
- Increased demand for animal protein has a multiplier effect as most livestock is grain-fed for at least part of their lifetime.<sup>16</sup>

### *Health Care Challenges*

- Over 66% of adults in the United States are overweight or obese and 33% of children are overweight.<sup>17</sup>
- The percentage of adults with diabetes has grown from 8.5% to 12% since 1999.<sup>18</sup>
- If current trends continue, obesity and diabetes will account for one-fifth of U.S. health care expenses by 2020.<sup>19</sup> Estimates suggest costs from the obesity epidemic in the United States could total nearly \$79 billion per year.<sup>20</sup>
- Between 1970 and 2003 average caloric intake in the United States increased to 2,757 calories, 20% higher than the World Health Organization recommends.<sup>21</sup>
- To establish a sufficient supply of fruits and vegetables for all Americans to meet the Dietary Guidelines, U.S. producers would have to more than double their fruit acreage (from 3.5 million acres today to 7.6 million acres) and increase vegetable acreage by nearly one and a half times (from 6.5 million acres today to 15.3 million acres).<sup>22</sup>
- The rise of obesity and diabetes is most dramatic in low-income areas, and low-income people have less access to nutritious food – tens of millions of people live in low-income areas without easy access to a supermarket where they might buy fresh fruits and vegetables.<sup>23</sup>

### *Malnutrition*

- 925 million people suffer under-nutrition or hunger and 2 billion people worldwide suffer from nutritional deficiencies, such as insufficient vitamin A, iodine, iron, zinc and folate.<sup>24</sup>
- Vitamin A deficiency annually claims the lives of almost 670,000 children under the age of five.<sup>25</sup>
- Iron deficiency anemia during pregnancy is associated with 115,000 deaths each year, accounting for one-fifth of total maternal deaths. It also increases one's susceptibility to diseases caused by pathogens.<sup>26</sup>
- Under-nutrition is the underlying cause of the deaths of 3.5 million mothers and children under the age five each year, and approximately 200 million children currently suffer the irreversible effects of chronic under-nutrition – they do not achieve optimal growth, have heightened vulnerability to illness and suffer from diminished cognitive development.<sup>27</sup>

- Malnutrition is not limited to developing countries. In developed countries, half of those over 75 in hospitals are thought to be nutrient-deficient, as are many obese people.<sup>28</sup>

### *Food Insecurity*

- Approximately 49 million people in the United States, including 17 million children, live in households struggling to put enough food on the table (food insecure).<sup>29</sup>
- In fiscal year 2010, the Federal Government was estimated to spend more than \$80 billion to fund the national nutrition safety net—subsidizing meals and food purchases for more than one in four Americans.<sup>30</sup>
- One-half of all children will participate in the Supplemental Nutrition Assistance Program (previously known as the food stamp program) at some point during their childhood, including 90% of African-American children.<sup>31</sup>
- A study in the Journal of the American Dietetic Association found that the 2005 Dietary Guidelines market basket would require a low-income family to devote 43% to 70% of their food budget to fruits and vegetables.<sup>32</sup>
- Before the price spike of 2007-08, the World Bank estimated that 1.4 billion people worldwide were living on less than \$1.25 per day (the Bank's threshold of extreme poverty), and approximately three-quarters of them could not afford enough calories for a medium level of physical activity.<sup>33</sup>

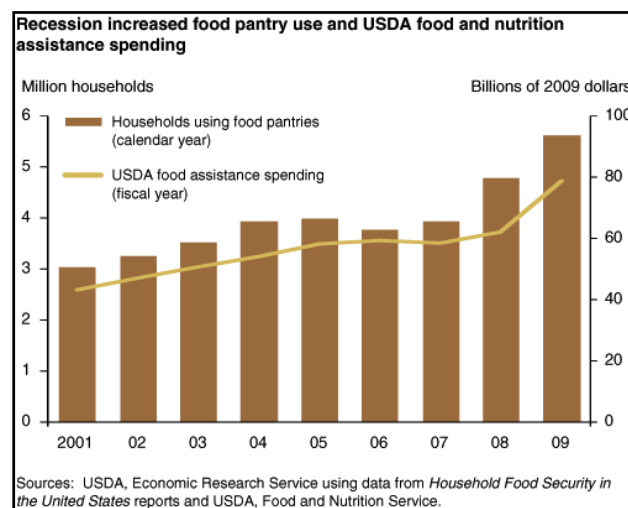


Figure 1: Recent economic changes have led to increased food pantry and food assistance use in the U.S.<sup>34</sup>

