STUDENT RESEARCH PAPER PACKET

**Explanation, Steps, & Resources**

To participate in World Food Prize Youth Institute, students research a global challenge and write a two to three page paper with the guidance of a teacher mentor at their high school. The 2015 World Food Prize Youth Institute at Purdue is scheduled for April 16-17, 2015 at Purdue University in West Lafayette, IN. The research paper is due on March 13, 2015 online.

Further details and instructions for the paper are found in the following document and online at [www.worldfoodprize.org/youth](http://www.worldfoodprize.org/youth). Please read the complete instructions to ensure eligibility. For questions, please contact: Kelly Delp at kdelp@purdue.edu or 765-494-8672 and Donna Keener at dlkeener@purdue.edu or 765-494-8672.

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**EXPLORE**

- Choose a country and a critical global challenge to research.
- Propose your own solution to the challenge in a country of your choice.
- Discover careers paths and opportunities in STEM, food, agriculture, and policy.
- Analyze how global trends shape a nation and affect the citizens of that nation.

**ENGAGE**

- Present your ideas to fellow students and experts who are working to solve these real-world problems every day.
- Participate in interactive, hands-on experiments and simulations led by professors and faculty.
- Connect with peers who want to change the world.
- Immerse yourself at Purdue University’s labs and facilities to experience firsthand what it would be like to study and work in these fields.

**EARN**

- Qualify for international internships, paid fellowships at the USDA, and other exciting opportunities to fight hunger.
- Gain valuable feedback and life-changing experiences with world-renowned experts.
- Network with global leaders in science, industry and policy, and receive personalized feedback on your research papers.

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**STEPS TO COMPLETING THE RESEARCH PAPER**

**STEP 1:** Select a country as the focus of your research (Page 2)

**STEP 2:** Select one key factor affecting food security (Page 4)

**STEP 3:** Answer the listed questions to develop your paper (Page 5)

**STEP 4:** Ask a mentor to help review and edit your paper (Page 6)

**STEP 5:** Submit the paper online with your mentor (Page 7)
“Food is the moral right of all who are born into this world.”

- Dr. Norman Borlaug, Nobel Peace Prize Laureate and World Food Prize Founder in his Nobel Peace Prize Lecture, Oslo, Norway, December 11, 1970

BACKGROUND
Sustainably feeding the more than 9 billion people who will be on our planet by the year 2050 is a critical issue that must be urgently addressed. Iowa native Dr. Norman Borlaug, renowned Nobel Peace Prize Laureate and World Food Prize founder, advocated throughout his life and career, as a scientist and humanitarian, that attaining global food security would require effective solutions, technologies and policies for the world’s smallholders. Fittingly, his poignant final words were, “Take it to the farmer.”

In today’s world, almost 1 billion people – 1 out of every 8 – go to bed hungry every night. There are strong, direct relationships linking poverty, agricultural productivity, and food security. About 70% of the world’s poor live in rural areas, especially in Africa and Asia. The majority of these poor subsist on about 450 million smallholder farms (five acres or less). The most critical and immediate improvements in the livelihoods of smallholders can be achieved through agriculture-led economic growth and improved nutrition and health. As rural farmers and urban gardeners are able to grow and access more and better food, improved diets and health, higher family incomes, and improved livelihoods result. Families with the financial resources to escape extreme poverty rarely suffer from chronic hunger, while poor families not only suffer the most from chronic hunger, they are also the segment of the population most at risk during food shortages. Therefore, raising incomes through improvements in agricultural productivity and food availability is a key to directly benefiting the poor.

Volatile climate effects from rising temperatures such as the increasing frequency and severity of storms, flooding and droughts, the spread of plant diseases and weeds, and rising sea levels will have significant negative impacts on agricultural productivity. Shifting trends in agricultural production driven by these effects will most severely impact the world’s poorest countries in Africa and Asia, threatening the ability of smallholder farmers to overcome hunger and malnutrition.

Successful technologies and policies for enabling smallholder farmers to overcome hunger and poverty by increasing agricultural productivity must be adapted to local climatic circumstances, guided by the farmers themselves, and more readily available to them.

