



Weeks 7 & 8

Whole Grains

During this 2-week segment:

Make sure each participant has the materials necessary for this lesson (*Family Menu Recipe* handout, *Get Rich in Fiber* handout, *Whole Grains and Enriched Grains* fact sheet, and the *Kansas Kids Connection Magazine*). Take some time to review participants' goals. You are at the halfway point and this is a good time for participants to reevaluate their behaviors and determine whether or not they are on-track to reaching their goals. Also, email participants at least two messages each week relating to whole grains.

Introduction to Whole Grains PowerPoint presentation:

Generally speaking, Americans consume the USDA-recommended number of servings from the grain group. Unfortunately, most of these foods are also made from refined grains rather than whole grains. While most of these refined grains are enriched to replace some of the vitamins and minerals that are lost during the refining process, fiber is not replaced. The USDA recommends that Americans should strive to “make half your grains whole.” In other words, do not *add* servings of whole grains to your diet, but instead *replace* refined grain products with those made from whole grains.

It is easy to get confused. Refined grains can hide under many different labels. Slides #5 and #6 of the presentation should be used to illustrate this to your audience. Believe it or not, the only bread products that are guaranteed to be made from whole grains are the ones that say “whole grain” on the label. Of this list, only “whole grain” and “whole wheat” are guaranteed to be made from whole grains. The other types may or may not be made from whole grains; you’d have to read the ingredient label. If the first ingredient listed says “whole grain,” “brown rice,” “popcorn,” “wild rice,” “corn,” or “oatmeal” than the product is made from whole grains. Because labels can be confusing and even misleading for a consumer, it is important to educate yourself so that you can make the best, healthy choices.



Suggested Enhancement Activity:

This activity can be used with slide #8. As an activity, pop a few bags of regular microwave popcorn. Dump the popcorn into a large bowl (or several bowls) and have participants (or representatives from each team) take out the amount of popcorn that they think counts as a 1 ounce equivalent. Have participants measure out the amount they have taken from the bowl(s). 3 cups of popped popcorn equals one ounce equivalent. How many ounce equivalents did the participants end up with? Is anyone surprised by this? Why or why not? One full-sized bag of microwave popcorn is approximately 4 ounce equivalents.

As an extra treat, you may want to try the popcorn recipe found on page 309 of the included *Cooking the RealAge® Way* cookbook.

Additional Enhancement Activities:

- There are a number of handouts provided on the Participant Materials CD in electronic format from Kansas Wheat and the Wheat Foods Council: *Family Menu Recipe* handout, *Get Rich in Fiber* handout, and a *Whole Grains and Enriched Grains* fact sheet. These are also available online: www.kswheat.com.
- The Kansas Wheat website also provides a number of resources for educators interested in teaching a lesson about wheat or whole grains. An example is included on the Participant Materials CD (*Kansas Kids Connection Magazine*), but others are also available for different age/grade levels. Visit their website at: www.kswheat.com and click on the 'Educators' tab at the top.

Messages to send to participants for the Whole Grains segment:

- Paying attention to hunger cues helps you avoid overeating. The fiber in whole grain foods helps you feel full faster and stay full longer so you eat less.
- Try making a hot apple wrap by placing thin apple slices on a slice of whole-wheat bread. Sprinkle with 1 teaspoon of a cinnamon and sugar mixture. Broil until the cinnamon melts. Fold the bread to keep the apples inside and enjoy! (Hint: this also doubles as a yummy breakfast treat!)
- Pizza can be a healthy option: enjoy your pizza with fresh vegetables; replace pepperoni or sausage with lean crumbled ground beef or Canadian bacon for a healthier meat topping. Try to find pizza (or make it yourself!) with whole wheat crust and part-skim mozzarella cheese.
- "Read the labels for whole-grain content. Look at the first six items in the label. The first that involves grains should say "whole wheat," "oats, unprocessed," "brown rice," "corn," etc. Choose products that have more whole-grain content than processed-grain content." From *Cooking the RealAge® Way* Michael F. Roizen, M.D., and John La Puma, M.D.



- “Choose whole grains rather than processed grains. Whole grains have also been shown to make a difference in aging of the arteries and immune system. Instead of enriched flour, processed flour, or semolina, choose breads and pastas made from whole-grain wheat. It may take a little retraining of your cooking processes and palate, but it’s worth the benefit. RealAge® benefit: 1.2 years younger for men and 2.3 years younger for women.” From *The RealAge® Makeover* Michael F. Roizen, M.D.
- Try shopping at a specialty market or culinary shop and experiment by preparing new, healthy dishes. Your health will benefit in a number of ways: you learn a new recipe and perhaps a new skill keeping your mind young, shopping in a new store with unique and exciting ingredients can be a fun stress-reliever, and don’t forget about the health benefits of diversifying your diet and eating healthy meals!
- “Treat yourself to nine-inch plates. The key to controlling your portions is having the right size plates. Treat yourself to beautiful nine-inch diameter bone china plates or your choice in your favorite colors. It will help you overcome the American habit of eating much more than you actually need.” From *The RealAge® Makeover* Michael F. Roizen, M.D.
- When you eat out, ask questions about how your food is prepared and then, if possible, request substitutions to make your meal healthier. Some options include substituting olive oil for butter (fish that is cooked in butter can also be cooked in orange juice for a citrus-infused flavor), broiling or baking instead of frying, asking for salad dressing, butter and sour cream, and mayonnaise ‘on the side,’ and omelets made from egg whites instead of whole eggs.





