



WEEDING OUT WHEAT

A SIMPLE, SCIENTIFIC,
FAITH-BASED GUIDE

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OH, HOW TIMES HAVE CHANGED:

YESTERDAY'S WHEAT VS. TODAY'S WHEAT

A life without wheat makes about as much sense as a world without gravity. Wheat is not only a staple of modern American life, it has also been cultivated for centuries and is a part of the culinary heritage of many cultures. Giving up wheat, for many people, can feel like giving up a part of who they are.

Cultivating and breeding grain, as opposed to harvesting it from the wild, has been a practice in human cultures for thousands of years. The ability to cultivate wheat and other grains was a major turning point in human civilization, enabling more permanent settlements and thereby promoting human ingenuity and culture.

Our goal in this chapter is not to take you back before the days of wheat cultivation—though that is an interesting area of study—but rather to take you back just a few decades when modern wheat started to undergo major changes.

WEEDING OUT WHEAT

Cultivating grain has always involved a process of breeding in order to produce the best yield, but in the latter part of the twentieth century, this practice took on a whole new meaning. The wheat our great-grandparents ate is not the same as the wheat we eat today.

ANCIENT WHEAT

Einkorn wheat was among the first wild wheat grains cultivated by humans. Shortly after this, emmer, an offspring of einkorn and goatgrass, started to be grown in the Middle East.¹ This was most likely the wheat used by Israelites in the days of Moses and up through the age of the Greeks.

At the same time emmer naturally mixed with *Triticum tauschii*, creating *Triticum aestivum* (bread wheat), and this family of wheat was grown through the twentieth century. You can still find wild einkorn and emmer wheat today, found in small quantities scattered throughout the Middle East and southern Europe.

MODERN WHEAT

As industrialized farming became the norm, farmers wanted wheat that would be resistant to heat, disease, and drought, as well as wheat that would produce the greatest yield. The 1940's and 50's saw many innovations.

By the late 40's, researchers knew they could create huge yields of grain by applying nitrogen-rich chemical fertilizers to the wheat, but the heads of grain would become too large to be supported by the long stalks. So in the early 50's, Dr. Norman Borlaug, the director of the International Wheat Improvement Program, funded by the Rockefeller and Ford Foundations, discovered a way to breed semi-dwarf wheat stalks that wouldn't buckle under the weight of large seed heads. Dr. Borlaug's plants produced enormous heads of grain supported by sturdy stalks, tripling or quadrupling the amount of wheat an acre of land could produce.

For his work on increasing food production, Dr. Borlaug was awarded the Nobel Peace Prize in 1970. Upon his death a few years ago, the *New York Times* said Dr. Borlaug "did more than anyone else in the 20th century to teach the world to feed itself."² His work is credited with saving hundreds of millions of lives.

The Wall Street Journal said the day after his death, "more than any other single person Borlaug showed that nature is no match for human ingenuity in setting the real limits to growth."³

Of course, the desire to solve the world hunger problem is commendable, but it was assumed by scientists that modern wheat hybrids would offer humans the same nutritional value as before. Unfortunately, this is not the case. It is possible that this lack of testing ended up creating as many problems as it solved.

GLUTENSTEIN'S MONSTER

Only in recent years has there been pressure to test the impact of modern hybridization on human health. In the early decades, testing was not done because scientists assumed all hybridization was safe. But the hybridization methods we're talking here about aren't the changes we see occurring in nature.

Human beings have found a number of ways to change plants in recent years. Genetic modification is one such way. Genetic modification is inserting genes from one species into that of another species. Animal, bacteria, or virus genes can be inserted into plant DNA. Yes, this sounds like something out of a sci-fi movie, but it's real, and it's happening with our food. Studies are now showing, for instance, that when animals are fed genetically modified soybeans that are Roundup resistant, this alters their liver, pancreatic, intestinal, and testicular tissue. It is believed that these genetically altered foods now contain proteins that are toxic.⁴

Now, wheat is *not* (as of this printing) genetically modified like Roundup resistant soybeans, but the reason we draw this comparison is because many did not question the safety of these genetically modified plants until recently. So too, many are not questioning the safety of the mutant wheat we are consuming.

Though wheat has not been genetically modified, it has undergone something much more dangerous than the simple

hybridization that Gregor Mendel, the father of modern genetics, demonstrated in pea plants. Wheat has undergone what is known as *transgenic breeding*.

Transgenic breeding is breeding of wheat embryos in the presence of radiation and/or harsh chemicals. Transgenic breeding may in fact be *more* dangerous than genetic modification of plants, and it appears there are no regulations at all on transgenic breeding. (More on this on the next page.)