WHAT IS FOOD SECURITY?
Food security is when people do not live in hunger or fear of starvation. Food insecurity exists when people are undernourished as a result of the cost or physical unavailability of food and adequate nutrition. Worldwide, more than 925 million people – one seventh of the world population – are without enough food to eat on a regular basis and six million children die of hunger annually. Two billion people face sporadic food insecurity throughout the year, and there are 22 countries, 16 of which are in Africa, where more than one-third of the population is malnourished.
Research Paper Instructions

**Your Mission:** Select ONE developing country (see Step 1) and ONE of the key factors affecting food security (see Step 2) as the focus of your research. You will then prepare your paper using the guided questions (see Step 3), presenting your research findings and recommendations for increasing food production and availability in ways that improve food security and household livelihoods in your chosen country.

**STEP 1. SELECT ONE OF THE COUNTRIES BELOW AS THE FOCUS OF YOUR RESEARCH:**

*Example: If you consider the Indian Subcontinent, your research will focus on a factor affecting food security in ONE of these countries: Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan or Sri Lanka*

**North Africa:** Algeria, Canary Islands (Spain), Egypt, Libya, Morocco (including Western Sahara), Tunisia

**Central Africa:** Angola, Cameroon, Central African Republic, Chad, Congo, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Sudan, South Sudan, Zambia

**East Africa:** Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mayotte, Mozambique, Reunion, Rwanda, Seychelles, Somalia, Tanzania, Uganda

**West Africa:** Benin, Burkina Faso, Cape Verde islands, Côte d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, São Tomé & Príncipe, Senegal, Sierra Leone, Togo

**Southern Africa:** Botswana, Lesotho, Namibia, South Africa, St. Helena (U.K.), Swaziland, Zimbabwe

**Caribbean:** Anguilla (U.K.), Antigua & Barbuda, Bahamas, Barbados, Bermuda (U.K.), Cayman Islands (U.K.), Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique (France), Montserrat (U.K.), Netherlands Antilles, Puerto Rico (U.S.), St. Kitts & Nevis, St. Lucia, St. Vincent & the Grenadines, Trinidad & Tobago, Turks & Caicos (U.K.), Virgin Islands (U.K., U.S.)

**South America Tropical:** Bolivia, Brazil, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Suriname, Venezuela

**South America Temperate:** Argentina, Chile, Falkland Islands (U.K.), Uruguay

**Central America:** Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama

**Indian Subcontinent:** Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka

**East Asia:** China, Hong Kong S.A.R. (China), Japan, Democratic People's Republic of Korea (North), Republic of Korea (South), Macao S.A.R. (China), Mongolia, Taiwan

**Southeast Asia:** Brunei, Darussalam, Burma (Myanmar), Cambodia, East Timor, Indonesia, Lao People's Democratic Republic (Laos), Malaysia, Philippines, Singapore, Thailand, Vietnam

**Central Asia:** Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan

**Middle East:** Bahrain, Cyprus, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Turkey, United Arab Emirates, Yemen

**Eastern Europe:** Albania, Armenia, Azerbaijan, Belarus, Bosnia/Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russia, Serbia, Montenegro, Slovakia (Slovak Republic), Slovenia, Ukraine

**South Pacific:** Christmas Island, Cook Island, Federated States of Micronesia, Fiji, French Polynesia (Tahiti), Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn, Samoa, American Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, Wake Island, Wallis & Futuna
STEP 2. SELECT ONE KEY FACTOR AFFECTING FOOD SECURITY FROM THE FOLLOWING:

1. **Plant Science**  
Increasing crop yields and improving disease/drought resistance through research and breeding of improved plant varieties

2. **Water Scarcity**  
Managing water scarcity and adapting farming practices to reduced water supplies with improved irrigation technologies and conservation practices

3. **Biofuels**  
Balancing the demand on global food and energy supplies and ensuring that developing nations also benefit from the use of biofuels

4. **Animal Health**  
Preventing the transmission of disease in livestock and poultry with improved management, investments in vaccine development, and proper application of medications to avoid antibiotic-resistance

5. **Climate Volatility**  
Responding to climate volatility by adapting agricultural practices and policies to increase carbon sequestration and support ecological resilience to erratic weather, rising temperatures/drought, saltwater intrusion, and shifting plant diseases and pest infestations

6. **Sustainable Agriculture**  
Developing and implementing sustainable agricultural practices (no-till, crop rotation, integrated pest management, etc.) to combat erosion, desertification and soil depletion and reduce pesticide/herbicide use and minimizing environmental degradation associated with industrial agricultural practices (improved animal waste disposal, conservation buffers, etc.)

