

# Research improves gluten-free products

People identify Kansas as "the wheat state," but the state also is a leading producer of sorghum, a grain crop that could become key in healthful food products for those sensitive to wheat gluten.

In the U.S., sorghum, or milo, is grown primarily as an animal feed, said Scott Bean, a U.S. Department of Agriculture research chemist based at the Center for Grain and Animal Health Research in Manhattan.

Sorghum is rich in nutrients and is used as a food source for 35 to 40 percent of the world's population, Bean said. In Africa and Asia, it is used in porridges and flat breads.

It is a gluten-free grain, said Bean, who is researching applications in the expanding market for gluten-free food products.

About 1 percent of the population worldwide suffers from sensitivity to wheat gluten.

While gluten-like proteins in other grains - rye and barley for example - are closely related to wheat and toxic for people with Celiac disease, wheat gluten is the most widely used and the most common offender, Bean said.

Three million Americans suffer from the autoimmune disorder. It causes inflammation of the small intestine and interferes with the absorption of nutrients. The disease runs in families, affects children and adults, and has a variety of symptoms including abdominal pain, bloating, acid reflux, chronic constipation, headaches or unexplained weight gain or loss. It often is misdiagnosed.

Damage is cumulative, and while there is no cure, it can be treated by choosing a gluten-free diet and lifestyle, Bean said.

Research on the disease continues, and development of gluten-free products is expanding, said Bean, adding that in 2006, U.S. gluten-free products accounted for \$700 million in sales.

To understand the market and its implication, we need to understand the role of gluten, a group of proteins that store nitrogen in the grain, Bean said.

In bread making, wheat gluten provides the structure to hold gas that gives the bread its light, airy texture. In other words, gluten proteins are largely responsible for making bread, bread, said Bean, who noted that developing appealing and nutritious breads

without gluten is challenging. Historically, he said, gluten-free wheat breads have suffered from lack of taste, texture and quality.

In focusing on milling and refining white sorghum flours and their potential as a bread base, Bean noted that white sorghum has a neutral taste.

"Think about it," Bean said: "Corn chips are made from corn and have a definite corn flavor, which is good in a product like that. The distinct corn flavor is not typically desirable in products such as white pan bread.

"Milling white sorghum, which is gluten-free, and introducing other celiac-safe proteins such as those isolated from corn ... can, however, be used to create a flour that has somewhat similar functionality as wheat flour and makes flavorful tortillas and breads."

Bean is collaborating with scientists at K-State on researching milling processes for white sorghum and bread formulas.

The research focus also includes binding agents to thicken the bread dough and hold gas, which adds volume, Bean said.

"The research is promising," said Fadi Aramouni, a K-State food scientist who is sought after for his expertise in developing new food products.

Aramouni, who is collaborating with Bean on research for the new grain products, acknowledged that gluten-free breads have been compared to cardboard.

"We need to do better than that," said Aramouni, who has worked to develop a sorghum-based waffle mix for an international resort.

Aramouni, who teaches a new food product research and development class, has challenged students to come up with new products, which have included a sorghum-based, gluten-free waffle-style ice cream cone that earned a national award.

"The expansion in gluten-free product development is targeting health, but it also stands to provide opportunities for ag producers," he said, "and in collaborating with researchers such as Scott Bean, we also can work toward providing health-promoting foods for the general population and the millions of people worldwide who have special needs."

For information, call Bean at (785) 776-2725 or Aramouni at (785) 532-1668.

## That's some tomato!



VERA SOAN/Colby Free Press

Sheryl Brenn brought what was a record-setting tomato from her garden to the *Colby Free Press* on Thursday. The tomato tipped Dillons scales at a little over 1 pound 2 ounces. Brenn said she has 10 tomato plants that are doing really well this year, and the fruit ends up either in a jar or in the freezer to enjoy all winter.

## Pumpkin launch tops a mile

MOAB, Utah (AP) - A team that shoots pumpkins from a giant air cannon says it achieved the holy grail of the sport - chucking a pumpkin a distance of more than one mile.

The "Big 10 Inch Team" from Pennsylvania, Delaware and New Jersey says it launched the 9.5-pound pumpkin at Moab's old air-

port last Friday.

The team used a 90-foot, compressed-air cannon and traveled to southern Utah hoping the high elevation and thin air would help the vegetable sail farther.

The group launched a pumpkin near Moab last year that traveled short of a mile, or 4,623 feet, but still set a Guinness World Record.

# Recycling plastics can be problematic

Dear EarthTalk: Where do you recycle plastic stuff like sandwich bags, Saran wrap and plastic grocery store wrappers? Can they just go in with other plastics in the recycling bin? There never seems to be any information available about this. - Renee La-Fountaine, Lake Hughes, Calif.

The reason you don't hear much about recycling these types of plastic films is that most municipalities don't take back items intended to wrap food. One exception may be sandwich bags, which are made from easy-to-recycle polyethylene, as long as any hard (i.e. "Ziploc") components are removed and they are rinsed free of any food debris or stains.