Whole Grains

“The act of putting into your mouth what the earth has grown is perhaps your most direct interaction with the earth.”
-Frances Moore Lappé-

MyPyramid: The Grain Group

- What is included in the grain group?
- Any food made from wheat, rice, oats, cornmeal, barley or another cereal grain is a grain product.

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click to reveal first bullet What kinds of foods are included in the grain group?
What makes a food a “grain” food? (Wait for answers)

click to reveal second bullet The grain group consists of any food made from wheat, rice, oats, cornmeal, barley or another cereal grain. Examples of grain products include bread, pasta, oatmeal, breakfast cereals, tortillas and grits.



Two Types of Grains

- Whole Grains – contain the entire grain kernel.
- Refined Grains – have been milled to remove the bran and the germ.
 - Finer texture
 - Increased shelf life
 - Loss of nutrients (B vitamins, iron and dietary fiber)

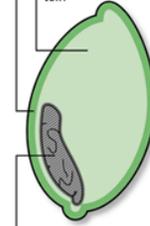
Whole grain kernel

Bran

"Outer shell" protects seed
Fiber, B vitamins, trace minerals

Endosperm

Provides energy
Carbohydrates, protein



Germ

Nourishment for the seed
Antioxidants, vitamin E, B-vitamins

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click to reveal first bullet There are two types of grains: whole and refined. Whole grains contain all three parts of the grain kernel: the bran, the germ and the endosperm. This provides a good source of dietary fiber as well as vitamins and minerals.

click to reveal second bullet Refined grains have been milled to remove the bran and the germ. This process gives the grain a finer texture and a longer shelf life, but it also removes most of the nutrients from the grain. Most refined grains are enriched, which means that certain B vitamins as well as iron are added back after processing. Fiber is not added back to refined grains.



How can I tell the difference?

- Whole Grains
 - Labels use the word “whole.” For example “whole grain” or “whole wheat.”
 - Brown rice, oatmeal, popcorn, wild rice, etc.
- Refined Grains
 - Labels may use the word “enriched.”
 - Often found in grain foods with the word “white”: white rice, white bread, white flour, etc.



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There is a big difference between whole and refined grains, and the difference is reflected in the nutrients and health benefits of each. How can the average person tell the difference between whole and refined grain foods? (Wait for answers... if individuals talk about the color of breads or rolls, point out that just because a grain product is brown does not mean that it is whole grain. Breads can be colored by ingredients like molasses, brown sugar, or even the addition of food coloring. The best way to determine if a food is made from whole or refined grains is to read the labels.)

click to reveal first bullet Before they are milled or refined, all grains are whole. Look for words like “whole grain” or “whole wheat” when selecting whole grain foods. Read the ingredient list; if whole grain is listed as the first ingredient, you’ve made a good choice. Some whole grains, however, do not show the word “whole” on the ingredient list. These whole grain foods include brown rice, oatmeal, popcorn, and wild rice.

click to reveal second bullet Look for the word “enriched” when purchasing foods made from refined grains. Read the ingredient list: “wheat flour”, “enriched flour” and degerminated cornmeal are words that describe refined grains. Examples of refined grain foods include white rice, white bread and foods made from white or wheat flour.

Some foods contain both whole and refined grains. A food can be considered whole grain if it contains 51% or more whole grains by weight.



Find the Whole Grain Breads:

- Multi-grain
- Enriched white
- Stone-ground
- 100% wheat
- Whole grain
- Cracked wheat
- Seven-grain
- Whole wheat
- Bran
- Enriched wheat



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You are standing in the bread aisle of the grocery store. You see dozens of different types of sliced bread, loaves and rolls in front of you. You are trying to find products made from “whole grains.” Which labels would you choose? (allow participants a minute or so to decide which are whole grain breads). Multi-grain, stone-ground, 100% wheat, cracked wheat, seven-grain, bran, **whole grain**, **whole wheat**, enriched wheat, enriched white.



Don't Be Fooled!

- Multi-grain
- Enriched white
- Stone-ground
- 100% wheat
- **Whole grain**
- Cracked wheat
- Seven-grain
- **Whole wheat**
- Bran
- Enriched wheat



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Don't be fooled! The only breads that *you can be sure* are made from whole grains are the '**whole grain**' bread and the '**whole wheat**' bread. Some of the others *may* be made from whole grains, but you would have to check the ingredients label. If 'whole grain' appears as the first ingredient, that food is considered a whole grain food. How did you do? Remember: read labels and look for the word 'whole.'



How Much Should I Consume?

- Half of the grains consumed should be whole grains.
- The USDA's recommended amounts vary widely based on age, gender and level of physical activity. For adult men and women the recommendations range between 5 and 8 ounce equivalents.



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Most Americans actually consume enough grains each day. Unfortunately, most of those grains are refined grains. MyPyramid encourages individuals to “make half your grains whole”. The USDA's recommended amounts vary widely based on age, gender and level of physical activity. To determine the number of servings that is right for you, visit the MyPyramid website (www.mypyramid.gov) or consult with a nutritionist or your physician. For adult men and women, the recommended number of servings ranges between 5 and 8 ounce equivalents.



