

Weighing In on Wheat

Doctor, Author William Davis Shares Insight into Modern Wheat Woes from a Human Health Perspective



*William Davis, M.D., is the bestselling author of *Wheat Belly*, a book that advances a radical idea. Davis believes that modern wheat, even the whole grain wheat touted as a cornerstone of good eating for decades, lies at the heart of many current health woes. As he details in his book, Davis finds many of his patients recovering from obesity, type 2 diabetes, reflux disease and a host of other maladies after eliminating wheat products from their diet. Moreover, he says he can back up his experience with hard science. Davis' arguments go beyond simple avoidance of gluten, and in fact he is a critic of the gluten-free trend, especially as it's being marketed by the food industry, ever quick to adapt to new consumer preferences. The tenets Davis advocates in his funny, forceful style also clash with an emerging consensus that emphasizes excessive consumption of fructose in combination with glucose — sugar — as the chief enemy of public health. One thing that's certain is the novelty of the wheat varieties created in the wake of the Green Revolution of the 1960s, which Davis argues persuasively constitute something new under the sun where human health is concerned.*

— Chris Walters

William Davis, M.D.

ACRES U.S.A. How did a cardiologist from Milwaukee find himself in the forefront of a crusade against wheat?

WILLIAM DAVIS. It started because what I do in my practice is try to understand why people have heart disease and correct it for them. The conventional answers in heart disease are pretty unsatisfactory — doing such things as cutting fat, eating more healthy whole grains and having your cholesterol and blood pressure checked. Take Lipitor and take blood pressure medicine. Very unsatisfactory, so I started asking why people have heart disease, and what can we do to correct it? One of the realities of this approach is that if you want to fully disable all the things that lead to heart disease, you cannot be diabetic or pre-diabetic. We know that people with diabetes have a much higher risk for heart disease, even pre-diabetics do. I wanted a simple way with minimum, or perhaps no, drugs to get rid of or at least minimize the

diabetic and pre-diabetic tendencies, so I used a very simple observation. Buried in all samples of glycemic index is how high blood sugar goes after you eat, and the fact that whole wheat — actually any wheat product, white flour or whole wheat — has one of the highest of all glycemic indexes. There are very few foods that have a higher glycemic index than wheat products. The glycemic index of whole wheat bread is about 72, and for sucrose or table sugar it's 59-65 depending on which study you read. I just used that simple observation, and I asked people to remove wheat and sugars. People would come back and say, "Yeah, my blood sugar is now lower, I was pre-diabetic, my blood sugar was 118 and now it's 90." Hemoglobin A1C — that's an index that reflects the past 90 days of blood sugar fluctuations — would drop from a pre-diabetic range of 6.3 percent down to 5.3 percent below the pre-diabetic range. But it was all the other stuff they told me that I first just dismissed. Stuff like, "I lost

38 pounds, my acid reflux is gone for the first time in 10 years and I stopped my Prilosec.” “My bowel urgency that made me have to always be aware where the nearest bathroom was when I was driving is gone.” “My asthma that I had for 15 years went away within five days.” “My PMS that every 28 days made me a monster to my family went away.” “My rheumatoid arthritis is so much better I’m off two drugs. We’re talking about stopping the third.” “My ulcer colitis is so much better, they canceled my colon removal surgery, and they got me off three drugs including the intravenous drug.” “My diabetes is gone.” “My pre-diabetes is gone, I’m off the insulin and two drugs.” “My depression has lifted.”

ACRES U.S.A. And that’s when you started digging for answers?

DAVIS. Yes. The next question was, if this is true, what is in wheat that is allowing this to happen? That’s when I started to poke around and try to understand what the agricultural geneticists did to wheat that conceivably led us down this path.

ACRES U.S.A. Did that lead you into the green revolution of the ’60s and the mass of scientific research on wheat hybridization and the like?

