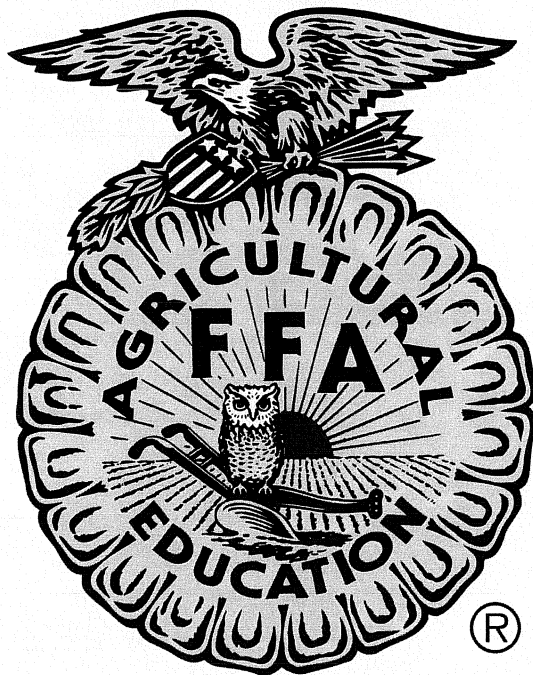


A Greener Revolution



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He was responsible for saving the lives of over a billion people in developing countries. Yet his name is still unknown to most of the general public. This man was Norman Borlaug, and he was a plant geneticist at a time when plant genetics hardly existed.

In the 1940's Mr. Borlaug developed high-yield dwarf wheat in Mexico. As a result, farming in the "Third World" soon changed. He not only altered the crop through breeding, but convinced others to accept these new practices. In the 1980's, success stemming from his work spilled over into China, which is now the world's number one producer of food. Borlaug's recent death reminds us of those who are alive today because of his revolutionary efforts to feed the world.

This hero of the 20th century saved billions from starvation 70 years ago, but the reality of hunger and other food-related issues still exists today. In 50 years, our global population will need 100 percent more food than is currently being produced. Although adding farmland acres and increasing crop intensity will help, only 70 percent of the additional food needed can be produced using existing technology.

That means, Borlaug's work will continue to impact agricultural production on a global scale. The Green Revolution was designed to feed a hungry world. That hungry world still exists, but Borlaug's genetic research can also be used to combat a variety of other issues. Today, we can create an even Greener Revolution

by designing crops that will fight human illnesses and help health-conscious consumers while still addressing global hunger issues.

Many of the crops grown here at home, such as corn, wheat and soybeans, contain allergens that affect those who consume them. In fact, one in every 133 Americans is affected by celiac disease, caused by the sensitivity to gluten found in wheat germ. These gluten-intolerant individuals are forced to search for gluten-free products, or avoid wheat-based products altogether, because there is currently no cure for the disease. Imagine how these individuals' lives could be changed if wheat no longer contained these allergen-causing proteins.

Researchers are now working to develop new varieties of wheat that could be safely consumed by people with celiac disease. These new varieties will have specific proteins in the gluten removed, creating a transgenic plant. A key challenge to the production is to extract the harmful proteins while still maintaining the crop's unique baking qualities. Wheat is one of the most important crops grown on this planet, and new varieties will be a tremendous benefit, not only for those who suffer from celiac disease, but for all consumers of wheat-based products.

In our daily lives we come into contact with thousands of harmful pathogens. The food we consume could be playing a role to prevent and combat the illnesses caused by these germs. A recent H1N1 scare sent the world into shock

and fear. However, much of this concern could have actually been prevented through new technology in plant breeding. For example, agricultural scientists have found that adding flu genes to corn could be an effective way to deliver an oral vaccine to pigs, poultry, or even people. They are now trying to identify genes in the H1N1 virus that provide protection and incorporate them into a corn plant. Agricultural scientists are also working to bioengineer other corn hybrids to protect pigs from additional illnesses.

An injectable H1N1 vaccine already exists, but with a corn-based oral vaccine, the pigs could be protected as early as three weeks old. Plus, the corn could be stored without losing its potency, ready for use in case of another H1N1 outbreak. This medical breakthrough could solve many concerns. First, it could affect our food supply by protecting swine from contracting the virus. Second, it would prevent large herds from spreading H1N1, thus saving the pork industry millions of dollars in decreasing demand.

The most genetically altered crop in the United States is corn. This year, there is a new variety coming to town, and by town I mean nearly 4 million acres on United States' farms. SmartStax is a disease-fighting, insect-resisting, refuge-reducing seed that is predicted to increase yields by 5 to 10 percent. This crop will be protected against at least seven different insects above and below ground, and

will help control grasses and weeds by utilizing Roundup Ready 2 technology and Liberty Link herbicide tolerance.

Large yield increases will undoubtedly occur from such technology, will be extremely beneficial in a growing world and will allow farmers to reduce input costs by decreasing pesticide usage. Also, with a decreasing amount of land available for farming, technological advancements like SmartStax will increase production per acre of land. This 8-way gene platform will lead the way for other crops, such as soybeans, canola and even cotton to maximize production and serve the land upon which they are grown.

By the year 2025, our global population is expected to be well over 8 billion people, and to feed these new mouths, we will need an additional 1 billion tons of grain. Although this task may seem like a daunting one, I believe Mr. Borlaug said it best himself when he stated “Civilization as it is known today could not have evolved, nor can it survive, without an adequate food supply.” Let us, as agriculturists, take note of this scientist’s wise words and evolve our world by evolving what we eat. Food is a basic necessity, but it doesn’t necessarily have to be basic. Norman Borlaug was a progressive agriculturist who should forever be credited for knowing our world can be saved. We as agriculturists can save it through genetic modification.

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