Ounce Equivalents?!?!

- A sometimes-confusing new term for a serving of food from the grain group.
- In general, 1 ounce equivalent from the grains group is:
 - 1 slice of bread
 - 1 cup of ready-to-eat cereal
 - ½ cup of cooked rice
 - ½ cup of cooked pasta
 - ½ cup of cooked cereal



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Think about the last time you ate a pasta dish at a restaurant. Most restaurant portions are significantly more than the ½ cup size listed as an ounce equivalent. In fact, dinner-sized restaurant portions can provide up to 6 cups of cooked pasta! That's 12 ounce equivalents! It's easy to see how quickly portions can get out of control.

Now would be a good time to do the suggested activity for this section.



Fiber from Whole Grains

- Dietary Fiber – a non-digestible form of complex carbohydrate that occurs naturally in plant foods.
- Functional Fiber – isolated, non-digestible carbohydrates added to foods and that provide beneficial effects.
- Total fiber is the sum of both dietary and functional fiber.



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One of the greatest health benefits of whole grains comes from the fiber that this food provides. There are 2 different types of fiber.

click to reveal first bullet The first, dietary fiber, is a non-digestible form of complex carbohydrate that naturally occurs in plants. We eat dietary fiber in the form of fruit and vegetable leaves, stems, skins, seeds and hulls.

click to reveal second bullet The second type of fiber is called functional fiber. Functional fiber may be added to foods and provides specific health benefits to people. A manufactured high-quality, concentrated ingredient added to ready-to-eat cereal to increase fiber is an example of a functional fiber.

click to reveal third bullet Total fiber is the sum of both dietary fiber and functional fiber found in a food.



Health Benefits: Fiber

- Fiber from whole grains:
 - Reduces the risk of coronary heart disease.
 - May reduce constipation.
 - May help maintain a healthy weight:
 - Increased feeling of fullness.
 - Interfere with absorption of dietary fat and cholesterol.



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•Fiber, found in whole grains, is one of the best-kept secrets for weight management. Fiber is a substance that cannot be broken down by the body during digestion. Because it cannot be digested, there are virtually no calories. So why would you want to eat something that your body can't digest? Fiber adds bulk to your food and slows down the rate at which food leaves your stomach. This means that you will feel full more quickly and will stay full longer. Once in your digestive system, fiber absorbs excess cholesterol and acts like a broom in your intestines.

•In addition to weight management, there are other reasons to include fiber in the diet: it has been found to reduce the risk of coronary heart disease and may reduce constipation. Fiber is found in a number of foods, including foods made from whole grains. Most of the fiber is lost during the refining process and is not returned when foods are enriched. It is important to try and make half of the grains that you eat whole grains in order to ensure that you are consuming enough fiber.



Other Health Benefits

- Grains provide many nutrients:
 - Several B vitamins including thiamin, riboflavin, niacin and folate.
 - Eating grains fortified with folate (folic acid) before and during pregnancy helps prevent neural tube defects during fetal development.
 - Iron
 - Magnesium
 - Selenium



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Grains provide a number of important nutrients. They provide several B vitamins including thiamin, riboflavin, niacin and folate. B Vitamins play a key role in metabolism and help the body release energy from the foods people consume. In addition, folate (also known as folic acid) helps make new cells in the body. This is why folic acid is so important for pregnant women.



Are You Getting Enough Fiber?

- Recommended: 20-35 grams
- Average American consumes: 15 grams
- How can I make sure I'm getting enough fiber?
 - 5 servings of fruits and vegetables
 - 6 servings of grains



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Are you getting enough fiber?

- The recommended daily amount of fiber is 20-35 grams.
- The average American consumes about 15 grams of fiber each day.
- How can you be sure you're getting enough? If you consume 5 servings of fruits and vegetables (that's 5 servings total... not 5 of fruits and 5 of vegetables) and 6 servings of grains (3 of which are whole grains), you are very likely to meet the recommended daily amount of fiber. If you already consume enough fiber, keep it up! If, however, you find yourself in the same company as the "Average Americans" who consume only about half of the fiber they should, gradually increase your fiber intake over time. A sudden increase in the amount of fiber a person consumes can lead to gastric distress.



RealAge® Benefits

Eating 25 grams or more of fiber each day can lower a person's RealAge® by as much as **3 years!**



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Eating 25 grams or more of fiber each day can lower a person's RealAge® by as much as 3 years! Whole grain foods, as well as fruits and vegetables, are good sources of fiber. The health benefits of a high-fiber diet, mentioned earlier in this presentation, translate into a younger body... up to 3 years younger. Now that's food for thought!



What Can I Do?

- For the next two weeks, focus on consuming more whole grains. Try to make half your grains whole.
- Find ways to substitute whole grain foods for the refined grains you already eat.



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For the next two weeks, focus on consuming more whole grains. Try to make half your grains whole. Find ways to substitute whole grain foods for the refined grain foods you already eat. **ADDING** whole grain foods to your diet may also add unnecessary calories, and could result in weight gain if these additional calories are not expended. It is important that whole grain foods **REPLACE** refined grain foods. Remember that most Americans already eat enough servings from the grain group to meet the recommended amounts, so to make the most of this food group try to consume more whole grains and fewer refined grains.



