

Sorghum Feeds Oklahoma Cattle

Background

Sorghum, also known as milo, is a native of Africa, but its drought resistance makes it a crop that grows well in Oklahoma. Oklahoma ranked number three in the nation in the production of grain sorghum in 2010. Most of the sorghum grown in Oklahoma is grain sorghum, used as a feed for cattle. Sorghum is also grown as silage, another form of cattle feed.

The feed value of grain sorghum is similar to corn. The grain has more protein and fat than corn but is lower in Vitamin A. The grain is cracked or rolled before feeding to cattle and is highly palatable to livestock.

In many parts of the world sorghum is an important food for people, too. It is made into unleavened breads, boiled porridge or gruel, malted beverages, popped grain, and syrup, from sweet sorghum. Sorghum is the fifth most important cereal crop in the world, after wheat, rice, maize, and barley.

Early in our history sorghum syrup was widely used as a sweetener because sugar was rare and expensive. Like sugar and honey, sorghum syrup is high in calories. The calories from sorghum syrup are not empty calories like those from sugar, though. Sorghum syrup is a source of iron, calcium and potassium. Before the invention of daily vitamins, many doctors prescribed sorghum as a daily supplement for people with deficiencies in these nutrients.

Activities

ACTIVITY ONE: READ AND DISCUSS

1. Read and discuss background and vocabulary.

ACTIVITY TWO: SORGHUM GINGERBREAD

1. Before combining the ingredients from the recipe included with this lesson, set up comparison stations with samples of sorghum molasses, honey and sugar and samples of white flour and whole wheat flour.
2. Students will compare and contrast the sweeteners and the flour based on sight, feel and taste.
3. Students will follow the directions to make sorghum gingerbread.

P.A.S.S.

GRADE 3

Science Process—1.2 **Social Studies**—1.1; 2.4 **Reading**—2.1; 3.2; 4.1ad,2a; 6.2bc
Writing—2.1,2
Oral Language—2.6
Visual Literacy—3

GRADE 4

Science Process—1.2 **Social Studies**—1.1
Reading—1.1; 3.1b,2ab; 5.1ac,2d
Writing—2.1,2
Oral Language—2.1,2 **Visual Literacy**—3

GRADE 5

Science Process—1.2 **Physical Science**—1.1 **Social Studies**—1.1; 7.1 **Reading**—1.1a; 2.2; 3.1b,2a; 5.1ade
Writing—2.1
Oral Language—2.5.
Visual Literacy—3

GRADE 6

Social Studies—1.1,3; 3.2.
Reading—1.1a; 2.2; 3.1b,2a; 5.1ab
Writing—2.6
Oral Language—2.2 **Visual Literacy**—3

GRADE 7

Social Studies—1.1; 4.1
Reading—1.1; 2.2; 3.2a; 5.1ab
Writing—2.7
Oral Language—2.2,3
Visual Literacy—3.1

Vocabulary

crop—a plant or animal or plant or animal product that can be grown and harvested

drought—a long period of dry weather

gruel—a thin food made by boiling cereal (as oatmeal or cornmeal) in water or milk

leaven—a substance (as yeast) used to produce a gaseous fermentation (as in dough)

palatable—agreeable to the taste

porridge—a soft food made by boiling meal or a vegetable in milk or water until it thickens

resistance—ability to withstand the force or effect of

silage—fodder (as hay or corn) fermented (as in a silo) to produce a rich moist feed for livestock

sorghum—any of a genus of Old World tropical grasses that look like Indian corn; especially : one cultivated for grain, forage, or syrup

supplement—something that supplies what is needed or makes an addition deficiencies

ACTIVITY THREE: RESEARCH AND GEOGRAPHY

1. Students will use online search engines or library references to find countries where sorghum is a primary food for humans.
2. Students will locate and use map pins to mark the countries on a large world map or color the countries in on the smaller world map included with this lesson.
3. Students will use online search engines and library references to research the process used to make sorghum syrup.
4. Students will use technology to present their findings to the class.

