

Ethan Morford, Student Participant  
Earlham High School  
Earlham, IA

## **Biofuels and Food Security For Eastern Europe**

### **Introduction**

If you have been exposed to the media recently, you are aware of the pristine marketing of biomass products that seems to be benefiting everyone in the world. Even though these new “renewable” fuels induce a great relief to the environment and the farmers’ pocketbooks, it does not mean that there are not drawbacks. Although most of the world’s population supports the development and use of biomass products, such as ethanol and biodiesel, we cannot make an immediate conversion to 100 percent usage. Something of this magnitude would take time. The world is currently not growing enough corn and soybeans to sustain the production of food and biofuels necessary to support the demand.

All of this ethanol production is regarded as being a beneficial addition to our environment, but there are still some dreadful drawbacks to consider. One of ethanol’s benefits is that it is a biodegradable substance, but that great news does not include the negative impact ethanol has on our environment. Research says that for every gallon of E85 Ethanol produced, approximately twenty pounds of topsoil is lost. Corn yields having doubled in the past 30 years, make it likely that production will continue to climb, allowing us to produce these alternative fuels.

If the rest of the world is really serious about helping our environment and producing biofuels, then those countries will need to put in place useful incentives for farmers. The developing countries in Eastern Europe are having problems reversing natural resource degradation, and adapting their farming techniques to water scarcity and global climate change. We need to implement biofuel production in ways that improve food security and farm income in Eastern Europe. Using crops grown from subsistence family farms for biofuels could provide them with a significant source of demand for their products.

Subsistence family farms and the area where they predominate, suffer from the largest food and nutrition insecurity. This is mostly because of the nature of these farms and how they operate. An average subsistence family farm in Eastern Europe aims towards maximizing each family member’s consumption, instead of overall profit. They are not able to yield as much as they should in order to sell their products. As a result, they do not make enough for their business or farm to grow. Agriculture in this region is held back because of the lack of modern equipment, unclear property rights, and the occurrence of small, inefficient plots of land. Energy shortages and out of date and inadequate infrastructure also contribute to the poor business environment. This makes it difficult to attract and sustain foreign investment in Eastern European agriculture. Even though these farms are still present in Eastern Europe, they have decreased greatly since World War I. These small, subsistence family farms do not rely on a huge income. They farm just because that is what they have to do in order to survive and have food of their own. The workers on these farms usually have little or no education. Subsistence farming is usually not profitable enough to finance an education. Because farm plot size is limited, it makes it easier to have more small-sized farms, but less production per farm. These subsistence farms usually do not have enough money to purchase fertilizers or technologies that will help improve the yield. Also, they tend to grow the types of crops needed for food consumption, not profitability.

There are some other major barriers that also limit productivity and income for the family farms. A great example of this is the country of Ukraine. Its agriculture output fell more than 40 percent from

1991 to 1999. This was most likely caused by hyperinflation, Ukraine's dependence on Russia's energy supply, and the lack of appropriate structural reforms.

Family farms are crucial to providing the globe's supply of biofuels. The developing countries in Eastern Europe have some subsistence family farms. The governments in these small, developing countries do not provide incentives, or grants to the small farms. For example, in America, we have the United States Department of Agriculture. It is a division in our government that is used for developing and executing policy on farming and agriculture at home and abroad. We need to assist these developing countries in making their own department of agriculture, and/or making the necessary governmental reforms. These developing countries lack correct leadership in their governments, as well as funds to correctly run a "department of agriculture." Even though these countries do not operate as well as ours, they still have some beneficial aspects. They usually provide some type of subsidies to the farmers. Yet, they seem to help the big farms more. They pay a certain amount per hectare, so you will receive more money if you own more land. This does help out the small family farms, but not nearly as much as the big, factory farms.

## **Body**

The most important thing that we need to change in order to increase agricultural productivity, biofuels production, and improve food security, is reversing natural resource degradation and adapting farming to water scarcity and climate change. I believe this is the biggest "issue" facing our world today. There are a lot of things to change all over the world, but I am going to focus on the things to change in Eastern Europe.

Europe is the leading contributor towards biodiesel, yet not very much of that alternative fuel comes from Eastern Europe. The factor that I mentioned earlier, to reverse natural resource degradation and adapt farming to water scarcity and climate change, will be somewhat difficult to achieve in Eastern Europe. Even though we may think that this will be easy to change here in America, over in Eastern Europe it will be much more difficult. They lack the "excess" resources and technology that we have. They are about the same latitude as we are, yet somehow they can't bring this factor into perspective. These family farms, already have a hard time getting by. If you subsequently tack-on trying to reverse natural resource degradation and adapting their farming to water scarcity and climate change, they will think you are mad! Yes, they are trying to implement this, but it is too difficult with little to no government aid. These farmers might want to change their life and farming style, but they cannot. It is just too costly and unattainable. But is that totally true? There are plenty of ways to get the funding and help. The United Nations has developed a concept called the SARD (Sustainable Agriculture and Rural Development) initiative. This program involves endorsing 178 governments around the world. The objective is to "increase food production in a sustainable way and enhance food security while supporting pilot efforts and building the capacity of rural communities." There has just recently been a major investment made by the World Bank Group. On September fourth of this year, they devoted around six billion dollars in loans, investments, and equity investments. This has, and will still make great improvements to small businesses and farms. The World Bank Group is doing a magnificent job, and now we need to encourage other banks to assist them as well. As you can see, this is exactly what the World Food Prize is all about; advancing human development by improving quality, quantity, or availability of food in the world. There is a problem though. If we do accomplish this "goal," then how are the low-class, subsistence family farms going to survive?