Be a Healthy Role-Model

- If you eat breakfast or lunch with your students, try to make choices that include whole grains. If students ask about your choices, talk to them about the importance of choosing whole grains.
- Encourage parents to bring in whole grain treats, like air-popped popcorn.



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- Be a healthy role-model to your students. If you eat breakfast or lunch with your students, try to make choices that include whole grains. If students ask about your choices, talk to them about the importance of choosing whole grains. Many schools that make baked products from scratch add some whole grains to those products even though you may not be able to see or taste them. Check with your school to see if there are whole grains included in the foods they prepare and share this information with your students.
- Encourage parents to bring in whole grain treats like air-popped popcorn for class parties or celebrations.



Power Panther Professionals School-Wide

- Get students involved by:
 - Serving a whole grain snack in class (as part of a class party, celebration, etc.).
 - Doing a project/display/lesson focusing on whole grains with your students.
 - Making a bulletin board or other display about whole grains. Post it where students can read it.
 - Giving whole grain “healthy facts” as a part of the school’s morning announcements.

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Optional Last Slide:

There are many ways to make Power Panther Professionals a school-wide health initiative. Announce to students that for the next 2 weeks, school faculty and staff will be recording their consumption of whole grains. You can get students involved in a number of ways including: serving whole grain snacks as part of a class party, celebration etc. (this food could come from parents or the PTA), providing a lesson or project to classes about the grain group and importance of consuming whole grains. You could also market whole grain foods on bulletin boards, hall displays or over the morning announcements. If you have chosen to make Power Panther Professionals a competition, you may decide to give “bonus points” to teachers who take the extra step and involve their students.

Kansas Kids

CONNECTION

Grains and Oil Seeds



KANSAS

GRAINS AND OIL SEEDS

Kansas is known world wide for producing grain. Can you name the different grains and oil seeds that Kansas sends around the world?

The front cover of this magazine shows five grains and oil seeds that Kansas is famous for growing: Wheat, Grain Sorghum, Sunflowers, Corn and Soybeans.

We are proud of our reputation for growing grain. Kansas usually ranks #1 in the production of wheat and grain sorghum in the United States. Kansas is also in the top five of sunflower production and in the top ten of corn and soybeans.

We want you to be proud that you live in Kansas where the farmers do such a good job of growing grains and oil seeds. When you know more about how important these crops are to the people who live in Kansas and to the rest of the world, you will want to stand up and cheer!

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www.ksagclassroom.org

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Kansas Farm Bureau
National Sunflower Association- High Plains
Committee
Kansas Ag Aviation Association
Kansas Agri-Women
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This issue is designed by: Mary Hammel
Kansas State University College of Education

KANSAS CROP ART

Largest Sunflower Painting on Easel

Cameron Cross is an art teacher who has been working with fifth and sixth graders on the world's largest sunflower easel in Goodland, Kansas. They have made a movie about their two-year project. Go to www.usd352.k12.ks.us/north/multiage_site/indexmulti.htm and see what they did!

Goodland was a chosen site because of their close connection to sunflower production. Goodland is in Sherman county, the number one producing county in Kansas for sunflowers and the home of a sunflower processing plant. It's also close to Mount Sunflower, found in Wallace county. Can you find it on the map on the back page of this magazine?

Sunflowers originally came from this part of the country as wildflowers. They left the country with the Coronado explorers and now are back in our country as a grain and oil seed crop in Kansas.



Stan Herd- Environmental Artist



Kansas has an environmental artist named Stan Herd. Mr. Herd uses acres for his canvas. Do you remember how big an acre is? (Hint: football field.) His most recent work is the "Grains: Harvest the Energy" logo near Lawrence, Kansas. You can find it on grain food product packages. Look next time you are in the breads or cereals aisle at your local grocery store.

Some of Mr. Herd's other famous works include the Sunflower Still Life, Chief Santanta, and Amelia Earhart. Kansas has a connection to these people. You can see these artworks by looking at www.stanherd.com.

"All over the world farmers draw with the plow, harrow and harvesting combine, and paint with the colors of their crop... some of these exhibits (fields) rival the mystery of prehistoric ground drawings, others conjure up the tumultuous abstracts of modern canvases." (George Gerster, *Amber Waves of Grain*, 1990.)

From Weeds to Grains

Prehistoric people cultivated weeds for food. Today, we have learned to cultivate them into crops. Corn is one example. We have Native American women to thank for the yummy corn-on-the-cob that we love to eat. Throughout Kansas we can find Corn Maizes (Mazes) that are interactive artwork and agriculture. Here is a picture of a corn maze near Manhattan, Kansas by Dan Rogers. You can learn more about corn by visiting these large people mazes. Take lots of water with you- they can be very warm! Look for more information at www.ksgrains.com.