### *Price Volatility*

- Very poor people spend up to 75% of their meager incomes on staple food and are highly vulnerable to price increases.<sup>35</sup>

- Dramatic price increases can generate combustible political crises, particularly in countries heavily dependent on imported food.<sup>36</sup>
- The UN's Food and Agriculture Organization (FAO) estimates that the number of "hungry" people jumped from 925 million in the fall of 2008 to 1.02 billion in the fall of 2009. That number dropped back down to 925 million in 2010 as food prices returned to pre-2008 levels.<sup>37</sup>
- Discontent over rising wheat and bread prices has played a part in the popular uprisings throughout the Middle East.<sup>38</sup>

### *Trade*

- Almost all countries are dependent in some manner on trade in agricultural products, whether as importers, exporters or both.
- While the United States continues to be the world's largest food exporter, it also imported food ingredients and products from 163 countries in 2010.<sup>39</sup>
- Some developing countries – and their rural economies – are highly dependent on food exports for income. Other countries, including some of the least developed countries, are dependent on food imports to feed their populations.
- Prices can be highly volatile and spike as a result of temporary trade shocks, such as a fall in the value of the dollar, export bans and panic buying.<sup>40</sup>

### *Budget Deficits and Fiscal Pressures*

- The National Commission on Fiscal Responsibility and Reform recommends reducing spending on mandatory agriculture programs by \$10 billion from 2012 through 2020.<sup>41</sup>
- The Commission recommends that the savings be drawn from across mandatory agriculture programs including: reductions in direct payments when prices exceed the cost of production or other reductions in subsidies; limits on conservation programs such as the Conservation Stewardship Program (CSP) and Environmental Quality Incentive Program (EQIP); and reduced funding for the Market Access Program.<sup>42</sup>
- Thirty-seven programs in the Farm Bill have no baseline funding after 2012 and thus could risk elimination. This list includes five conservation programs—totaling between \$2 billion to \$3 billion over five years; five nutrition programs—totaling \$31 million over five years; and, three rural development programs—totaling \$150 million over five years.<sup>43</sup>
- Six additional programs expire before the next Farm Bill is expected to be completed, including the new permanent crop disaster assistance program and the Supplemental Revenue Assistance Payments (SURE).<sup>44</sup>

### *Expanding Local and Regional Food Movement*

- Over the past two decades, increasing numbers of individuals, food retailers and restaurateurs have sourced their food from “local,” “sustainable,” “fair trade,” and/or “certified organic” producers.
- U.S. organic food sales are growing rapidly and are projected to exceed \$25 billion in 2011.<sup>45</sup>
- Consumer demand for organically-produced goods has shown double-digit annual growth for well over a decade, providing market incentives for U.S. farmers across a broad range of products.<sup>46</sup>
- Between 2005 and 2008, U.S. organically-managed fruit acreage rose from 2.5% to 3% of total fruit acreage and vegetable acreage rose from 4.7% to more than 8%.<sup>47</sup>

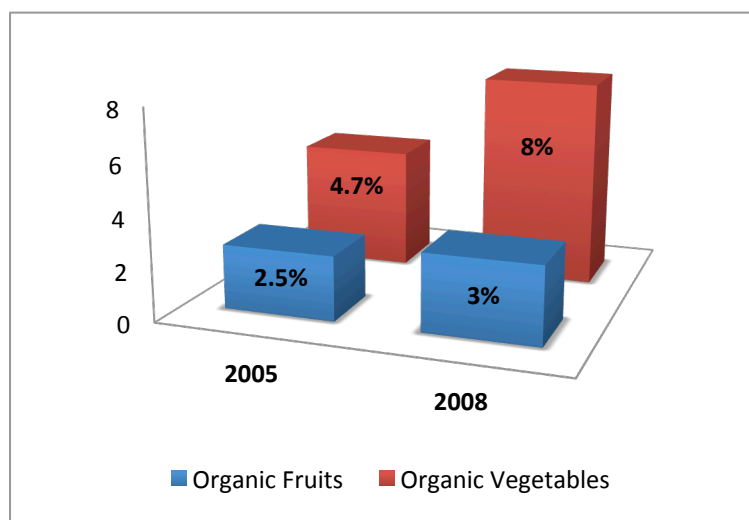


Figure 2: Between 2005 & 2008 acreage of U.S. organically managed fruit and vegetables rose<sup>48</sup>