7. **Animal Agriculture**  
Implementing sustainable practices for raising livestock and poultry (management intensive grazing, integrated livestock/poultry grazing and poultry/vegetable production systems, fish pond farming systems, etc.)

8. **Spoilage & Waste**  
Reducing spoilage and improving the quality and shelf life of food products with improved food preservation techniques and increased processing capacity (flash-heating, aseptic processing, freeze drying, bulk storage, etc.)

9. **Water & Sanitation**  
Increasing access to safe, potable water supplies, toilets and pit latrines, and education on proper sanitation/hygiene and food preparation techniques to reduce the transmission of food and water-borne disease

10. **Dietary Diseases**  
Addressing obesity, heart disease, diabetes, and other dietary diseases through nutrition education, access to nutritious foods, and healthy behavior (dietary diversification, food selection, portion-size control, exercise, etc.)

11. **Malnutrition**  
Alleviating micronutrient deficiencies (iron, vitamin A, iodine, zinc) and protein-energy malnutrition through improved access to nutritious food, fortification, supplementation, school-feeding programs, nutrition education, emergency therapeutic feeding, etc.

12. **Human Diseases**  
Reducing the burden of illness and infectious diseases like HIV/AIDS, Tuberculosis (TB), Malaria, etc., to improve human health and nutrition and raise agricultural production

13. **Demographics**  
Addressing the challenges and opportunities posed by population growth and urbanization

14. **Conflict Resolution**  
Preventing and resolving political and armed conflict with diplomatic initiatives

15. **Human Rights**  
Addressing gender, cultural and economic discrimination and improving access to credit and securing property rights for the poor and marginalized

16. **Education**  
Investing in education, training and extension for improved implementation of agricultural research and technology

17. **Good Governance**  
Reducing corruption by promoting the rule of law, government accountability, democratic principles and transparency

18. **International Trade**  
Removing discriminatory international trade policies to improve market access, promote fair trade and increase economic development

19. **Foreign Aid**  
Assisting vulnerable populations and improving the effectiveness of humanitarian relief and food aid in conflict zones and disaster sites

20. **Farm to Market**  
Improving access to markets through infrastructure development (roads and railways, internet, mobile technologies, electricity)
STEP 3. ANSWER THE FOLLOWING QUESTIONS TO DEVELOP YOUR PAPER:

1. Choose ONE of the countries listed under Step 1 as the focus of your research.

2. Define a typical subsistence farm family or poor urban family in your country:
   a. family size and composition, diet, education and access to health care;
   b. farm size, crops grown, and agricultural practices (if researching a farm family) or employment and wage, and where they typically purchase food and have access to private or community gardens (if researching an urban family); and
   c. major barriers to improving agricultural productivity, employment and earning a living wage, and gaining access to food markets and adequate nutrition.

3. Select ONE of the key factors listed under Step 2 as the focus of your research.

4. Answer the following questions to develop your paper and understand how your selected factor affects food security in your country:
   a. How does the factor you selected affect agricultural productivity, household income or food availability and quality in your chosen country? Discuss the following:
      i. What role does the factor presently play in causing your family to not produce enough food, earn sufficient income to purchase food, or access adequate nutrition?
      ii. What is the present status of this factor? How severe is the situation? Is the environment being degraded? Are women, rural or urban poor, or developing countries particularly disadvantaged? If so, how?
      iii. Are the trends for this factor improving, worsening, staying the same? How are the trends for this factor measured? Do these measurements indicate the situation is changing? If so, how? Because of potential change, or no change, is the situation for your rural farm or urban family getting worse, improving or staying the same?
   b. How would improving or resolving this factor increase the amount or quality of food or income available to your family? Preserve the environment sustainably? Lead to economic development and poverty reduction? Benefit women, smallholder farmers or urban dwellers in your country of focus?
   c. How will other major issues (climate volatility, population growth, water scarcity, urbanization, energy demand, pollution, etc.) affect your chosen factor and the wellbeing of your family and their community in the decades ahead?
   d. Based on your research, give your recommendations on how to effectively address your selected factor to improve the food security of your rural or urban family in the country on which you have focused. What Millennium Development Goals and associated policies, technologies, practices or investments do you recommend to solve this situation by 2015? Describe one or more local projects in your focus country that could be scaled up successfully.
   e. Give your suggestions for the appropriate role of communities, the national government, corporations and other organizations (United Nations, World Bank, international research agencies, non-governmental and civic organizations, etc.) in implementing your recommendations in your country. How should rural farm and urban families be involved as key players in implementing these recommendations?
Research Paper Checklist