DAVIS. Exactly. It took me down the path to CIMMYT International Maize and Wheat Improvement Center where Norman Borlaug worked. They introduced a whole bunch of changes via hybridization — repetitive back-crossing, crossing with foreign grass species, embryo rescue, and so on. That was the place where Borlaug hybridized Norin 10, the Japanese dwarf strain with other strains to generate the eventual end product, several strains of the high-yield semi-dwarf strain. It didn’t end there of course. There has been more, but that alone was a big step toward the extensive changes introduced into wheat.

ACRES U.S.A. Do we now know the direct connection between the chemistry of the hybridized wheat following Borlaug’s innovation and the impact that you now see wheat having on metabolic processes that you describe in your book?

DAVIS. No. One of the great difficulties in agricultural genetics is that unlike a drug, where there’s a paper trail, a clinical experiment trail where you know that different doses and different forms have different effects, we have no such data on these various cultivars of wheat, nor any other crop. In other words, let’s say I hybridize widely disparate strains of grass, and I get some offspring. Then I do a number of other manipulations. Perhaps I repeat these several hundred times. I don’t assess it for its biochemistry at each step along the way, nor do I assess its effects in an experimental animal model, nor in humans. I just do it. It’s viable, it seems to grow, it has the characteristics that I want, and I’ll continue to propagate it and/or cross it with other plants. There really is no trail for this stuff. You don’t know how or when a lot of these things were changed, because they simply were not assessed. The farmers don’t look at the biochemistry of a plant, they just look at its performance characteristics, either as a crop or its eventual end use, in this case as wheat flour in baked goods. Now, it didn’t end with Borlaug. Those efforts did not stop with the introduction of high-yield, semi-dwarf wheat — those efforts continued, and even continue today. Of course one of the great ironies is that the techniques

ACRES U.S.A. This is where Clearfield wheat comes in?

DAVIS. Yes. Clearfield wheat is very popular — it’s grown on nearly a million acres in the Pacific Northwest. The patent is held by the BASF Corporation. They held the patent on the seed because this strain of wheat is resistant to the herbicide Beyond. Just like glyphosate-resistant corn, it allows the farmer to spray Beyond on his wheat, killing the weeds but not the wheat. Their marketing proclaims proudly that Clearfield wheat is not the product of genetic modification, and this is a direct quote, “It is the product of enhanced traditional breeding methods.” I wanted to know, what does that really mean? I called up one of the researchers at Oregon State who did the work. They took the seeds and embryos of wheat and exposed it to a chemical called sodium azide. Sodium azide is an industrial chemical used in very limited processes. There have been several instances of accidental human ingestion — the poison control people say if you witness an accidental human ingestion, do not offer that person CPR. In effect, let them die, because if you try to offer them CPR you’re going to die too, and if the victim vomits don’t throw the vomit in the sink because it may explode, and that has happened in real life.

“The USDA says Americans are fat and diabetic because we are the most gluttonous, lazy population to ever walk the Earth. And yet I talk to people, and they’re not lazy, they’re not gluttonous. They’ve been exposed to things that have driven this behavior and caused this situation.”

used to generate high-yield, semi-dwarf wheat all either pre-date or do not involve genetic modification. That phrase “genetic modification” generally refers to the use of gene splicing technology to introduce or remove the genes. Modern wheat is not the product of genetic modification; it is the product of techniques that are actually far worse than genetic modification, such as mutagenesis.

ACRES U.S.A. Even for the food processing industry, this is a little harsh.

DAVIS. So the seeds and embryos of wheat exposed to this chemical, sodium azide, can cause mutations. In this case they get a mutation. The problem is they get the mutation they want to measure resistance to the herbicide Beyond, but there are other mutations. If you and

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I are evil scientists and you say to me, “Hey, I want to make an 8-inch tall baboon that can climb palm trees really fast so it can pick coconuts for us,” we’re going to expose the baboons in utero to radiation or a chemical administered to the pregnant mother. We induce mutations and most of the time they come out deformed, retarded, no arms, spina bifida. We make chemical modifications, and maybe after a thousand attempts you and me finally succeed in generating an 8-inch tall baboon that climbs trees. When you engage in mutagenesis, the purposeful induction of mutations, in this instance, chemical mutagenesis, there’s also gamma ray, x-ray, and ultraviolet mutagenesis. You can’t really control the full array of mutations, nor do you look for them. It looks like wheat, it kind of performs like wheat, in our baking tests it pretty much performs like you’d expect wheat to perform — it must be wheat!