### *Climate*

- In developing countries, climate change is expected to cause yield declines for many staple and subsistence crops. South Asia will be particularly hard hit.<sup>49</sup>
- Climate change, including resulting temperature increases, increasing CO<sub>2</sub> levels, and altered patterns of precipitation, are very likely already affecting U.S. water resources, agriculture, land resources and biodiversity and will continue to have significant effects.<sup>50</sup>
- While there may be some benefits from climate change to U.S. agriculture, many anticipated impacts are likely to be detrimental.<sup>51</sup>
- Climate change is expected to result in additional price increases for the most important agricultural crops—rice, wheat, maize and soybeans. Higher feed prices will result in higher meat prices.<sup>52</sup>

### *Energy*

- Although biofuels still account for only 1.5% of the global liquid fuels supply, they accounted for almost half the increase in the consumption of major food crops in 2006–07, mostly because of corn-based ethanol produced in the United States.<sup>53</sup>
- Between 2001 and 2010, the quantity of corn used for ethanol in the United States jumped from just over 600 million bushels to an estimated almost 5 billion bushels.<sup>54</sup>
- In order to meet 27% of the world's energy demand (a scenario developed by the International Energy Agency), land use for biofuel production would need to increase from 2% of total arable land to around 6% in 2050. This expansion would include some cropland, as well as pastures and currently unused land.<sup>55</sup>
- Rising energy costs in the United States have caused the annual average prices paid for fuel by farmers to jump 207%, registering six straight double-digit percentage increases. Fuel and oil expenses for farmers have shot up \$9.6 billion (146%).<sup>56</sup>

### *Water*

- Today about 70% of freshwater withdrawn worldwide is used for irrigation<sup>57</sup> (in the United States, it is about 30%).<sup>58</sup>
- Already, many regions of the world face high water stress; by 2030, 47% of the global population will live in such areas.<sup>59</sup>
- Nearly 42% of wade-able streams in the United States are in poor biological condition,<sup>60</sup> and only 56% of lakes are in good biological condition.<sup>61</sup>
- Factors influencing water quality impairment include elevated levels of nitrogen and phosphorus, riparian disturbance and streambed sediments.<sup>62</sup>
- Areas with significant water quality impairment include large swaths of the Mississippi River basin, which drains 41% of the continental United States.<sup>63</sup>

### *Soil Health and Arable Land*

- At most, there is 12% more arable land available globally that is not forested or subject to erosion or desertification.<sup>64</sup>
- Internationally, between 1980 and 2000, 55% of new agricultural land came from conversion of intact forests, while an additional 28% came from disturbed forests.<sup>65</sup>
- In some regions, such as portions of sub-Saharan Africa, the degradation of soil health threatens the viability of agriculture over the long term – contributing to national as well as household food insecurity.<sup>66</sup>
- According to the FAO, approximately 25% (2 million hectares) of farmland around the world is degraded.<sup>67</sup>



- In the United States, the share of land cultivated with conservation tillage practices increased significantly between 1989 and 2008, from 26% to 42%.<sup>68</sup>