ACTIVITY FOUR: WRITING

1. Students will each write a paragraph using all of the following words: sorghum, sweet, grain, cattle, gingerbread.
2. Use online or library resource to research the advantages of making biofuel from grain sorghum vs. making it from corn. Write a paper to show your findings.

Extra Reading

Carson-Dellosa, *Just the Facts World Atlas*, Brighter Child, 2006. (Grades 5-8)

Mead, Alice, *Year of No Rain*, Dell, 2005.

Wolfman, Judy, and David Lorenz Winston, *Life on a Cattle Farm*, Lerner, 2002.

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In many parts of the world sorghum is an important food for people, too. It is made into unleavened breads, boiled porridge or gruel, malted beverages, popped grain, and syrup, from sweet sorghum. Sorghum is the fifth most important cereal crop in the world, after wheat, rice, maize, and barley.

Early in our history sorghum syrup was widely used as a sweetener because sugar was rare and expensive. Like sugar and honey, sorghum syrup is high in calories. The calories from sorghum syrup are not empty calories like those from sugar, though. Sorghum syrup is a source of iron, calcium and potassium. Before the invention of daily vitamins, many doctors prescribed sorghum as a daily supplement for people with deficiencies in these nutrients.

1. What is another name for sorghum?
2. What makes grain sorghum a good crop for Oklahoma's climate?
3. Most of the sorghum grown in Oklahoma is used for what?
4. Sorghum is similar to what other feed grain?
5. How is sorghum different from the feed grain mentioned in the previous question?
6. How is sorghum used as a food for people?
7. What nutrients are found in sorghum syrup that are not found in sugar?

Discuss: Why do you think sorghum is not used as much as a food for people here in the US as it is in other parts of the world?

Sorghum Feeds Oklahoma Cattle (answers)

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1. What is another name for sorghum? milo
2. What makes grain sorghum a good crop for Oklahoma's climate? drought resistance
3. Most of the sorghum grown in Oklahoma is used for what? feed for cattle
4. Sorghum is similar to what other feed grain? corn
5. How is sorghum different from the feed grain mentioned in the previous question? more protein and fat but lower in Vitamin A
6. How is sorghum used as a food for people? unleavened breads, boiled porridge or gruel, malted beverages, popped grain and syrup
7. What nutrients are found in sorghum syrup that are not found in sugar? iron, calcium and potassium

Discuss: Why do you think sorghum is not used as much as a food for people here in the US as it is in other parts of the world? Possible topic of discussion: We eat more meat here in the US than they do in countries where sorghum is a main source of food for humans, and many of our grain crops are used for feeding meat animals which in turn provide food for people.