ACRES U.S.A. Looks like a duck, walks like a duck.

DAVIS. This is now sold widely, the Clearfield wheat. You see, the problem here is the basic presumption of safety, or we might call it the “generally recognized as safe” presumption. It kind of looks the same; it must be the same. But I think we’re in an age where the techniques have become fairly extreme in some instances, and sometimes bizarre, and we can’t always safely make that assumption. Things might not be safe because as you know, if I change one, two or three amino acids in a protein I can make a difference between a benign protein and one that induces anaphylaxis in children. Minor changes in the protein composition of a plant can have major changes, and most changes probably don’t have any effects. But there are going to be selected effects that do have consequence for human consumption. The problem is that through all these changes introduced by agribusiness there is no paper trail. There’s no document trail to show us where, how and why a lot of these changes were made. If you go to the grocery store in your town, and you buy a loaf of bread, you have no idea what cultivar of wheat was used for that, where it came from, or whether

it’s a combination of different strains or what. There’s no labeling requirement of course. So we’re in the dark about what these things do. I think if you and I were talking in 1950, we would say we had 100 people get rid of wheat, and they lost on average 3 pounds, and a couple of them saw minor improvements in some joint pain. I mean, yes there’s something important there, but it’s not an overwhelming effect.

ACRES U.S.A. No big deal.

DAVIS. Now I think it’s the changes introduced into wheat that now make its removal startling. You see weight loss but you also see transformations. I don’t think I’m exaggerating to say you actually see transformations in the way people feel, the way they perform, in the way kids perform in school, in metabolic markers like blood sugar and triglycerides and HDL and blood pressure. I believe we can make a pretty powerful argument that this unique experience is relevant to 2013.

ACRES U.S.A. Did the dietary emphasis on healthy whole-grains come out of the ’70s Senate hearings on nutrition? How did the healthy whole-grains get into the dietary recommendations as boilerplate, holy writ?

DAVIS. As you point out, a lot of it was the push by Congress via legislation that required the USDA and U.S. Department of Health and Human Services to craft dietary advice for Americans. Of course the advice prevailing then was to cut saturated fat and cholesterol. The corollary of cutting fat intake was replacing calories with something, and the logical replacement back then was more grains and preferably whole grain. That spawned all the research, the 14 or so studies that demonstrated at an epidemiologic level the relative benefits of replacing white, enriched flour products with whole-grain products. By the way, there’s no question of that being true. If I replace white flour bread and buns with whole-grains, I do have less diabetes, less weight gain, less colon cancer, less heart disease — there’s no question about that. Unfortunately of course they’re comparing something bad to something less bad. There is apparent health benefit but the conclusion you

reach cannot be that a whole bunch of the less-bad thing is good for you. The silly analogy I draw is, well, if unfiltered cigarettes are bad for you, and filtered cigarettes are less bad for you, should we conclude that smoking a whole bunch of filtered cigarettes is good for you? But that’s the logic that is used. You’ll see this over and over again in nutritional logic — replacing something bad with something less bad must mean more of the less bad thing is good for you. They do that with glycemic index. If you replace a food with a high-glycemic index with a food that’s low-glycemic index, then a lot of the low-glycemic index food must be good for you. It’s a completely outrageous notion, but that’s the kind of flawed logic that is applied over and over again in the world of nutrition, what I call “nutritional fiction.”

ACRES U.S.A. Considering all the money that flowed into heart disease research over many years now, it’s astonishing that the heart disease people didn’t make the connection you made between glycemic index and cardiovascular issues. Or was it just made and not noticed, not given appropriate weight?