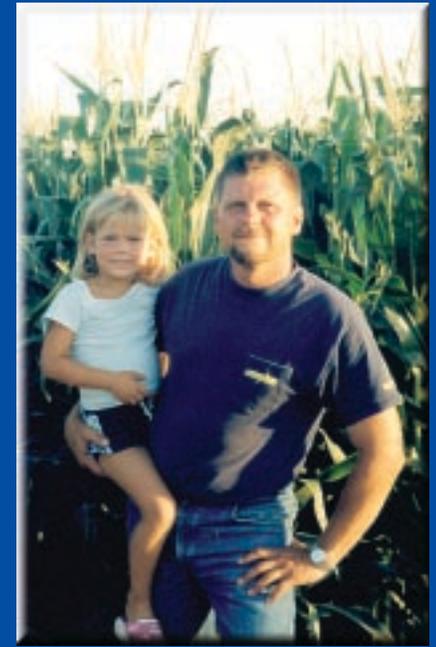


Meet a Kansas Farmer—Kevin Mauler

Kevin Mauler is a farmer from Great Bend, Kansas who grows all five of our featured crops. About one-third of his farm is irrigated acres. That means he can water the growing plants. The other two-thirds of his farm depends on natural rainfall. Yields on irrigated farms are usually higher. Notice on the map exercise on the back page that the largest producing counties either have more acres of that crop or many irrigated farms and sometimes both!

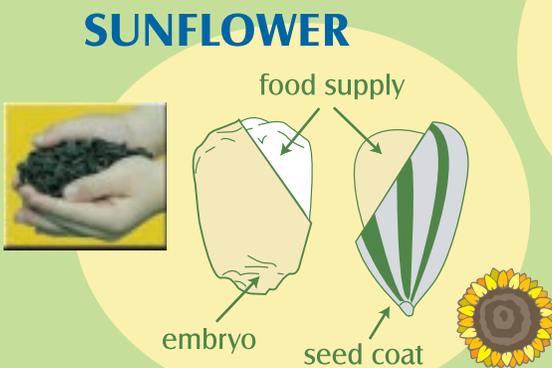
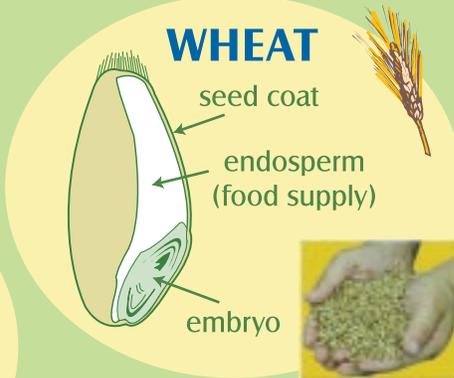
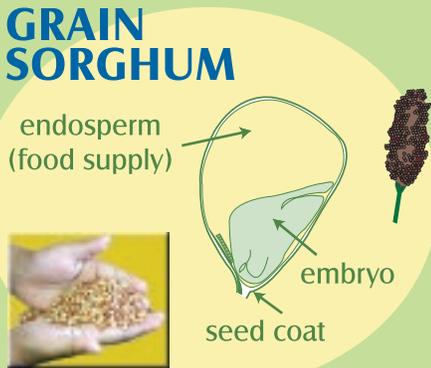
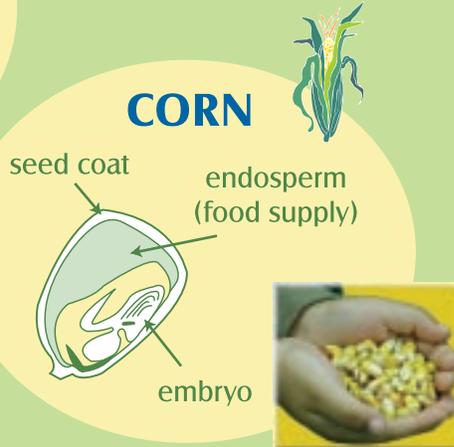
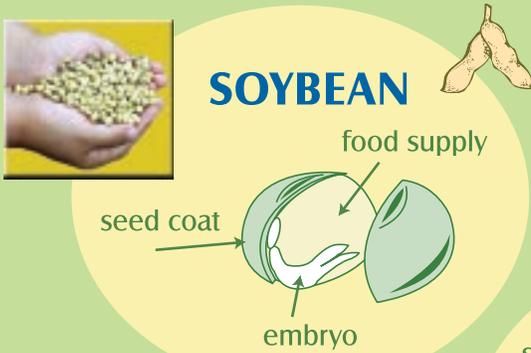
Kevin also uses “no-till” farming practices. That is, he saves fuel and equipment (machinery) costs by planting his seeds in residue (ground cover). This conserves moisture and helps prevent water, wind, and soil erosion.

Kevin and his family host a Kansas Kids Ag day for fourth graders in Barton County, where they live. They like to share with young people about farming. Many people in Great Bend know how important agriculture is to their community. It offers many careers so that people can live in the area they like. Do you know how many jobs are related to growing grains and oil seeds, processing, transportation and food production? Farming is only a part of agriculture!

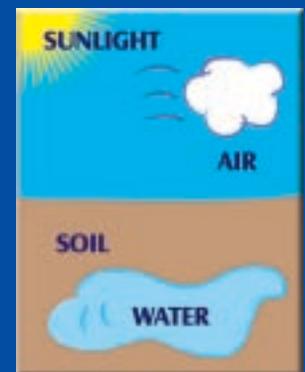


Kevin Mauler and his daughter, McKenna

Anatomy of Seeds



What do plants need to grow?



Where in the World?