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Scientists can compare the proteins found in wheat hybrids created from two parent strains. Gluten, one of the proteins in wheat, undergoes the greatest change. One experiment found fourteen *new* gluten proteins in the offspring that were not found in parent wheat plants.⁵ When compared with wheat strains that are centuries old, modern wheat has many more gluten proteins,

which are associated with today's gluten sensitivities, such as celiac disease.⁶

TEENAGE MUTANT NINJA WHEAT

Modern wheat has been so modified by humans, these strains are actually *unable* to grow in the wild anymore because they depend on pest control and nitrate fertilization.⁷ (To use an analogy used by some doctors, what if you had a species of dog that was bred in such a way it couldn't survive in the wild anymore because it *had* to eat Purina Puppy Chow®?)

Indeed, most of the wheat produced today uses some type of pesticide. Of the 16 pesticides used on wheat, the most common type of pesticide used is Malathion, which is used on nearly 50% of all wheat. Malathion is a neurotoxin and classified as an "endocrine disruptor," meaning it can screw up the hormones in our bodies.⁸

As we've already mentioned, wheat seeds have been exposed to radiation.^{9, 10, 11} When food-stuffs are subjected to high dose irradiation, the molecular structure of the food is changed, potentially creating carcinogens and toxic chemicals, and causing infertility, kidney damage, and changes the nutritional value of food.¹² This irradiation with the use of gamma and microwave rays has a number of doctors and scientists quite alarmed, and for good reason. Animal studies have resulted in

some quite catastrophic outcomes.^{13, 14, 15} These doctors and scientists have petitioned the government to halt irradiation of food, but have been met with deaf ears.¹⁶

THE SUGAR BUZZ OF DWARF WHEAT

As hybridization has increased, the mineral content of harvested wheat grains has also decreased. The Broadbalk Winter Wheat Experiment found that due to shorter stalks, less sun, and shallower roots systems, the common dwarf wheat is deficient in many vitamins and minerals.¹⁷ Modern wheat is lower in minerals like zinc, magnesium, iron, copper, and selenium than its ancient ancestor.^{18, 19}

Another difference we see is in how grains are being processed. Of course most grains are stripped of their bran and germ. But grains today are also ground much more finely than they were in ancient times. The grains are ground so finely that our body converts them to sugar much more quickly which leads to weight gain and a plethora of other problems.

Unfortunately, the impact of modern wheat has not been studied thoroughly, but the potential health concerns are great.

CAUSE FOR ALARM: WHEAT-ASSOCIATED PROBLEMS ON THE RISE

Could these modern wheat changes be one of the causes behind a rise in specific health problems today?

A 2009 study published in *Gastroenterology* compared 10,000 blood samples from Air Force recruits 50 years ago to 10,000 current samples. They were startled by the results. In just 50 years, there has been a *400% increase* in the prevalence of celiac disease.²⁰

Celiac disease is when one of the wheat proteins—gluten—attacks the small intestine. This autoimmune disease causes inflammation and has the potential to cause a wide range of problems. The symptoms most commonly associated with celiac disease are diarrhea, cramping, and bloating, but there are a host of other problems. In fact, only a third of individuals with celiac disease experience any intestinal discomfort.

Celiac disease is just *one* type of sensitivity to wheat. Gluten allergies and sensitivities are also on the rise and are estimated to occur in approximately 18 million or more individuals in the U.S. alone. Gastroenterologist Dr. Richard Auld says ten years ago he would have thought the trend towards wheat-free living was just a fad, but now he thinks differently. “Gluten allergy—autoimmune disease—is much more common now than 50 years ago,” he claims.²¹

Type 1 diabetes has also been rising sharply over the past several decades.²² Lab experiments with mice show a strong connection between a wheat-fed diet and type 1 diabetes.²³

CONNECTING THE DOTS

Unfortunately, it's quite difficult to determine who has a serious problem with wheat because the symptoms are so diverse and often doctors haven't been trained to associate the symptoms with wheat.

Certainly, not all our health problems are traced back to wheat. Far from it. But with the recent changes in our wheat crops, could the rise of wheat-related diseases be a consequence?

Thankfully, the tide seems to be turning. Doctors are being educated and some are beginning to connect the dots. They are realizing that, in fact, many of their patients do have a problem with wheat even if the "classic symptoms" of celiac disease are not present.

As a family, we started reading more and more about the scores of people who feel *dramatically* better after going wheat-free. Doctor after doctor tells their patients they can find nothing wrong with them, despite their chronic symptoms. But take away the wheat and the symptoms seem to stop.

The anecdotal evidence seems to be piling up.