DAVIS. I think it was because all those 14 studies that purported to prove that whole grains are better for you were all epidemiological studies comparing those two things — whole grains to white flour. On the surface that argument makes perfect sense. Then you start to ask tougher questions — are those whole grains really whole grains or are they something that was created by the genetics efforts of agribusiness? Then I would go even further — do grains belong in the diet at all? Because I’ll tell you the number one cause for heart disease in the United States today, and you don’t hear this talked about much. It’s not high cholesterol, it’s not high blood pressure, it’s not smoking. It’s an excess of small LDL particles. You have to do a more advanced kind of testing to identify these things. I’ve done this now for almost 20 years on probably 10,000 people. I do something called lipo-protein analysis where we look for the hidden cause of heart disease, and what you’ll see way out of control are these things called small LDL particles. It might look like a high cholesterol pattern,

it might not, but that's the real cause of heart disease. It varies due to genetic susceptibility, but there's only one way to get an excess of small LDL particles, and that is through the consumption of grains and sugars. I meet people with flagrant quantities of small LDL and heart disease as a result, and they have small LDL registering at 1,800 nanomoles — that's a typical value. We take grains and sugars out of their diet and it drops to zero. This is not with drugs, this is with removal of grains and sugars. Now parallel to the reduction or the elimination of small LDL are other surface effects such as a reduction of triglycerides — you can drop from, say, 150 to 40. HDL goes up, let's say from 40 to 60 — nice effects but not quite as impressive as the real effect, which is the elimination of the small LDL pattern, this thing that is incredibly well-crafted to create coronary atherosclerosis. Unfortunately that requires a more sophisticated level of understanding of heart disease causation, and the people who craft dietary advice and develop funding and so on for the Heart Association are not necessarily the scientists. One time I called the national director for the Heart Check Mark program companies pay to have applied to their products. I got upset because I found it on Coco-Puffs and Berry Kix. I found the American Heart Association stamp of approval on Coco-Puffs and Berry Kix! I called the National Director and said, "What are you people thinking?" She's very nice, she said, "We have some basic requirements." I can't recite all of them, but she said it has to have less than so many total grams of fat, less than so many grams of saturated fat and so many grams of cholesterol. She said, "We also have something called the jelly bean rule." What's that? "Well, if all we said was that it has to be low in total fat, saturated fat and cholesterol, then jelly beans could be construed as being heart-healthy. So we have a five-item checklist — it has to have so much protein, so much vitamin C, fiber," and a couple others. That's their simple-minded checklist to be able to be declared heart-healthy. Cocoa-Puffs was declared heart-healthy, Berry Kix was declared heart-healthy and Cheerios was declared heart-healthy." These are incredibly destructive foods that cause cataracts, hypertension, heart disease, arthritis, dementia and cancer! To say these are

heart-healthy is preposterous. It was clear the national director had no understanding of nutrition nor of the implications of their perverse advice.

ACRES U.S.A. Why are the LDL measurements you might get from your doctor sometimes deceptive?

DAVIS. Well first of all they're calculated. If you look at your panel, you will see in fine print or parenthesis "CALC" or "Calculated." In other words, LDL cholesterol is a calculated value. It's obtained through an equation called the Friedewald equation, after the work of Dr. William Friedewald in the '50s and '60s at the National Institutes of Health. They wanted a way to characterize the lipo-protein, the fat-carrying protein in the bloodstream that they felt caused heart disease. This was the 1950s and '60s when technology was not widely available nationwide so they wanted a way for, let's say, somebody in El Paso or Austin or Milwaukee to quantify as best they could the kinds of particles in the blood. So they chose a component of these particles. There are many components in these lipo-protein particles. It's possible that there are triglycerides, there are proteins, lipo-protein B, and there is cholesterol. They said, "Hey, let's choose cholesterol. We will measure the cholesterol in various fractions of the blood, the low-density fraction, the high-density fraction, the very low-density fraction. We're going to quantify the cholesterol in each of those fractions, and thereby estimate the number of particles in the bloodstream in each of those fractions. That was the birth of measuring cholesterol. Measuring the cholesterol in the low-density fraction — LDL, the low-density lipo-protein fraction — was the most difficult technically, so they developed a method of measuring total cholesterol in all fractions. It meant measuring cholesterol in the high-density fraction, measuring cholesterol in the very low-density fraction called triglycerides, and then calculating the LDL. They made a number of basic assumptions that allowed them to do that. Among their assumptions was that all particles are the same, which of course is wildly untrue. Nevertheless they made the assumption that all particles are the same, with the very same triglyceride content and pro-