As you review your final paper for submission, use this checklist to ensure you have completed all of the guided instructions:

Country selected: ___________________________________

___ Define a typical family
   ___ Family size and composition
   ___ Diet
   ___ Education
   ___ Access to health care
___ Describe a typical farm OR urban area
   ___ Typical Farm
      ___ Farm size
      ___ Crops grown or animals raised
      ___ Agricultural practices
   ___ OR Urban Area:
      ___ Employment and wages
      ___ Access to purchased food
      ___ Urban food production
___ Describe major barriers facing the typical family
   ___ Barriers to improving agricultural productivity
   ___ Barriers to employment at a living wage
   ___ Barriers to accessing food markets and adequate nutrition

Factor selected: ___________________________________

___ Describe how the factor you selected affects agricultural productivity, household income, OR food availability and quality
   ___ Describe the effect of the factor on the typical family in your country
   ___ Describe the present status of this factor
   ___ Describe the trends for this factor (improving, worsening, or constant)
   ___ Describe how improving this factor would benefit your country
___ Describe how other major issues (climate volatility, population growth, water scarcity, energy demand, pollution, etc.) will affect your chosen factor

Give recommendations on how to effectively address your factor to improve food security for the typical family in the country you have selected:

________________________________________________________________________________________
________________________________________________________________________________________

___ Describe one or more local projects in your focus country that could be scaled up successfully
___ Give suggestions for the appropriate role of communities, the national government, and organizations in implementing your recommendations
___ Describe how the typical family can be involved in implementing your recommendations
Paper Format Requirements

Be sure to review the *Introduction to the Issues* and instructions on *How to Write Your Paper* before beginning your research, and follow the *Paper Format Requirements* below, as all papers will be evaluated on both content and formatting. A list of suggested references can be found in the *Sample Resources*, and the *Sample Paper* provides an example of how to format and structure your paper.

Students selected to attend the Global Youth Institute as a delegate will have their research papers peer-reviewed and published online by the World Food Prize Foundation.

**FORMAT REQUIREMENTS**

Papers must include:

- **Identification in the upper left-hand corner** of the first page providing the name of the student author, high school name, school city, school state, selected country and factor number, and essay title (in bold)

  *Example:* Varun Devatha
  Culver Academies
  Culver, IN
  India, Factor 11: Malnutrition

  **India: A Holistic Approach for the Rural Population**

- **Body of approximately 2-3 pages minimum** in length including:
  - an introduction and conclusion, each of which must be at least one-half page
  - word count of approximately 1100 to 1650 words minimum, excluding bibliography

- **Bibliography page with at least five sources** and *in-text citations* using the standards set by the Modern Language Association (MLA) or American Psychological Association (APA). Choose one style and use it consistently.

  **MLA Style Guide:** [http://owl.english.purdue.edu/owl/resource/747/01/](http://owl.english.purdue.edu/owl/resource/747/01/)
  **APA Style Guide:** [http://owl.english.purdue.edu/owl/resource/560/01/](http://owl.english.purdue.edu/owl/resource/560/01/)

Papers must be submitted as a Word (.doc or .docx) file and meet the following page format requirements:

- **One-inch page margins** (top, bottom, left, right)
- **Eleven-point (11) font**, *Times New Roman*
- **Single-space text**, no indentation
- **Double-space between paragraphs**

**SUBMISSION**

Submit papers electronically through the online registration form as instructed in the “How to Participate” box on the Iowa web page: [www.worldfoodprize.org/indiana](http://www.worldfoodprize.org/indiana)

**ONLINE PAPER SUBMISSION DEADLINE:** Friday, March 13, 2015
Sample Resources

Below are suggested resources, general and organized by factor, to aid your research. Note: This is not a full resource list and use of additional resources will be needed to meet the requirements of the paper.

