

## MYTH: Genetically Modified Wheat

**FACT:** The wheat grown around the world today came from three grassy weed species that naturally hybridized around 10,000 years ago. There is no plant in the modern world that is the same as it first existed when the Earth was formed, nor is the environment the same. There is a broad misconception that wheat has been genetically modified, this is false. The wheat varieties that have been developed through breeding have taken advantage of the natural variation that exists in wheat and wheat ancestors and relatives. There are no commercially-available wheat varieties in the world today that were genetically engineered with genes from unrelated species.



**FACT:** There is no mystery to wheat breeding. Wheat breeding has always involved crossing two or more parents followed by selection for improved and recombined traits that improve yield, increase resistance to diseases or improve baking characteristics. To breed new varieties, breeders employ two basic methods:

**FACT:** Conventional crossing involves combining genes from complementary wheat plant parents to produce new genetic combinations (not new genes) in the offspring. This may account for slightly higher yield potential or disease and insect resistance relative to the parents.

**FACT:** The second method is to introduce genes indigenous to ancestral or related species of modern-day wheat and gradually incorporate these genes into a new wheat variety with minimal contribution of DNA from the ancestral species. This method still employs crossing, not genetic engineering.

**FACT:** It is very important to realize that either method capitalizes on variation already found in wheat's lineage.

## Conclusion

The primary goal of today's wheat breeders is to make this ancient plant meet the demands of a rapidly growing human population. All farmers, including wheat farmers, also rely on plant breeders to develop varieties of seeds that are able to combat constantly evolving pests and diseases and shifting climatic conditions.

In the U.S., scientists working at universities, private companies and the U.S. Department of Agriculture are all committed to research that will help us understand the full breadth of the wheat genome. This forward motion is desperately needed to find beneficial traits critical to keeping wheat available and affordable. Wheat is not alone, research and breeding are absolutely essential in all food crops because agricultural production must increase by about 66% by 2040 to match population growth; this science has already saved millions of lives throughout the world. Developing healthy plants is necessary in order to meet the nutritional needs of a growing society.

Overall, wheat is an essential, safe, healthy and wholesome source of energy and essential nutrients. Globally, 21 percent of the world's calories come from foods made with wheat. Wheat provides an estimated 4.5 billion people in 94 developing countries 20 percent of their protein intake. We encourage consumers to continue learning about the food they eat and please support our farmers.

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# NC Small Grain Growers

## ASSOCIATION

We are the North Carolina Small Grain Growers Association, we were established to encourage, promote, and develop more efficient small grain marketing and production. Our goal is to participate in all matters relative to the interest of small grain producers in North Carolina.

Recently, wheat, and the proteins it contains especially gluten, have received intense attention from the media and consumers. Consumers are yearning for more trust within their food source, we understand those concerns as consumers ourselves and that's why we created this brochure. In an effort to clear up some of the misconceptions regarding wheat, we created this brochure that is specifically focused on providing consumers with FACTS rather than fiction. We hope that you will find this informative and enlightening.

## The Truth About: WHEAT FACT vs. FICTION



*It's no secret that the number of Americans showing interest in a gluten-free diet has reached new heights. Almost a third of adults (29%) in the USA say they want to cut down on the gluten they eat or consume a gluten-free diet. Some people want to go on a gluten-free diet to lose weight because they've heard that's what celebrities are doing, but in fact many gluten-free products are actually higher in fat than other products. Millions of **people are buying gluten-free foods even if they don't have a wheat allergy and it's because they have been misinformed.***

### **MYTH: Gluten is bad for your body.**

**FACT:** Gluten is a protein found in wheat, rye, and barley containing gliadin and glutenin. Gluten provides structure for baked products requiring volume such as bread.

**FACT:** There are currently three recognized categories of gluten-related disorders: celiac disease, wheat allergy, and gluten sensitivity.

**FACT:** Celiac disease, also known as gluten intolerance, is an autoimmune disorder that occurs in certain genetically susceptible people. Only 1% of the population suffers from celiac disease, which triggers an immune system reaction that causes inflammation in the small intestine when a person eats food containing gluten. A gluten-free diet is medically prescribed for those who have true wheat allergies or celiac disease. It is the only course of treatment for this life-long chronic condition. It isn't a choice; it is a matter of life and death.

**FACT:** 93% of the population can include gluten-containing foods in their diet. For those without CD or severe gluten sensitivity, this gluten-free diet is unnecessarily expensive, restrictive and may cause harm by eliminating healthy gut and colon bacteria. Gluten-free foods, on average, also cost about 242% more than their regular gluten-containing counterparts.

### **MYTH: Gluten-Free foods are healthier for you.**

**FACT:** Gluten-free grains have no caloric advantage over gluten-containing grains (wheat, barley and rye). All carbohydrates have 4 calories per gram.

**FACT:** Gluten-free foods are often higher in fat and sugar, and are often lower in fiber, which may actually lead to weight gain.

**FACT:** Gluten-free diets often lack various nutrients such as iron, calcium, many B vitamins (including folic acid), zinc, magnesium, and a host of other nutrients found in wheat, barley and rye products.

### **MYTH: Wheat causes obesity.**

**FACT:** The composition of modern wheat is not the main cause of the overweight-obesity problem in humans. A combination of factors (genetics, diet, life style, environment) are all, in combination, what triggers weight gain.

**FACT:** Wheat is one component in the diverse diet of U.S. consumers. Per capita wheat consumption in the U.S. has declined in recent years, while obesity rates have increased.

**FACT:** Carbohydrates, such as pasta and bread, are neither the cause of weight gain. Carbs have the same amount of energy per gram as protein (4 calories per gram) and less energy per gram than fat (9 calories per gram).

**FACT:** Wheat foods play a role in weight loss. Studies show that those who incorporate more grains into their diet have lower LDL cholesterol, decreased BMI, and less total body fat than those who don't eat grains. Top wheat foods for weight loss: whole wheat pasta, couscous, wheat bran, wheat berries, cracked wheat; whole wheat bread, and farina.

### **MYTH: Wheat is not good for you.**

**FACT:** Wheat has been a staple of the human diet for thousands of years. Wheat grain is an important source of starch and protein, both of which provide energy for the human body. Wheat also provides dietary fiber, resistant starch and antioxidants. All of these factors contribute positively to health by preventing cardiovascular disease, diabetes and colon cancer.

**FACT:** Carbohydrates are the predominant fuel for the brain, nervous system, and muscles, when exercising at high-intensity. Therefore, with a decreased carbohydrate intake, it is difficult to support continuous daily exercise sessions, which studies show helps maintain weight loss and an overall healthier lifestyle.