tein content. That was the birth of the Friedewald equation that is now used widely, worldwide, to calculate LDL cholesterol. It is a crude approximation at best. It does have its utility. It's useful on a population basis. If I take 10,000 people it will break people down roughly into low, medium and high-risk populations. It crumbles when you try to apply it to a specific individual. Just like if I say, "Hey, if you drive more than 65 miles an hour on the interstate your risk of dying is 3.07 fold higher." So I catch you driving 67 miles per hour on the highway, are you going to die? No. While it applies on a statistical level, it does not apply to understanding individual behavior, and it's the same thing with these cholesterol values. We're unfortunately left with this ridiculous notion of using calculated LDL cholesterol to derive coronary risk that is woefully outdated. It's persisted to a large degree because it has proven highly profitable. The ATP3 — the Adult TriPanel 3, the guidelines my colleagues use to treat cholesterol — were crafted by the NCEP, the National Cholesterol Education Panel. Of the nine experts who crafted these guidelines, eight had close and long-standing ties with Big Pharma, and I don't mean they just gave one talk, I



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mean deep and long-standing ties including major shareholders.

ACRES U.S.A. You mean the connections between the heart disease complex and the pharmaceutical complex go way beyond a few rounds of golf now and then?

DAVIS. Right. I feel as though I sound like a conspiracy theorist. I'm not. But the pendulum has swung in a number of fields, in this case agribusiness and Big Pharma, to exploitation — exploitation of a limited understanding and ignorance on the part of the broad public. I think a lot of people thought it was maybe the right thing to do, or their limited understanding let them think it was right.

ACRES U.S.A. Thousands of doctors every day look at someone's LDL cholesterol level and advise a prescription for Lipitor because it's so high. A few people ignore the advice, but most do not, as Lipitor's sales figures reflect. What would an alternative test look like?

DAVIS. There are a number of different ones, and they've been doing this for 20 years. I use the NMR Lipoprofile. I have no relationship with the people who sell this test. It fractionates the particles in your bloodstream, and you can see what the particles actually look like. More often than not you'll see that LDL cholesterol as calculated has little relationship to the particles in your bloodstream. But you'll know such things as how many small LDL particles you have, and the proportion to total LDL particles. Then you know how sensitive you are to grains and sugars! As often happens, however, that's not a direct path to increased revenues. It doesn't cultivate a lot of conversation because at the practical level there's no sexy sales representative in my office hawking diet, yet there sure are lots of them wanting to hawk their drugs.

ACRES U.S.A. One of the good things about your book is the way you explain biochemistry without getting lost in a thicket of formulas. As an example, how does the complex carbohydrate exorphin relate to pH disruption, and why are those things important?

DAVIS. The gliadin protein of wheat is a subcomponent of gluten. Gliadin is digest-

ed in the human gastrointestinal tract down to small proteins, four or five amino acids long. These are small enough to penetrate into the bloodstream and also into the brain through the blood-brain barrier, and they bind to the opioid receptors of the brain. That's why the NIH researchers who did this work called them exorphins, or exogenous morphine-like compounds. Now lots of things bind to opioid receptors like heroin and morphine — those things tend to generate euphoria and pain relief. The exorphins of wheat don't provide euphoria or pain relief. They only share two real characteristics of other opiates — addictive potential and stimulation of appetite. When modern semi-dwarf wheat hit the stores, which was about 1984 and 1985 — it was invented earlier but it didn't hit American shelves until then — there was an across-the-board increase in calorie intake of 400 to 800 calories per day, per person, 365 days per year. The gliadin protein broken down into exorphins is an appetite stimulant. Accordingly, if that's true, then if we take wheat and therefore wheat exorphins out of the diet, we should see that much of a drop in calorie intake. And that is exactly what we see happen over and over again in studies where wheat was taken out. There's a 400-calorie per day decrease in calorie intake. Now that was attributed to the lack of variety in the diet, so I'm extrapolating by saying, "Gee, it seems to make sense that we've removed something that was stimulating appetite." When you consume wheat, modern wheat, there's an appetite stimulating effect such that you take in 400, maybe as much as 800 calories per day. If you take wheat out of the diet, there's a reduction in calorie intake of about 400 calories per day. If I give you an opiate-blocking drug such as injectable moloxin, or oral naltrexone, your calorie intake goes down 400 calories per day.