For that matter, if you are going to the trouble to wash them, you may as well dry and reuse them at home a few times before relegating them to the recycling bin. There are even countertop racks available for hanging plastic bags to dry before reusing them.

Clinging plastic like Saran wrap is problematic for recyclers because the resin it contains to give it wrapping power cannot be re-extracted without massive amounts of energy - more than it takes to make it new from scratch. And given that it's usually soiled with food, used plastic wrap should always just go right into the trash.

Other non-recyclable plastic films include dark-colored plastic bags, bags with handles or drawstrings, and anything designed to be wrapped around food. Since you can't even rinse or recycle these kinds of plastics, it's better to avoid them altogether and invest in reusable containers to store

leftovers.

Another option is to use plastic grocery store shopping bags (though they are increasingly being phased out) to wrap your food leftovers in. Many municipalities and most stores that provide such bags accept them for recycling, so once you're done with them they can be recycled or returned to the store, after which they can be melted down and incorporated into weather- and rot-resistant window and door frames, decking (such as Trex), pallets, pipes and other long-lasting hard goods. Like with sandwich and other bags you intend to recycle, make sure plastic grocery bags are clean before you turn them in for recycling.

If you are a Ziploc bag or plastic wrap fanatic but want to do the right thing by the environment, look for plastic food storage film or bags made from biodegradable polymers. Some brand names are Eco Wrap, EcoFlex and BioBag. These plastics can go right in with yard waste or other compostables and will break down over time just like cardboard or food scraps. With time major brands will undoubtedly be offering similar products.

But even though there may in fact be "greener" plastic out there, reducing our reliance on disposable bags altogether should be the ultimate goal. Luckily many grocery chains are hip to greening their own operations and image, and are giving away or selling for a nominal amount reusable canvas shopping bags so customers don't have to choose between wasting plastic and paper at the checkout line.

# SERVICES DIRECTORY

Worship in the church of your choice this weekend.



OASIS WORSHIP CENTER, Colby, Pastor J. Curry, 785-462-0913. Sunday Service at 2 p.m.

## Schedule of church services

**GATEWAY FELLOWSHIP**, 2nd and Sunrise, Oakley. Pastor James Bloom, Sunday Morning Worship and Children's Church 10:15 a.m., Wednesday evening Bible Study and Intercessory Prayer 6:30 p.m. 785-671-4020.

**COLBY INDEPENDENT BAPTIST CHURCH**, 730 E. 3rd (former Jaycee's building), Pastor Bernard Heinz, 785-460-0313, Sunday School 9:30 a.m.; Sunday Morning Worship 10:30 a.m.; Sunday Evening 6:00 p.m.; Wednesday Evening 7:00 p.m.

**ASCENSION-ON-THE-PRAIRIE EPISCOPAL**, Rev. Don Martin, College Drive & Wheatridge Rd., 785-462-3041, Holy Eucharist, 9:00 a.m. every Sunday, Evening Prayer, 5:15 p.m. Wednesday, September through May, Christian Education for Youth, 6:30 p.m. Wednesday, September through May.

**COLLEGE DRIVE ASSEMBLY OF GOD**, 245 W. College Dr., Colby. Pastor Steve Todd. Worship Service 10:15 a.m. Sunday School 9 a.m. for all ages. Wednesday Youth at The Rock 3:30 and 7 p.m. Sunday evening services at 6:30 p.m. on all Sundays except the 5th Sunday of every month. 785-462-8234. cdag@st-tel.net.

**BEREAN CHURCH**, 1000 S. Franklin, 785-460-2763, www.colbyborean.com; Sunday School 9:30 a.m., Sunday Worship 10:45 a.m. and Saturday, 5:30 p.m.. Pastor Mark Carlton, Senior Pastor and Pastor Jason Purdy, Youth Pastor. Middle School Group Wednesday 7 p.m. at the Attic and High School Youth Group Sunday 6 p.m. at the Attic. AWANA Wednesdays at 7 p.m. at the church.

**FIRST BAPTIST CHURCH**, (Affiliated with American Baptist Churches USA) Rev. Craig Crossman, 615 W. Webster, 785-462-2867. Sunday School: 9:15 a.m.; Family Worship: 10:30 a.m.; RC Club 2nd and 4th Sundays at 2 p.m.

**COLLEGE VIEW BAPTIST CHURCH** (Affiliated with Southern Baptist), 1185 Wheatridge Rd. at College Drive, 785-460-7144, Sunday Bible Study 9:30 a.m., Sunday Worship Services, 10:45 a.m. Prayer Service at 6:30 p.m. on Wednesday's.

**PLEASANT HOME CHURCH**, Pastor, Perry Baird, 785-890-3375, 3190 Road 70, Edson, Worship, 9:00 a.m., Sunday School 10:00 a.m.