The World Food Prize does not endorse any particular point of view represented in these resources.

MAPS, FACTS & FIGURES

Big Facts Site – CGIAR’s Research Program on Climate Change, Agriculture and Food Security (CCAFS) features over 100 infographics on this site that illustrate the most up-to-date information on these topics. http://ccafs.cgiar.org/bigfacts2014/


Millennium Development Goals Monitor & Tracking Map
Track how countries are progressing in their efforts to achieve the Millennium Development Goals (MDGs) www.mdgmonitor.org/index.cfm www.mdgmonitor.org/map.cfm?goal=0&indicator=0&cd

Interactive Hunger Map & Country Database
World Food Programme (WFP), the United Nations’ frontline agency in the global fight against hunger www.wfp.org/hunger

Global Hunger Index

Global Food Security Index
Measures the risks and factors that drive food security including affordability, availability, and quality and safety. http://foodsecurityindex.eiu.com

Rural Poverty Portal - select country from drop down menu for statistics and articles
International Fund for Agricultural Development (IFAD) www.ruralpovertyportal.org/web/guest/region

Famine Warning System Network (FEWS NET) - provides timely and rigorous early warning and vulnerability information on emerging and evolving food security issues. www.fews.net/Pages/default.aspx

Farming First - highlights the importance of improving farmers’ livelihoods and agriculture’s potential contribution to global issues such as food security, climate change and biodiversity (includes infographics and case studies) www.farmingfirst.org

FAO Infographic - Equal access to resources and power for food security in the face of climate change
The infographic describes the links between food security, gender and climate change. www.fao.org/resources/infographics/infographics-details/en/c/180754

GENERAL RESOURCES

The resources in this section provide an overview of food security issues

Can We Feed Seven Billion People? Sir Gordon Conway, Huffington Post, October 28, 2011 www.huffingtonpost.co.uk/professor-sir-gordon-conway/can-we-feed-seven-billion_b_1063464.html

Food and Agriculture Organization of the United Nations: The food security arm of the UN, the FAO provides a global perspective on agricultural challenges and development. www.fao.org/index_en.htm
2014 International Year of Family Farming (IYFF) - aims to raise the profile of family farming and smallholder farming by focusing world attention on its significant role in eradicating hunger and poverty, providing food security and nutrition, improving livelihoods, managing natural resources, protecting the environment, and achieving sustainable development, in particular in rural areas.  

The State of Food Insecurity in the World 2013 (SOFI): The Multiple Dimensions of Food Insecurity  

UN Zero Hunger Challenge Website (Resources & Documents)  

Millions Fed: Proven Successes in Agricultural Development  
www.ifpri.org/sites/default/files/publications/millionsfedbooklet.pdf

Innovations in Action (supplement to the Worldwatch Institute’s 2011 State of the World Report)  

BOOKS


High School and College Textbooks can also be used for background information on relevant scientific subjects, for example, nutrition, public health, molecular biology, genetics, botany, agriculture, sociology, economics, ecology and geography.

**MASS MEDIA, NEWSFEEDS & BLOGS**

Newspapers can often initiate awareness about current events, issues and ideas on food security at local, national, regional and international levels. The New York Times publishes a Science Section every Tuesday. Yahoo! News, on the Internet, has daily science and world headline articles that are taken from Reuters Press Agency and other sources. Other news sources to consult include:

- IRIN Humanitarian News & Analysis [www.irinnews.org](http://www.irinnews.org)
- Inter-Press News (African smallholder farming news) [www.ipsnews.net/new_focus/farmingfuture/index.asp](http://www.ipsnews.net/new_focus/farmingfuture/index.asp)
- BBC News [www.bbc.co.uk/news](http://www.bbc.co.uk/news)
- Voice of America News [www.voanews.com](http://www.voanews.com)
- National Public Radio [www.npr.org](http://www.npr.org)

Agriculture and Ecosystems Blog – CGIAR Research Program on Water, Land and Ecosystems [http://wle.cgiar.org/blogs](http://wle.cgiar.org/blogs)


The New Agriculturalist - Provides an update on the latest news and developments in tropical agriculture for a global audience. [www.new-ag.info](http://www.new-ag.info)