Connecting HISTORY

- 1819** Iron Plow introduced.
- 1840** 70% of all people were farmers.
- 1850** Machinery increased farmers' need for money and commercial farming was encouraged to meet demand of food. It took 75-90 hours of labor to produce 100 bushels of corn.
- 1870** Move from hand labor, to horses, to the early tractors on the farm.
- 1890** The first combines were being used with horse power.
- 1910** Kansas, North Dakota, and Minnesota became chief wheat states. Gas tractors came into use.
- 1945** An American Revolution on the farm with tractors came to stay.
- 1950** 12% of all people farm. Commercial nutrients help increase yields of Kansas crops.
- 2002** Less than 2% of people farm. It takes only 2 hours of labor to produce 100 bushels of corn using self-propelled machines.



Wheat is native to the Middle East

Soybeans are native to China



Sunflowers are native to the North American Great Plains



Corn is native to Central America



Grain sorghum, or milo, is native to Africa



Native Americans first stored crops in underground cashe pits. Storage was only developed when more grain was grown than was needed. In 1875 we first saw above ground storage in Kansas. Today you will see many country sky scrapers like the one shown here.

Dr. Xiuzhi Susan Sun Renewable Resources Scientist

It is Dr. Sun's job to discover major products using the commodities we grow in Kansas. She has been working on the science of agriculture since she was a girl in China. From healthy bread to fast food packaging, she says, "Our quality of life connects with agriculture." Dr. Sun enjoys finding ways to meet the needs of people while using the renewable resources farmers that grow. "I feel it is my mission to add value to farm products and ease the environmental problems." Grain-based glue is a favorite project of hers. Dr. Sun has also worked on plastic bottles, packing peanuts, crayons, golf tees, plastic wear and credit cards!



Dr. Susan Sun shows plastic wares made from grains



What other kinds of usable items do you think could be made with grains and oil seeds?

Scenes from Kansas Farms



Natural Crop Art from above



Planting



Spraying protectants from insects and diseases



Tillage equipment with track system



Harvesting corn with a row header



Harvesting wheat with a combine

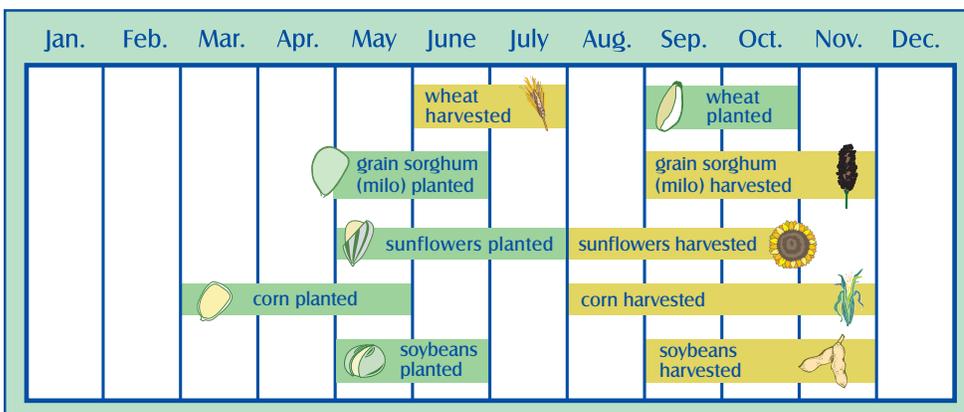


Computerized maps of fields

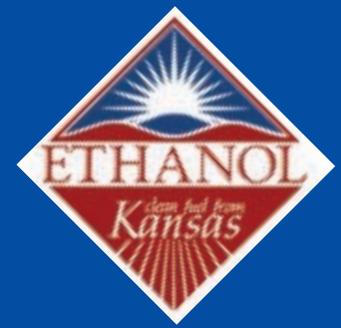


Global Positioning System (GPS) on a tractor

Timeline for Planting and Harvesting of Kansas Crops



Source: James P. Shroyer et. al., Kansas Crop Planting Guide, Kansas State University, November 1996.



Ethanol is a grain alcohol formula blended with gasoline to burn for fuel in vehicles that reduce exhaust pollution. Every vehicle made in the U.S. today is designed to run on ethanol.

At the end of 2001, there were 65 ethanol plants in the U.S. and more are being built each month. The food value of grain sorghum, corn, or even wheat used to make ethanol is not destroyed in the process, so it is an efficient use of the grain starch.



What's in a bushel?

What can we get from a bushel of corn?

32 pounds of starch



or

33 pounds of sweetener



or

2.68 gallons of ethanol fuel

and

11.4 pounds of gluten feed



and

3 pounds of gluten meal



and

1.6 pounds of corn oil





WORD BANK

biscuits
carbohydrates
corn
fiber
maize
sorghum
soybeans
staple
sunflowers
wheat

Good-to-Go Grains

Wherever people are on the move, working, thinking, or playing hard—grain foods are bound to be needed. Fill in words from the Word Bank to finish this grain story.

The captain carefully planned the food barrels for their ships. They could not set sail without the hard _____ they ate every meal.

When the pilgrims landed and met the Native Americans they found they carried a grain that sounded like _____ to cook on all their hunting trips.

At the first spring, Jonathan and Sarah planned to grow _____, but they found they did better with _____. If they had only lived in Kansas!

They could have grown crops of _____, _____, and _____ too.

Everyone knew they needed grain for their _____ food.

Grain foods would have _____ to keep their muscles and brains going strong. They ate as much as a pound of bread every day!