Sorghum Molasses Gingerbread

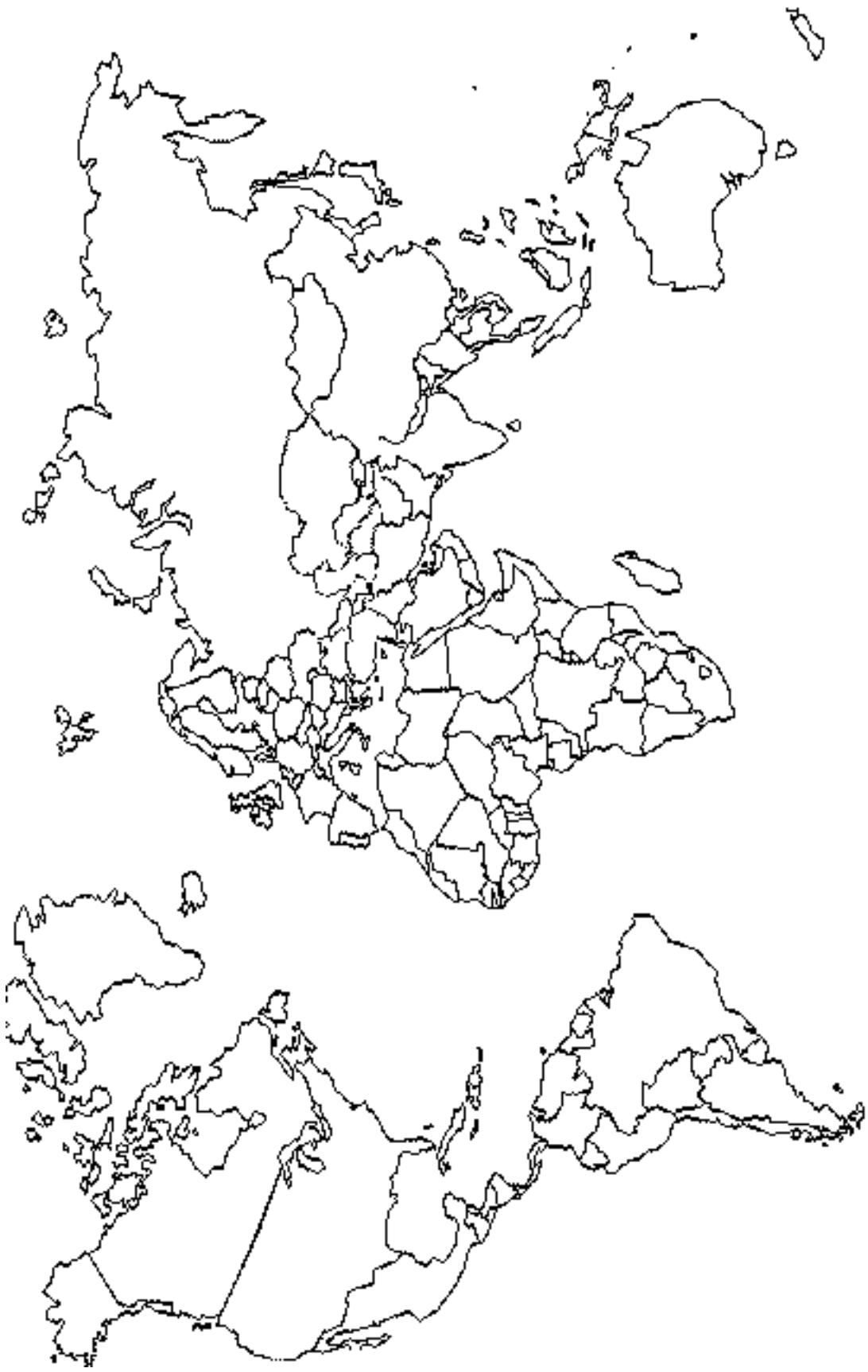
Sorghum syrup is available in grocery stores in the form of sorghum molasses, although true molasses is made from some of the byproducts from sugar. Molasses is a main ingredient in gingerbread. Gingerbread is a traditional Christmas treat made into gingerbread houses and gingerbread men. For the pioneers gingerbread was often served with meals as a bread, like cornbread.

1/3 cup sorghum molasses
1/2 cup honey
3/4 cup vegetable oil
3 eggs
3 cups whole wheat flour
1 tablespoon baking powder
1 teaspoon salt
1 1/2 teaspoons ground cinnamon
1 1/2 teaspoons ground cloves
1 teaspoon ground ginger
2 cups milk
Whipped cream

1. In a large mixing bowl, beat molasses, honey, oil and eggs until well-mixed.
2. Combine dry ingredients and add alternately with the milk to the egg mixture.
3. Pour batter into a greased 13-in. x 9-in. x 2-in. baking pan.
4. Bake at 350 degrees F for 45-50 minutes or until a toothpick inserted in the center comes out clean.
5. Serve warm or at room temperature with chilled whipped cream.

Name _____

World Map



Oklahoma Ag in the Classroom is a program of the Oklahoma Cooperative Extension Service, the Oklahoma Department of Agriculture, Food and Forestry and the Oklahoma State Department of Education.