**RELEVANT ORGANIZATIONS & INFORMATIONAL WEBSITES**

- Bangladesh Rural Advancement Committee (BRAC) [www.brac.net](http://www.brac.net)
- Bread for the World [www.bread.org](http://www.bread.org)
- The Chicago Council on Global Affairs [www.thechicagocouncil.org](http://www.thechicagocouncil.org)
- Climate Wise Women [www.climatewisewomen.org](http://www.climatewisewomen.org)
- The Coalition for Adolescent Girls *(Check out the “Knowledge” section to access the: “Girls Count Reports”, “Global Girl Facts” and “Girls Discovered Global Map”)* [www.coalitionforadolescentgirls.org](http://www.coalitionforadolescentgirls.org)
- Consultative Group on International Agricultural Research (CGIAR) [www.cgiar.org](http://www.cgiar.org)
- Grameen Bank [www.grameen-info.org](http://www.grameen-info.org)
- Grameen Foundation [www.grameenfoundation.org](http://www.grameenfoundation.org)
- HarvestPlus [www.harvestplus.org](http://www.harvestplus.org)
Heifer International
www.heifer.org

Intergovernmental Panel on Climate Change
www.ipcc.ch

International Assessment of Agricultural Science and Technology for Development (IAASTD)

International Food Policy Research Institute (IFPRI)

The New Partnership for Africa’s Development (NEPAD)
www.nepad.org

Oxfam International
www.oxfam.org

Partnership to Cut Hunger and Poverty in Africa
www.partnership-africa.org

United Nations Children’s Fund (UNICEF)
www.unicef.org

United Nations Development Programme (UNDP)
www.undp.org

The UN Millennium Project
www.unmillenniumproject.org

United States Agency for International Development (USAID)
www.usaid.gov


World Food Programme (WFP) of the United Nations
www.wfp.org

World Resources Institute (WRI)
www.wri.org

Worldwatch Institute
www.worldwatch.org

RECOMMENDED INTERVIEWS, SPEECHES & PANEL DISCUSSIONS

“The Single Greatest Challenge in Human History” keynote by World Food Prize President, Amb. Kenneth Quinn, at the UN World Food Day Observance in New York, 23 November 2013
bit.ly/1iFbke8

Video Interview with 2003 World Food Prize Laureate Catherine Bertini on Nutrition and Girl’s Education, Chicago Council on Global Affairs, 23 October 2013. Chicago Council Senior Fellow and former Executive Director of the UN World Food Program Catherine Bertini discusses how gender relates to agriculture, the role of nutrition in the first 1,000 days of life, and the importance of US investment in agriculture development.
www.mrfcj.org/pdf/hncj/conference-papers.pdf

Seven Billion And Counting On Point, NPR Audio Archives, 27 October 2011
http://onpoint.wbur.org/2011/10/27/seven-billion

Global Food Price Spikes On Point, NPR Audio Archives, 9 February 2011

“Take it to the Farmer”: Reaching the World’s Smallholders – Proceedings of the 2010 Borlaug Dialogue World Food Prize International Symposium, Video and Audio Archives, 15-17 October 2010
www.worldfoodprize.org/en/borlaug_dialogue//previous_years/2010_borlaug_dialogue

Silent Tsunami: Global Food Crisis (John McArthur, Executive Director, Millennium Promise; Raj Patel, Visiting Scholar, University of California at Berkeley/Author of “Stuffed and Starved,” and Joia Mukherjee, Medical Director, Partners in Health) On Point with Tom Ashbrook, NPR Archive, 5 May 2008.
http://onpoint.wbur.org/2008/05/05/silent-tsunami#

Giving Africa Infrastructure for Growth Talk of the Nation, NPR Audio Archives, 5 April 2006

How Can Scientists Help Address Poverty? (Per Pinstrup-Andersen, 2001 World Food Prize Laureate; and other experts) Talk of the Nation, NPR Audio Archives, 17 February 2006

The Problems of Preventing Famine (Natasha Quist, West Africa Regional Director, OXFAM; Marc Cohen, Research Fellow, IFPRI; and Jason Beaubien, NPR News) Talk of the Nation, NPR Audio Archives, 26 July 2005

Addressing Hunger and Poverty (Jeffrey Sachs, Director, Earth Institute, Columbia University; and Lester Brown, President and Founder, Earth Policy Institute) Talk of the Nation, NPR Audio Archives, 20 May 2005

UNICEF’s Voices of Youth Digital Diaries
First-person accounts by young people from around the world on issues affecting their lives
www.unicef.org/voy/takeaction/takeaction_2692.html

RESOURCES LISTED BY FACTOR

Factor 1 - Plant Science:
Unleashing a Decade of Innovation in Plant Science: A Vision for 2015-2025
American Society of Plant Biologists, 2013.