How many servings of grain foods each day are right for your age:

Five Six Nine Eleven

The pioneers should have had these good-to-go snacks!

Fruit Smoothie

Makes four 10 oz. servings

- 1 cup pineapple juice
- 1 large ripe banana
- 1 pkg. (12.3 oz.) firm silken tofu*
- 1 pkg. (10 oz.) frozen strawberries or raspberries, sugar added
- 6 ice cubes

Combine all the ingredients and blend until smooth.

*Found in the produce section refrigeration case.

Option: Triple the calcium; add 2/3 cup dry milk powder.

Nutrition Facts

Calories: 170; Total fat: 1g; Saturated Fat: 0g; Cholesterol: 0mg; Sodium: 75mg; Total Carbohydrates: 36g; Dietary fiber: 4g; Sugars: 31g; Protein: 7g; Vitamin A: 2%; Vitamin C: 50%; Calcium: 6%; Iron: 8%.



Snackin' Mix

Makes 11 cups or 20 (1.25 oz.) servings

Ingredients

- 1/4 cup (1/2 stick) margarine
- 4 teaspoons Worcestershire sauce
- 1 teaspoon garlic powder
- 1/2 teaspoon onion powder
- 1/4 teaspoon sugar
- 3 cups each corn and wheat cereal squares
- 2 cups O-shaped cereal or small crackers
- 1 cup roasted soy nuts*
- 1-1/2 cups roasted sunflower kernels*
- 1-1/2 cups mini pretzels

1. Melt margarine. Stir in Worcestershire sauce, seasonings and sugar.
2. Preheat oven to 250° F or heat a large skillet or roaster.
3. In a large roaster or baking pan mix the cereals, soy nuts, sunflower kernels and pretzels.
4. Drizzle the seasoned margarine over the cereal mixture, stirring to evenly coat.
5. Bake 1 hour in an oven or large skillet, stirring often.
6. Spread on absorbent paper to cool. Store in an airtight container.

* These may be found in the produce section if not in snack or baking aisles.

Nutrition Facts

Serving Size (36g)
Servings Per Recipe (20)

Amount Per Serving
Calories 160 Calories from Fat 60

% Daily Value*

Total Fat 7g 11%

Saturated Fat 0.5g 3%

Cholesterol 0mg 0%

Sodium 340mg 14%

Total Carbohydrate 19g 6%

Dietary Fiber 3g 12%

Sugars 2g

Protein 6g

Vitamin A 4% Vitamin C 6%

Calcium 6% Iron 25%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

Calories: 2,000 2,500

Total Fat Less than 65g 80g

Saturated Fat Less than 20g 25g

Cholesterol Less than 300mg 300mg

Sodium Less than 2,400mg 2,400mg

Total Carbohydrate 300g 375g

Dietary Fiber 25g 30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

WORD SEARCH

Can you find the words listed below in this puzzle?



(Words go across, up and down, and backwards)

- | | | |
|---------------------|-----------|------------|
| birdseed | green | oil |
| confectionary seeds | harvest | oil seeds |
| corn | head | petals |
| disease | insects | plant |
| ear | irrigate | roots |
| ethanol | Kansas | soybeans |
| farm | leaves | stems |
| fertilizer | maize | sunflowers |
| flowers | market | wheat |
| grain | milo | yellow |
| grain sorghum | nutrition | yield |



WORD MATCH

Match the words below to the definitions on the right



- a. corn
- b. ethanol
- c. grain sorghum
- d. Kansas
- e. maize
- f. milo
- g. oil seeds
- h. soybeans
- i. sunflowers
- j. wheat



1. ___ A grain fuel.
2. ___ One of the most important crops in the world for human food, often milled for baking products, native to the Middle East.
3. ___ A grain grown in areas requiring less water than most- native to Africa.
4. ___ Also known as maize, can be used for animals or humans depending upon the variety grown, native to Central America.
5. ___ A tall herb native to the North American Great Plains, used for birdseed, snacks for people, and oil.
6. ___ A plant grown in the United States for its seeds, native to China.
7. ___ The State we live in!
8. ___ A crop cultivated for animal and people food.
9. ___ A crop also known as as milo, maize, kafir corn, or hagiiri.
10. ___ Seeds grown for oil use such as sunflowers, corn, and soybeans.