ACRES U.S.A. Are those drugs that are used to treat hard drug addicts, people hooked on heroin, morphine and the like?

DAVIS. Exactly. They inject moloxin in emergency rooms or if you are inadvertently overdosed with narcotics in a hospital. Naltrexone is commonly prescribed to heroin addicts to block recidivism.

ACRES U.S.A. That certainly gives one pause. How does this all relate to pH disruption in the body?

DAVIS. We have all these bone conditions like osteoporosis, arthritis and osteopenia. The question I'm raising is, what are the pH implications of grain consumption? Lo and behold, I was surprised because I didn't know this before I did the research — grains, wheat specifically; oats also, are among the most acidifying of all foods. We know that plant foods in general are very alkaline. We know that animal products are very acidic but most followers of primitive lifestyles, hunter-gatherers, tend to have a net alkaline bias in their pH. So if you were to check your urine pH, you'd find a neutral or slightly alkaline pH despite your consumption of animal products. They eat a diet generally that is balanced in acidity and alkalinity such that they have a neutral to slightly alkaline pH. Modern humans, if you dip our urine, tend to have pHs in the 4 or 5 range, which are highly acidic. You remember that pH is a logarithmic scale, so 4 or 5 is a big change. We're very acidic. Why? It's not because we eat tons of meat, because there are lots of cultures that eat tons of meat but are still net alkaline or neutral. The disruptor is grain consumption, and there are ample data to show us that when you consume grains there is a net shift in pH to the acid range. There's also loss of calcium in the urine, calciurea. That data is quite solid. The more wheat consumed, the more calciurea you have. I'm guilty of a bit of extrapolation here, but if we believe all the logical steps leading up to bone health, the unavoidable conclusion here — or at least the question — is that consumption of grains, especially wheat, is disruptive to bones via the pH disrupting effect as well as the calciurea effect.

ACRES U.S.A. What are AGEs, and why are they important?

DAVIS. Advanced glycation end-products are the end result of blood glucose's modification of proteins, particularly long-lived proteins. You and I are always glycolating to some degree, so whenever blood sugar ranges above 90 — 90 milligrams per deciliter — the pace of glycation of proteins proceeds at a more rapid

rate. If I have blood sugar for instance that goes to 170, as it typically does after two slices of whole wheat bread, I'm glyating very rapidly. I glycate the proteins in the lenses of my eyes, I get opacities — cataracts. If I glycate the cells and proteins in the cartilage of my knees and hips, I get brittle cartilage that leads over time to arthritis. If I glycate the cells and proteins that line my arteries, I get stiff arteries or hypertension. Glycation is a fundamental process in aging as well as multiple disease states, and any time blood glucose ranges above 90, as it typically does in a grain-based diet, you're going to glycate. If you want full control over health then stop or minimize glycation by not eating foods that induce high rises in blood glucose. Most of those changes are irreversible, so if I glycate the proteins in the lenses of my eyes that cause opacities it's there for life. You eventually have opaque lenses, and the cataracts have to be taken out.

ACRES U.S.A. How do AGEs relate back to the other things we've discussed?

DAVIS. Small LDL particles are a double whammy. Small LDL particles triggered by consumption of grains and sugars are eight-fold more prone to glycation once they are formed. It's made even worse by the high blood-glucose.