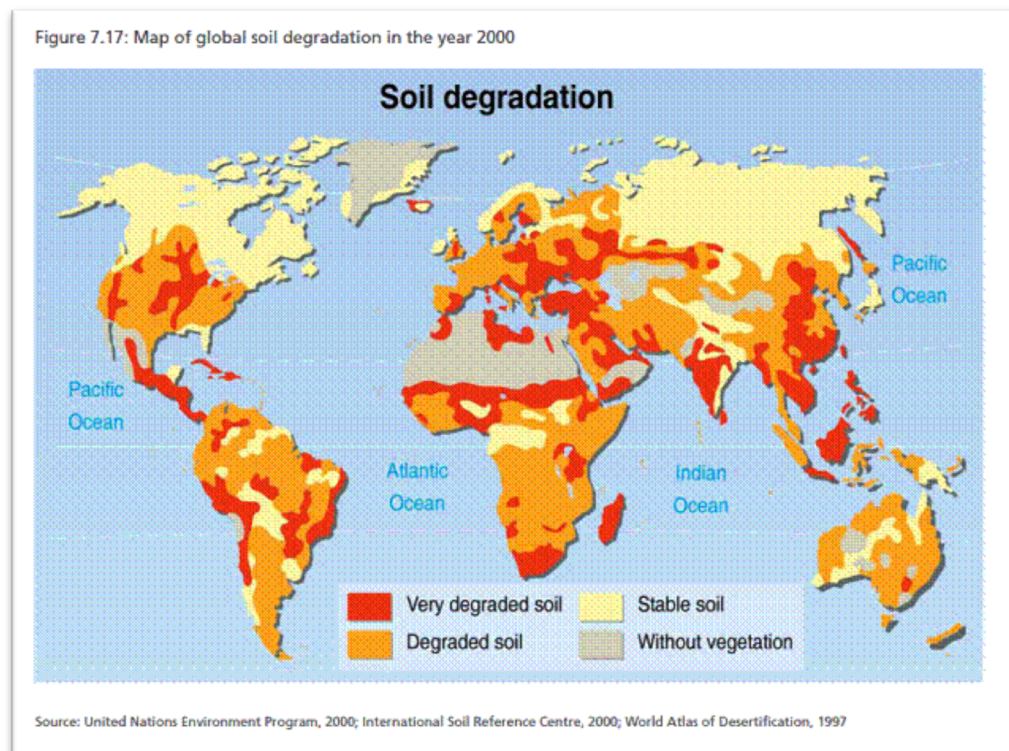


Figure 3: In some regions the degradation of soil health threatens the viability of agriculture over the long term.<sup>69</sup>

### *Advances in Science and Technology*

- World-wide, cereal yields and output doubled over a period of only 25 years, from 1965 to 1990, as a result of the breeding of improved crop varieties coupled with the expanded use of fertilizers and other chemical inputs, irrigation and supportive public policy.<sup>70</sup>
- According to calculations from the U.S. Department of Agriculture's Economic Research Service, between 1948 and 2002, U.S. agricultural output grew 2.6 fold, while total inputs into agricultural production declined.<sup>71</sup>
- Both worldwide and in the United States, investments in public agricultural research have slowed since 1980, while private agricultural research and development has been growing significantly faster.<sup>72</sup>
- During the last three decades the growth rate for public agricultural research expenditures in the United States has been much slower than the growth rate of agricultural output.<sup>73</sup>
- Public spending in developing countries on agriculture declined between 1980 and 2005 from 11% to 5.5%.<sup>74</sup>

### *Supply Chain Initiatives*

- Responding to consumer demand and a growing local food movement, the Pennsylvania Fresh Food Financing Initiative—a partnership between the State of Pennsylvania, The Reinvestment Fund, The Food Trust and the Greater Philadelphia Urban Affairs Coalition—has approved loans and grants for 93 grocery stores in food deserts, a total of more than \$73.2 million in loans and \$12.1 million in grants.<sup>75</sup>
- In a similar vein, Wal-Mart plans to double the amount of local produce (defined as grown and sold in the same state) it sells by 2015, to 9%. The company intends to create a “sustainability index” for food that will consider water, fertilizer and chemical use and will enable both the corporation and consumers to compare the relative environmental impact of food.<sup>76</sup>
- A small but growing number of companies are emerging that help producers build sustainable business models and interface with the supply chain. For example, Red Tomato, a company that helps farmers of all sizes distribute, package and market their products to consumers, is helping sustainable agriculture producers cut down on costs as well as providing greater access to local products.<sup>77</sup> Live Culture Co. consults with artisan and sustainable food producers to increase their profit margins and market shares.<sup>78</sup>
- A growing number of companies – large and small – are working independently on innovative sustainable agriculture supply chain initiatives; many of these companies have also joined together with environmental and other non-governmental organizations to develop sustainability standards, protocols and initiatives.
- There are over 100 regional food hubs in the United States, 40% of which are working in food deserts to increase access to fresh, healthful and local products in communities underserved by full-service food retail outlets.<sup>79</sup>

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### **The Path Ahead**

AGree seeks to address these challenges through a long-term commitment to develop agreement among diverse stakeholders about ways to better enable U.S. food and agriculture policies to meet the needs for food, nutrition, environmental quality and rural development within the United States and around the world. Policy reform efforts targeting the food and agriculture system have traditionally operated independently; a core part of AGree’s mission is to ask cross-cutting questions both in the research and policy arenas. For example:

- How should the U.S. Farm Safety-Net change given multiple demands and evolving trends?