As I said before, probably the biggest issues facing our environment these days are natural resource degradation, farming with water scarcity, and climate change. These three things are major threats to our current and future lifestyle. In our efforts to decrease these problems, we have tried to implement certain restrictions and take great measures to protect these things we hold so close. We now

need to show these developing countries what good it will do to conserve the natural resources and invest them in their future, instead of only looking at short-term profits.

Farmers in these developing countries currently have had to settle for marginal lands, which turn out to produce low yields. This produces a problem in itself. Some of their farming tactics may cause erosion, nutrient depletion, carbon loss, and loss of water holding and buffering capacity. This results in reduced productivity and the potential abandonment of lands. If we had a way to change this factor, we could ultimately liberate family farms of using natural resources inadequately, and possibly improve the environment and biodiversity substantially. We will also be able to increase the amount of food readily available, which will benefit small family farms and developing countries, hand-in-hand.

## **Conclusion**

Biofuels in America have assisted the farms abundantly. The corn prices have skyrocketed all because of one thing: ethanol. Ethanol is a great thing for America, but for developing countries that have subsistence farms that can barely survive; the choice of fuel vs. food becomes a tough decision. When you bring into the picture their meager land and appalling yields, there are not enough resources to make a sufficient amount of crops to sell for biofuels production and for their personal use. Last year the U.S. produced about 11.2 billion bushels of corn, and 9.2 billion of that went to something other than ethanol production. If we are considering converting more fuel to ethanol, then we may have to buy more corn from other sources. If the subsistence farms in Eastern Europe could increase their production enough to grow more than they need for food, then they could be a feed source for biofuels production. If they could grow their food and still have excess production to sell, they could achieve a more fulfilling life.

This past winter, ethanol has played a vital role in the lives of farmers in America. The price of corn has doubled, the number of ethanol plants have increased, and the by-product of ethanol is making it more lucrative to raise livestock. Farmers can buy back the corn by-products and feed them to their livestock. This, in turn, lets the farmers reduce feed costs on their livestock. Now if we can incorporate this same system into the developing countries in Eastern Europe, we may be able to achieve the food security we strive for.

Our world seems to have become “addicted” to corn. You can find corn in many things, from fuel to food. This presents a major problem. At the moment, corn is easy to come by and relatively inexpensive to purchase, but we will have to consider the changes we have made to our environment. The loss of topsoil and the increase in population will make it more difficult to produce enough corn and other crops. These new alternative fuels are currently assisting us in our efforts in fixing the energy crisis, but soon we will have to focus our efforts on feeding our world, instead of filling up our gas tanks.

## Works Cited

Crowley, Eve "History of SARD." 9/17/07

<<ftp://ftp.fao.org/SD/SDA/SDAR/sard/History%20of%20SARD%20at%20FAO.pdf>>

"Good Governance." 9/16/07 World Bank Group, ©2007

<<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/ECAEXT/HUNGARYEXTN/0,,contentMDK:21392999~menuPK:302099~pagePK:2865066~piPK:2865079~theSitePK:302081,00.html>>

"Reversing Land and Water Degradation: Trends and 'Bright-Spot' Opportunities"

<[http://72.14.205.104/custom?q=cache:C9gBVwuqxGYJ:www.iwmi.cgiar.org/brightspots/PDF/Globally/Reversing\\_trends.pdf+trends+of+reversing+natural+resource+degradation&hl=en&ct=clnk&cd=10&gl=us&client=pub-0660185026920383](http://72.14.205.104/custom?q=cache:C9gBVwuqxGYJ:www.iwmi.cgiar.org/brightspots/PDF/Globally/Reversing_trends.pdf+trends+of+reversing+natural+resource+degradation&hl=en&ct=clnk&cd=10&gl=us&client=pub-0660185026920383)>

"SARD Initiative" 9/15/07 <<http://www.fao.org/sard/en/init/2224/index.html>>

Seligmann, Peter "Reversing Trends for Our Future" 9/22/07

<<http://web.conservation.org/xp/frontlines/science/04010501.xml>>

"The World Factbook" <[www.cia.gov](http://www.cia.gov)>

"WBG Commitments." 9/18/07 ©2007

<<http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/ECAEXT/0,,contentMDK:21460632~menuPK:258604~pagePK:2865106~piPK:2865128~theSitePK:258599,00.html>>

"World Biofuels Markets Report." 9/15/07

<<http://www.worldbiofuelsmarkets.com/downloads/WorldBiofuelsMarketsReport.pdf>>