New Technologies for Sustained Productivity Growth: Plant Breeding
Donald Duvick. Iowa State University, 2004
http://ageconsearch.umn.edu/bitstream/33020/1/fo04du03.pdf

Agricultural Biotechnology and Genetically Engineered Crops - Policy Briefs
US Agency for International Development (USAID), 2004

Factor 2 - Water Scarcity:
Water-Short World Will Need “More Crop per Drop” - Experts
Megan Rowling. Alertnet, 2012
Beyond More Crop per Drop
www.iwmi.cgiar.org/Publications/Other/PDF/Beyond_more_crop_per_drop.pdf

Factor 3 - Biofuels:
Biofuels and Sustainable Development
Henry Lee, William Clark, and Charan Devereaux. 2008
www.globalbioenergy.org/fileadmin/user_upload/gbep/docs/2008_events/S_Servolo/San_Servolo_Biofuels_Report_FINAL.pdf

The State of Food and Agriculture 2008: “Biofuels: Prospects, Risks, and Opportunities”
Food and Agriculture Organization (FAO), 2008
Summary: ftp.fao.org/docrep/fao/011/i0100e/i0100e01.pdf
Full Report: www.fao.org/docrep/011/i0100e/i0100e00.htm

Factor 4 - Animal Health:
Transboundary Animal and Plant Pests and Diseases
Food and Agriculture Organization (FAO), 2009

Combating Infectious Diseases of Livestock for International Development
BBSRC and UKAid, February 2010
www.bbsrc.ac.uk/web/FILES/Publications/100215-cidlid-brochure.pdf

Factor 5 - Climate Volatility:
Micro-level Practices to Adapt to Climate Change for African Small-Scale Farmers

Climate Change Response Strategies for Agriculture: Challenges and Opportunities for the 21st Century

Factor 6 - Sustainable Agriculture:
Agricultural Sustainability and Intensive Production Practices
www.cedarcreek.umn.edu/biblio/fulltext/t1860.pdf

The Paradigm of Conservation Agriculture
www.unapcaem.org/publication/ConservationAgri/ParaOfCA.pdf

Factor 7 - Animal Agriculture:
Sustaining intensification of smallholder livestock systems in the tropics

Revisiting Mixed Crop-Livestock Systems: Smart Investments in Sustainable Food Production
M. Herrero, P. K. Thornton, et al. Science, 2010 (Must create free “Science” sign-in for free access to full article)
www.sciencemag.org/content/327/5967/822/reply#sci_el_13136

Factor 8 - Spoilage and Waste:
Increasing Food Availability by Reducing Postharvest Losses of Fresh Produce
Postharvest losses and waste in developed and less developed countries: opportunities to improve resource use
http://journals.cambridge.org/action/displayAbstract?aid=8030717

Factor 9 - Water and Sanitation:
Water Quality
UN Water, 2011

Compilation of 13 Factsheets on Key Sustainable Sanitation Topics
www.ssswm.info/sites/default/files/reference_attachments/MUENCH%20et%20al%202012%20Compilation%20of%2013%20Factsheets%20on%20Key%20Sustainable%20Sanitation%20Topics.pdf

Factor 10 - Dietary Diseases:
Chronic Diseases Growing in Developing Nations: WHO
Kate Kelland, Reuters (posted on Huffington Post), July 16, 2012
www.huffingtonpost.com/2012/05/16/chronic-disease-developing-nations_n_1520195.html

The Nutrition Transition and Obesity in the Developing World
http://jn.nutrition.org/content/131/3/871S.full.pdf+html

Factor 11 - Malnutrition:
Micronutrients (Statements and Resources)
World Health Organization, 2012
www.who.int/nutrition/topics/micronutrients/en/index.html

Saving Lives in Africa With The Humble Sweet Potato

Factor 12 – Human Diseases:
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