

NEWS

February 2010

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World demand for biotech wheat is growing

DELAWARE, Ohio - Biotechnology has the potential to help reverse the loss of wheat acres in the United States and help ensure there will be adequate supplies to feed a hungry world. That is the conclusion of a new wheat industry analysis released this fall.

The eight-page paper outlines the competitiveness problem facing global wheat production and the wheat industry itself, which is increasingly vulnerable to short-term supply shocks and a long-term cycle of decline. The paper explains why this matters for the entire food chain – wheat growers, wheat users at home and abroad, and consumers in the industrialized and developing worlds.

Organizations collaborating on the paper included the National Association of Wheat Growers, U.S. Wheat Associates, the North American Millers' Association, the Independent Bakers Association and the Wheat Foods Council.

The analysis emphasizes that there is no silver bullet to the competitiveness problem. However, it concludes that the rapid adoption of biotechnology traits in other crops produced around the world and grower testimonials in support of these traits lend credence to the idea that biotechnology can make a significant contribution.

The authors also devote significant space to their commitment to choice for consumers who wish to procure non-GM wheat and wheat products and for producers who choose to meet this demand.

Globally, more than two billion acres of biotech crops have been safely grown, though there is no commercial production of genetically modified wheat anywhere in the world. Wheat acres have been declining in the U.S. for three decades, and yield growth and net returns per acre for wheat have consistently lagged behind corn and soybeans over the past decade.

The industry first sought to formally address this problem in a 2006 paper entitled "Addressing the Competitiveness Crisis in Wheat" and at a series of Wheat Summit meetings that followed. Many industry organizations are now supporting a goal of the National Association of Wheat Growers to increase national average wheat yields 20 percent from 2008 to 2018 through work on both biotechnology and non-biotechnology efforts.

The mission of the Ohio Small Grains Marketing Program is to further improve the quality of small grains in Ohio, provide producer education and increase grower profitability through research funding from wheat, barley, oats and rye.

MESSAGE



Dear Members and Friends:

Those who love Oreos may not be too interested in the fact that the Ohio wheat breeding program just got a grant to help improve not only cookies but other wheat products we enjoy.

This is one initiative of the Ohio Small Grains Marketing Program; more educational programs for growers and consumers are in the works as well.

Ohio is recognized around the world for growing high quality soft red winter wheat that is used for making products like crackers and cookies (including Oreos). The hard red wheat grown widely in the western U.S. is better suited for making breads.

The difference between a hard wheat and a soft wheat is that the hard wheat flour absorbs a lot of water and holds it and the soft wheat flour does not hold much water.

The resurgence in the interest in the dietary value of whole grain has added a new twist to the traditional uses of these two different types of wheat.

Everyone should be eating whole grain because it is good for you, but we are having a bit of a problem making whole grain soft wheat products. If you're making whole grain bread, you're using hard wheat and you're making a flour that absorbs and holds a lot of moisture. As you add the bran back into the flour to make it whole grain, you further increase the capacity of that flour to absorb water. When you're making bread that is great, but when you're making cookies or crackers, increasing that water holding capacity by adding the bran is actually bad for making products with the right shape, texture and size. Adding the bran for whole grain makes less desirable soft wheat products.

While consumers are interested in eating more whole grain, no one is going to buy a misshapen Oreo with a funny texture. For this reason, researchers are looking for a soft red winter wheat variety that does not hold as much water, which would allow it to be used for making whole grain cookies and crackers. In addition to this trait, the wheat variety would also need all of the necessary characteristics to be profitable for Ohio's wheat farmers to produce. Finding such a variety is daunting, at best -- akin to locating a very small needle in a very large pile of straw.

This numbers game involves screening a myriad of wheat varieties, selecting some, growing them, and evaluating them for possession of the necessary traits. This process takes years of screening and testing, though it has been sped up in recent years with technology using molecular markers to narrow down the list of potential varieties to plant in test plots.

If we can allow the industry to make these whole grain products better, cheaper and more acceptable to consumers, then the consumers will eat more whole grain, and that is good for them, and good for Ohio grower profitability.

Brad Haas is chairman of the Ohio Small Grains Marketing Program.

Agricultural Research Service releases first hard red winter wheat varieties for eastern U.S. production

The first hard winter wheat varieties bred and developed for production in the eastern United States have been released by the Agricultural Research Service (ARS).

NuEast, a hard red winter wheat, and Appalachian White, a hard white winter wheat, were bred by ARS plant pathologist and geneticist David Marshall, research leader of the Plant Science Research Unit in Raleigh, N.C.

Soft winter wheats, which are used to make pastries, cookies and biscuits, are typically grown in the eastern United States. Hard wheats, on the other hand, are best suited for making bread. Hard wheat has not traditionally been a successfully grown crop in the eastern states because the area's humidity increases the incidence of disease in the field. This in turn affects yield and the quality of the grain.