- How can federal policy promote innovations in the food and agricultural system in a manner that reduces obesity and food insecurity?
- How can rural development efforts be transformed to create vibrant rural communities?
- How can federal policy support international relief efforts without distorting local markets in developing countries?

AGree will synthesize existing research and commission best-in-class analysis to inform policy development efforts and work with groups inside and outside of agriculture to establish a long-term vision for the food and agriculture system. AGree will proactively seek opportunities for developing federal policy that aligns with this vision through activities to inform and educate policy makers.

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<sup>1</sup> “2010 World Population Data Sheet,” Population Reference Bureau, accessed April 20, 2011, [http://www.prb.org/pdf10/10wpds\\_eng.pdf](http://www.prb.org/pdf10/10wpds_eng.pdf).

<sup>2</sup> “2010 World Population Data Sheet,” Population Reference Bureau, accessed April 20, 2011, [http://www.prb.org/pdf10/10wpds\\_eng.pdf](http://www.prb.org/pdf10/10wpds_eng.pdf).

<sup>3</sup> “Land Use, Value, and Management: Urbanization and Agricultural Land,” United States Department of Agriculture, last modified June 28, 2005, accessed April 22, 2011, <http://www.ers.usda.gov/briefing/LandUse/urbanchapter.htm>.

<sup>4</sup> “Urban Trends: Urbanization and Economic Growth,” United Nations Human Settlements Program, accessed April 22, 2011, <http://www.unhabitat.org/documents/SOWC10/R7.pdf>.

<sup>5</sup> Robert Thompson, “Food for the Future: How, Where and Who Will Produce It?” (presented at Syracuse University, Syracuse, New York, January 6, 2011).

<sup>6</sup> Marc L. Imhoff et al., “Assessing the Impact of Urban Sprawl on Soil Resources in the United States Using Nighttime ‘City Lights’ Satellite Images and Digital Soils Maps,” United States Geological Survey, last modified November 20, 2003, accessed April 22, 2011, <http://biology.usgs.gov/luhna/chap3.html>.

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<sup>8</sup> Robert Thompson, “Implications of Increasing Food Prices for Agricultural and Energy Policy” (presented at the Federal Reserve Bank of Chicago, Chicago, Illinois, October 2, 2008).

<sup>9</sup> Robert Paarlberg, *Food Politics: What Everyone Needs to Know* (Oxford: Oxford University Press, 2010), xviii.

<sup>10</sup> Robert Paarlberg, *Food Politics: What Everyone Needs to Know* (Oxford: Oxford University Press, 2010), xviii.

<sup>11</sup> Robert Thompson, “Implications of Increasing Food Prices for Agricultural and Energy Policy” (presented at the Federal Reserve Bank of Chicago, Chicago, Illinois, October 2, 2008).

<sup>12</sup> Joseph W. Glauber, “Prospects for the U.S. Farm Economy in 2011,” (presented at Agriculture Outlook Forum 2011, Washington, DC, February 24, 2011), accessed April 25, 2011, [http://www.usda.gov/oce/forum/2011\\_Speeches/Glauber\\_Joe\\_Speech.pdf](http://www.usda.gov/oce/forum/2011_Speeches/Glauber_Joe_Speech.pdf).

<sup>13</sup> “Farm Income and Costs: Assets, Debt, and Wealth,” United States Department of Agriculture, last modified February 14, 2011, accessed April 25, 2011, <http://www.ers.usda.gov/Briefing/FarmIncome/Wealth.htm>.

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- <sup>15</sup> Robert Thompson, "Food for the Future: How, Where and Who Will Produce It?" (presented at Syracuse University, Syracuse, New York, January 6, 2011).
- <sup>16</sup> Robert Thompson, "Food for the Future: How, Where and Who Will Produce It?" (presented at Syracuse University, Syracuse, New York, January 6, 2011).
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<sup>35</sup> J.A. Cranfield, Paul Preckel and Thomas Hertel, "Poverty Analysis Using an International Cross Demand System," Policy Research Working Paper Series No. 4285, World Bank, 2007.

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