ANSWERS: 1. c, 2. j, 3. f, 4. a, 5. i, 6. h, 7. d, 8. e, 9. c, 10. g

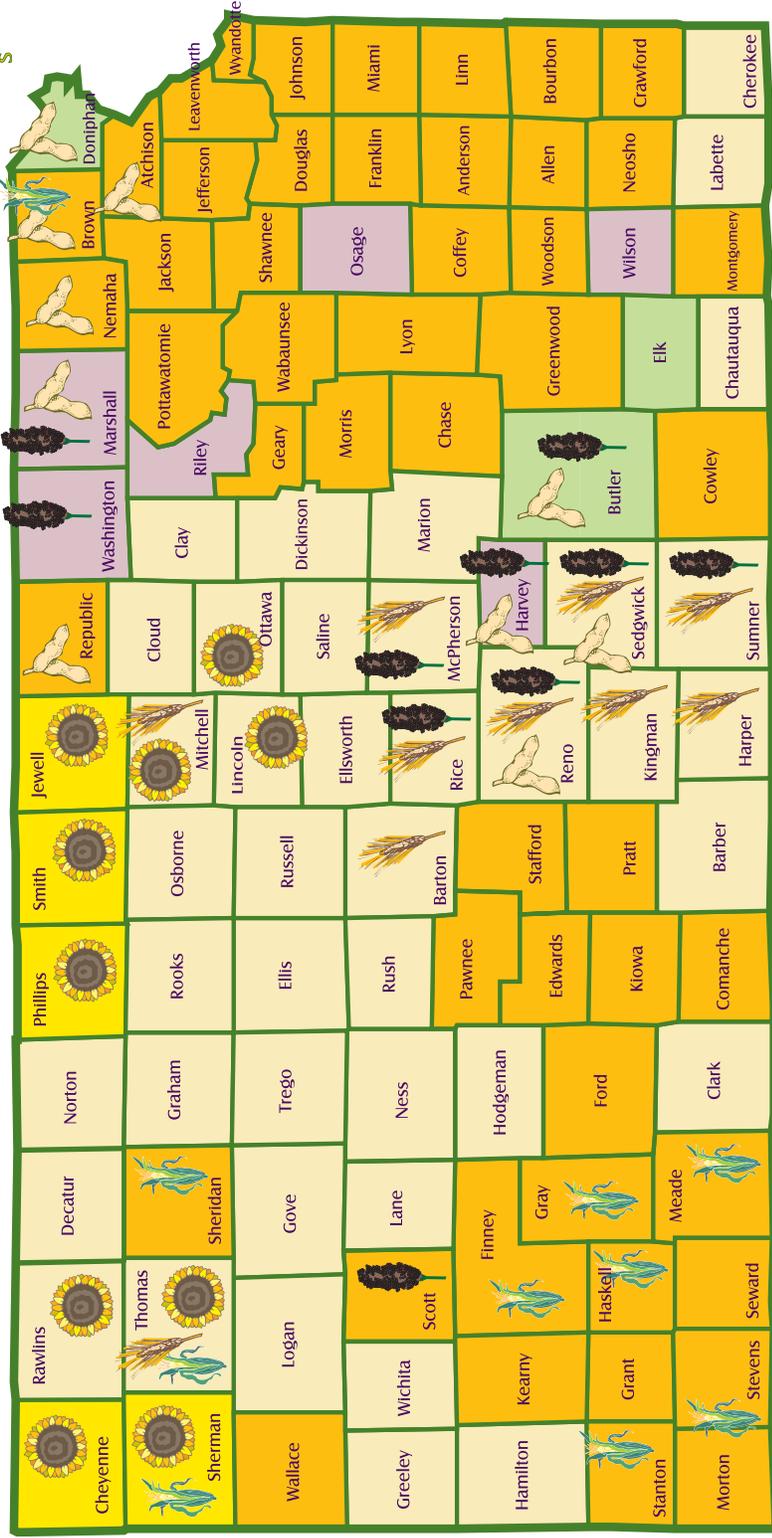
Kansas Grains and Oil Seeds Word Search

X F C O N F E C T I O N A R Y S E E D S
 O G L S L B N O I L S E E D S M E I F B
 S R O O T S D H A R E V E E E R T E A R
 T A S L U L J O N R O C L T Y F H A R P
 E I J R M U H G R O S N I A R G A T N L
 M X Y M A R K E T G R I B G B R N D O A
 S D M H I P B Y N W V T H I S P O G I N
 V Q R E Z I L I T R E F H R H D L K T T
 F A R M D C W P A G E H A R V E S T I O
 Z L U N B W N F C O I F A I C D R P R I
 M A I Z E U D H Y I W O L L E Y F X T L
 N F C O P C O N F W R G L O N A C O U I
 K P O V S U N F L O W E R S I Q H O N N
 M I L O G L U T O Z G W I O A W E V N S
 D S R U G A T X W R Q G Q Y R H A D E E
 P Z I B I R D S E E D K U B G E D L E C
 L E A V E S O R R V C I P E T A L S R T
 Y I E L D R L H S D D T C A C T J V G S
 D I S E A S E N Z K Z F R N G Q B Z Z E
 C G I Q T F K A N S A S X S A X K B P I



Puzzle Solution

WHAT GROWS IN KANSAS?



Most Bushels Produced



Top 10 Producing Counties



Source: Agricultural Statistics and Rankings for 2000, Kansas Department of Agriculture

Find and outline the following counties on the map in your FAVORITE COLOR.

Butler County... has the most farmland in Kansas

Sumner County... harvests the most wheat and grain sorghum in Kansas

Haskell County... harvested the most corn in Kansas

Sherman County... harvested the most sunflowers in Kansas

Brown County... harvested the most soybeans in Kansas

Finney County... made the most money from crops harvested

I live in _____ county.

(Outline your county in RED.)

According to the map, my county produces a lot of _____.

Kansas crops are grown in every county. Count the number of counties that produce the most bushels of each crop:

Corn = _____

Wheat = _____

Grain Sorghum = _____

Soybean = _____

Sunflower = _____

Add the crop counties together. There are _____ counties in Kansas.

Draw a line from the symbol to the area in Kansas where that crop primarily grows:



NORTHERN Kansas

WESTERN Kansas

EASTERN Kansas

SOUTHERN Kansas