But NuEast addresses these problems. In field tests, NuEast had significantly higher grain yield than the check varieties over four years of testing. It also showed moderate reaction to powdery mildew but was more resistant than some check varieties. NuEast's resistance to leaf rust is good, and it is moderately resistant to stem rust, including Ug99 races.

There are very few hard white wheats grown and produced in the United States. The main challenge with growing hard white wheat under humid conditions in the eastern states is the pre-harvest sprouting typically associated with white wheats, according to Marshall.

Throughout six locations and over three years of testing, Appalachian White had significantly higher yield than the only other variety that could be considered acceptable when grown under weather conditions in the eastern states. Appalachian White also showed a higher level of resistance to powdery mildew, stripe rust, leaf rust and Hessian fly.

According to Marshall, the key to developing a hard wheat for eastern U.S. production is the ability to produce consistently good grain quality, resulting in good milling and baking characteristics when grown in a humid environment.

Millers and bakers that are part of the North Carolina Organic Bread Flour Project, an initiative supported with funding from the North Carolina Tobacco Trust Fund and Santa Fe Tobacco, have been testing the wheats since their release. So far, the feedback has been positive.

ARS is the principal intramural scientific research agency of the U.S. Department of Agriculture.



WHOLE GRAINS 101: GET FIT IN 2010 BY EATING WHOLE GRAINS

DELAWARE, Ohio - There is a shift in grocery stores and restaurants from white bread to breads, pastas and cereals that offer a wide range of benefits. We are no longer considered the "White Bread" culture from the 1950s -- the move is on to purchase products made from the whole grain wheat rather than refined grains.

A new year has arrived, and with it, a new list of resolutions. If "eating better" is on your list, experts say, there are a few items you can slip into to your diet that can improve your health and help you ward off certain diseases in 2010.

Katherine Tallmadge, national spokeswoman for the American Dietetic Association and a registered dietitian in Washington, D.C., says you can find these foods in most stores. Best of all, they're high in benefits but low in calories.

Grains

Add oat, barley and rye to your daily diet. Doctors have known that oats can bring down cholesterol levels -- but so can rye, which may become the new "in" grain for 2010. In a study in the current issue of the journal *Nutrition*, Finnish doctors found that men who had borderline high cholesterol could lower their numbers by eating dense rye bread.

The American Diabetes Association also recommends increasing your intake of dietary fiber and whole grain products, such as rye, to prevent the development of type 2 diabetes. "Rye lowers cholesterol like oats do, and it evens out blood glucose for diabetics," Tallmadge says.

But don't run out and buy regular rye bread at the store. Instead, purchase rye mixed with whole wheat -- it's found in dense, whole-grain breads and in specially made crackers. "I buy

the rye crackers," Tallmadge says. "They're low in fat, high in rye and are a perfect snack with low-fat cheese."

As for barley, the U.S. Department of Agriculture found that diets high in barley lowered total cholesterol levels and reduced the risk factors associated with excess weight, type 2 diabetes and cardiovascular disease.

Barley can be cooked and served as a side dish similar to rice or couscous. It can also be used as an ingredient in soups, stews, casseroles and salads.

Dr. Peter Shields, professor of medicine and oncology and deputy director of the Lombardi Comprehensive Cancer Center at Georgetown University Medical Center, has done extensive studies on diet and cancer. He says any diet filled with fiber, either from fruits and vegetables or grains, is good for you.

Oats at a Glance

Samuel Johnson's 1755 dictionary defined oats as "A grain, which in England is generally given to horses, but in Scotland appears to support the people." The Scotsman's retort to this was, "That's why England has such good horses, and Scotland has such fine men!"

Oats (*Avena sativa*) have a sweet flavor that makes them a favorite for breakfast cereals. Unique among grains, oats almost never have their bran and germ removed in processing. So if you see oats or oat flour on the label, relax: you're virtually guaranteed to be getting whole grain.

In the U.S., most oats are steamed and flattened to produce rolled oats, sold as "old-fashioned" or regular oats, quick oats, and instant oats. The more oats are flattened and steamed, the quicker they cook -- and the softer

they become. If you prefer a chewier, nuttier texture, consider steel-cut oats, also sometimes called Irish or Scottish oats. Steel-cut oats consist of the entire oat kernel (similar in look to a grain of rice), sliced once or twice into smaller pieces to help water penetrate and cook the grain. Cooked for about 20-30 minutes, steel-cut oats create a breakfast porridge that delights many people who didn't realize they love oatmeal!

HEALTH BENEFITS OF OATS

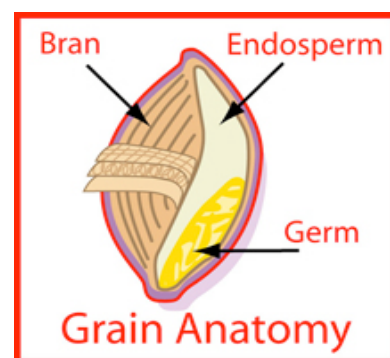
Scores of studies have documented the many health benefits of oats.