ACRES U.S.A. Then the acronym AGE is horribly appropriate?

DAVIS. Yes.

ACRES U.S.A. Have you considered whether many of the wheat effects you have noticed may have something to do with the common practice of lacing wheat products with fructose in the form of high-fructose corn syrup or regular sucrose?

DAVIS. There is no doubt that food manufacturers add high-fructose corn syrup, sucrose, preservatives and other ingredients that have adverse health effects. The standout adverse effects, however, are still due to the components of modern wheat. For instance, the gliadin protein that acts as, one, an opiate that stimulates appetite via binding to the brain's opiate receptors, and two, stimulants of abnormal bowel permeability that leads to autoimmune diseases, all remain regardless

of the additives included. Even if these wheat components are administered to an experimental animal or human in isolation, these adverse effects still develop.

ACRES U.S.A. Briefly, what do think about the gluten-free movement?

DAVIS. Being wheat- and gluten-free is a wonderful thing, probably the most powerful step anyone can take to regain normal health. However, there is much more wrong with wheat than gluten — there's gliadin, there's amylopectin-A, there's wheat germ agglutinin, there are new forms of alpha amylase inhibitor, etc. If we label this "gluten-free," it sends people down the path of replacing wheat/gluten with gluten-free foods made with cornstarch, rice starch or rice flour, potato starch, and tapioca starch — the only foods that raise blood sugar even higher than wheat.

ACRES U.S.A. Your book has been out in the world for over a year, and you followed it up with a cookbook. Has anything surprised you about the response to the book? How have the American Dietetic Association and the industrial wheat sector responded?

DAVIS. The only formal attacks or responses have been from the wheat lobby and wheat trade groups. They've published pretty much the same answer over and over again. It's like arguing with children. What I find is that the people who have been charged with crafting nutritional advice and lobbying the USDA and so on have the most rudimentary understanding of these issues. If you asked them what they think about AGEs and grains they'd have no idea what you're talking about. If you asked them about pH implications of a grain-based diet, they would have no idea what you're talking about. They would always return to the logic of the conventional, that is, they would say, "The epidemiologic data are clear — healthy whole grains are good for you." They'll always revert back to the line of logic used to get here. I've even had this said to me — "How can you be right, because the USDA says healthy whole grains are good for you?" In other words, this goes round and around, it is

cyclical logic they use. It's been if anything incredibly easy, too easy, to parry the arguments of the grain lobby. The thing that's driving this is not my charm, it's not my good looks, it's the astounding stories, the experiences people are having. This is hardly proof, but if you go on social media you see every few minutes, "I lost 78 pounds in six months, I don't have diabetes anymore." "I don't have the food obsessions anymore." "My rheumatoid arthritis was gone within a month." "My blood pressure is now normal, my triglycerides dropped from 350 to 48." This is unsolicited; it's not me drumming stuff up. I don't have time to do that stuff. It's thousands, tens of thousands of people with this incredible outpouring of success stories in all these unexpected areas. We have a sick, fat, diet-fatigued population, all of whom are looking at themselves and saying, "What is going on here? I go to my doctor, he says I'm a fat, gluttonous American." The USDA says Americans are fat and diabetic because we are the most gluttonous, lazy population to ever walk the Earth. And yet I talk to people, and they're not lazy, they're not gluttonous. They've been exposed to things that have driven this behavior and caused this situation. Take it away and life is transformed, it's back to where it was in 1950 more or less. People are slender, people don't have the excess of health problems. They don't need blood pressure drugs and cholesterol drugs and acid reflux drugs and all that kind of stuff. It's the outpouring of success stories that's driving it.

ACRES U.S.A. A gratifying response from citizens, and a surprisingly weak response from the industry.

DAVIS. I'm rarely ever guilty of good timing but this came out at the right moment. Part of it was propped up by the growing gluten-free conversation, which has its pluses and minuses too. It came at a really good time for maximum effect. To the wheat lobby's great chagrin, this message is gaining terrific traction.