**WINONA METHODIST CHURCH**, 501 Bellview Ave. Rev. Sheryl Johnson, Sunday School, 10:30 a.m., Morning Worship 9:15 a.m. (CDT)

**MINGO BIBLE CHURCH**, 420 Main Mingo, 785-462-2992: An independent community church served by Village Missions Pastor Tom Peyton. Sunday School: 9:30AM - all ages. Worship Services: 10:45AM. Sunday Evenings 6:30. 3rd Sunday informal fellowship - bring a snack to share! First Sunday of month - carry-in dinner following morning worship.

**SACRED HEART CATHOLIC**, 785-462-2179, Father Dana Clark, Pastor, Saturday Eve. Mass 5:30 p.m., Sunday Masses 8:00 & 10:00 a.m., Confessions will be heard Saturday 4:30-5:05 p.m. and from 7:30-7:45 a.m. and 9:25-9:40 a.m. on Sunday.

**FIRST PRESBYTERIAN CHURCH**, Rev. Carol Rahn, 515 W. 4th, 785-462-6342, Sunday Worship 11:00 a.m. Podcasts of the worship services are available at the church website colbypres.org.

**WESLEYAN CHURCH**, 320 W. Pine - 785-462-8391, Sunday School 9:30 a.m., Sunday Worship 10:40 a.m., Sunday Evening Cell groups at 6:00 p.m., Wednesday Youth Ministries, Kids Clubhouse 7 p.m.

**CHURCH OF JESUS CHRIST OF LATTER-DAY SAINTS**, 1145 S. Franklin - 785-460-6605, President Andy Rose, 785-460-6807; Erwin Mitchell, 1st counselor, 785-460-1952; Calvin Haverfield, 2nd counselor, 785-953-1043. Sacrament meeting 10 a.m., Sunday School and Primary 11:20 a.m., Priesthood, Relief Society, YM/YW, 12:10 p.m.; Family History Center open, 7-9 p.m. Thursdays or by appointment. Call 785-462-3571.

**REDEEMING LOVE MINISTRIES, INC.**, 345 N. Franklin, Dr. W.G. and Rev. Orvella Romine, Equipping Class, Sunday, 9 a.m., Sunday worship, 10 a.m., Wednesday, R.L.M Training Centers (Bible School), 6 p.m. Shoponline at: www.rlmregionalchurch.com.

**COLBY UNITED METHODIST CHURCH**, Rev. James Marlock, pastor, 950 S. Franklin, 785-460-6521, Sunday Worship Services at 8:30 and 11:00 a.m., Fellowship coffee 9:30 a.m., Sunday School, 9:45 a.m., KXXX broadcasts 11:00 worship. www.colbyumc.org

**CHURCH OF CHRIST**, Minister, Jarrod Spencer. 510 E. 4th, Sunday Bible Study 9:30 a.m., Sunday Worship 10:30 a.m., Wednesday, Bible Study 7:00 p.m. www.colbychurch.com

**OASIS WORSHIP CENTER**, Colby, Pastor J. Curry, 785-462-0913. Sunday Service at 2 p.m.

**FIRST CHRISTIAN CHURCH**, (Disciples of Christ), Pastor Lyle Knebel, 385 W. 3rd - 785-460-2718, Sunday Morning Worship and Children's Church at 10:00 a.m.

**OUR SAVIORS LUTHERAN CHURCH**, Brewster, Sunday worship 9:00 a.m.; 2nd Sunday of the month at 8:00 a.m.

**TRINITY LUTHERAN CHURCH**, Rev. Robert Alexander. East 5th & Country Club, 785-462-3497, Services, Sat., 5:30 p.m., Sunday; Sunday School and Adult Bible Class 9:00 a.m.; Services, 10:30 a.m. Visit us at www.trinitycolby.com.

**LEVANT COMMUNITY CHURCH**, 205 1st St., Pastor Charles Taff, 785-586-2376, Sunday School (classes for 3 years & up and 3 adult classes) 9:30 a.m., Morning worship 10:30 a.m.

**BREWSTER UNITED METHODIST CHURCH**, PO Box 250, Brewster. Pastor Dorine Chambers, 785-462-6044, Sunday School: 9:45 a.m.; Worship Service, 10:45 a.m.

**THE SHEPHERD'S STAFF, REXFORD**, Joan Dingworth, Director, 785-687-2565.

**REXFORD COMMUNITY CHURCH**, Rexford, Pastor Lane Purcell, 785-687-3305, Sunday School 9:30 a.m., Worship Service 10:30 a.m.

**BREWSTER COMMUNITY CHURCH**, Mike Pinkelman, Pastor, Brewster - 785-694-2720, Sunday School (all ages) 9:30 a.m., Worship Service 10:30 a.m., Bible Study 7:00 p.m., Wed. mornings 6:30 a.m. - Men's Bible Study, Wed. 7:00 p.m. - Children's Ministries (Royal Rangers/Missionettes), Wed. 7:15 p.m. - Intercessory & Prayer, Tue. 5:00 p.m. - Women's Bible Study.

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