- Eating oats helps lower LDL "bad" cholesterol and may help reduce the risk of heart disease.
- Oats help you feel fuller longer, which helps control your weight.
- Oatmeal and oats may help lower blood pressure.
- Oats may help reduce your risk of type 2 diabetes, since their soluble fiber helps control blood sugar.
- Oats help cut the use of laxatives, without the side effects associated with medications.
- Oats are high in beta-glucans, a kind of starch that stimulates the immune system and inhibits tumors. This may help reduce your risk of some cancers.
- Early introduction of oats in children's diets may help reduce their risk of asthma.
- Oats are higher in protein and healthy fats, and lower in carbohydrates than most other whole grains.
- Oats contain more than 20 unique polyphenols called avenanthramides, which have strong anti-oxidant, anti-inflammatory, and slows the growth rate of atherosclerotic plaque.

What are whole grains?

Whole grains or foods made from them contain all the essential parts and naturally-occurring nutrients of the entire grain seed. If the grain has been processed (e.g., cracked, crushed, rolled, extruded, and/or cooked), the food product should deliver approximately the same rich balance of nutrients that are found in the original grain seed.

Source: Whole Grains Council; Illustration by Bob's Red Mill





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Ohio Small Grains Marketing Program



Beuerlein retires after 40 years of service in ag

By Matt Reese and OSGMP staff

Thirty-nine years ago the state average soybean yield was 28.5 bushels per acre and the state average wheat yield was 38 bushels per acre. Since Jim Beuerlein started his career at Ohio State University in 1970, yields have gone from those levels to reports of soybean yields topping 70 bushels and wheat yields of more than 100 bushels per acre in 2009.

While Beuerlein certainly cannot claim all of the yield increases in the two crops he focused on for nearly four decades, his presence in Ohio and the impressive increase in wheat and soybean yields are not unconnected.

Beuerlein announced his retirement at the end of 2009, leaving an impressive body of work here in Ohio that played an important role in the increased yields in Ohio and around the country.

"It's impossible for me to adequately do justice to Jim's career in the few minutes I have here. Peter [Thomison] and I were recalling things and going through his vita, and we were literally overwhelmed," said Mark Loux, an Extension specialist at an event held to honor Beuerlein's retirement. "One of his great strengths has been his effectiveness at showing growers how practices affect their profitability, so they can make informed decisions. People grow soybeans and wheat the way they do because of Jim's work, not only here in Ohio, but also in surrounding states and other countries. Jim pioneered research in narrow-row and no-till production systems, early planting, skip rows, and improved inoculants, among other practices. He has been at the forefront in the evaluation of numerous new technologies, and provided research-based recommendations so that growers know whether they should adopt them."

Beuerlein started his career at Ohio State as an area Extension agronomist. He served in this role from 1970 to 1980, and then as the state Extension agronomist for soybean and small grain production from 1980 through 2009. Beuerlein's research findings have been published in a number of Extension bulletins, reports, fact sheets and videos that have been widely referenced, including "Profitable Wheat Management," "Improving Wheat Yields in Ohio" and "Profitable soybean Management," for which he was the primary editor or a substantial contributor. Beuerlein was also the primary editor for several editions of the OSU Agronomy Guide.



As a result of Beuerlein's efforts in Ohio and around the country, he has been recognized with numerous awards and been invited to many national and international presentations. Awards he has received include: "OARDC Director's Innovator of the Year Award" for the development of food-type soybean varieties to produce soy foods; American Soybean Association Agronomic Extension Award; Gamma Sigma Delta Extension Award of merit; National Association of Wheat Growers "Excellence in Extension" Award; and the OSU Extension "Excellence in Extension" Award. More recently he received the Distinguished Service Award from the Ohio Soybean Council.

Beuerlein also has overseen the Ohio soybean and wheat performance trials, two resources that are widely used by growers and consultants to make decisions on variety selection.

Along with these duties, Beuerlein has been very instrumental to the success of the Ohio Wheat Growers Association and in getting the small grains checkoff established. The small grains checkoff, for wheat, barley oats and rye, is managed by the Ohio Small Grains Marketing Program.

"Dr. Beuerlein has been instrumental in the success of the wheat programs in Ohio," said OSGMP Chairman Brad Haas. "He was there from the beginning when the Ohio Wheat Growers Association began."

Beuerlein is switching to a similar job in the private sector.

"I have been doing exactly what I've wanted to do for 39.5 years with great people and you can't ask for more than that," Beuerlein said. "It has been a lot of fun and we have made some progress in that time."

Matt Reese writes for Ohio's Country Journal.

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