MONTANA Harvest of the Month

Classroom Bites

Kale

Green Curly Kale

Red Curly Kale

Dinosaur Kale

'Hungry Gap'

'Red Russian'

Did You Know

- Celebrate National Kale Day this October! For more information visit nationalkaleday.org.
- There are over 50 varieties of kale. Lacinato kale is also called dinosaur kale for its bumpy leaves. Please pass the dino salad! There are also ornamental varieties in many colors including white, pink, and purple.
- Kale becomes sweeter after experiencing a light frost.
- Kale has been grown for more than 6,000 years and is in the brassica family along with bok choy, collards, and broccoli.

Gardening

Kale is a fantastic addition to any Montana garden. A hardy vegetable, kale thrives in our climate and even becomes sweeter after a light frost. Plant seeds directly in garden or container five weeks before last frost to two weeks after last frost. For fall plantings, plant 6-8 weeks before forecasted first frost. Most varieties will do well in containers at least 8 inches wide and 8 inches deep.

Selection

Buy kale with firm, bright leaves. Baby kale should have small, tender leaves with few stems. "Mature" kale will be 12-16 inches in length with stems and relatively small leaves. Kale stems can be bitter. Remove larger stems or use baby kale.

Storage

Store in perforated plastic bag in refrigerator up to 5-10 days.

Cooking

Wash greens thoroughly before using to remove any soil. Cooked kale reduces in size by 75-80% compared to fresh greens.

Blanch or Boil. Bring water to a boil, enough to cover the kale. Remove dried or thick stems and place the kale into the boiling water to blanch 5-8 minutes or until desired tenderness is reached.

Braise. Cut kale to desired size. Remove dried or thick stems. Drizzle cooking oil in a heated pan, add low-sodium seasonings if desired. Cook over low heat for about 20 minutes, or until desired tenderness is reached.

Preserve. For more information on preserving kale, read MontGuides Drying Vegetables and Freezing Vegetables. Visit https://nutrition.msuextension.org/ and click on the food preservation link or contact your Extension office to find the guide.

Roast. Cut kale to desired size. Place on foil-lined baking sheet and drizzle with olive oil and low-sodium seasoning. Bake at 300°F for 12-15 minutes or until crispy.

Salad. Add kale raw to salads for added flavor, texture and visual appeal. Tenderness can be achieved by massaging finely cut greens with acidic dressing. Add in nuts, seeds or dried fruit for added flavor and texture.

Sauté. Cut kale to desired size. Remove dried or thick stems. Drizzle cooking oil in a heated pan, add low-sodium seasonings if desired. Cook by stirring over high heat until desired tenderness, about 5-8 minutes.

Season. To enhance flavor, season with basil, bay, celery seed, garlic, oregano, tarragon, or thyme.

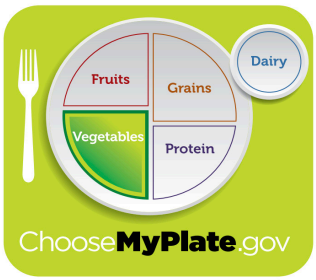
Soup or Entrée. Add kale to soups and entrees, such as lasagna, quiche, or pizza.

Steam. Remove dried or thick stems. Place kale in a pan with a small amount of water and low-sodium seasonings. Cook on medium heat for 2-4 minutes, depending on size and age of greens, until desired tenderness.

Adapted from the Kale Food Fact Sheet developed by Montana State University Extension. For the full fact sheet and other resources, visit: https://nutrition.msuextension.org/.

Nutrition Information

Kale is packed full of nutrients. One cup of raw kale contains 684% of the recommended daily value of vitamin K, an essential nutrient that helps blood clotting. Kale is also an excellent source for vitamins A and C and provides calcium and iron. Calcium is necessary for building strong bones.



Recipes

Choose Your Own Adventure Kale Salad

Round up your favorite ingredients and build a delicious kale salad with this recipe framework.

Source: City Blossoms (http://cityblossoms.org)

Servings

3- 1 cup servings

Ingredients

3 cups kale

2-3 Tbsp fat – *suggestions: avocado, olive oil, vegetable oil, peanut butter, tahini, sunflower seed butter, and almond butter*

2-3 Tbsp acid – *suggestions: citrus juice (lemon, lime, etc.), vinegar (red wine, balsamic, rice, apple cider, etc.)*

Salt to taste – *miso and soy sauce are also great salt substitutes*

Tasty extras – *see below*

- Something Sweet: *a little bit of honey, agave syrup, orange juice added to your dressing can help balance flavors.*
- Spices: *chili powder, cumin, ground ginger, black pepper, red pepper flakes*
- Fruits & Vegetables *(fresh or dried): Mango, apples, pears, raisins, dried cranberries, coconut, tomatoes, pomegranate seeds, carrots, jicama, shredded beets, olives*
- Beans and Seeds*: sunflower, pumpkin (pepitas), flax, chia, garbanzos, lentils*
- Grains: *farro, wheat berries, couscous, brown rice, barley*
- Herbs: *cilantro, parsley, basil, chives, dill, fennel, mint, thyme*
- Cheese: *feta, parmesan, goat cheese, or any cheese cubed or shredded*
- Nuts: *almonds, crushed peanuts, pine nuts, walnuts, sunflower seeds*

Preparation

1. Wash kale, trim dried or tough sections, and cut out stems. Cut kale into thin ribbons.
2. Mix fat, acid, and salt in a large bowl.
3. Add kale to bowl, toss with dressing, and massage. Massage the kale by placing the kale-acid-salt mixture in a Ziploc bag and massaging from the outside. The more you massage, the more tender it will be. The dressing should coat the leaves, and the leaves should slightly wilt and turn a more intense green.
4. When the massaging is done, add the pizzazz! Anything you would add to a regular salad can be added to a kale salad. See above for examples of tasty toppings.

Kale Chips

Kale chips are a perfect way to try kale! A food dehydrator will also work for these tasty snacks.

Developed by: Edward Christensen, Assistant Food Service Manager, Missoula County Public Schools

Servings

16- 1/4 cup servings *(large bowl to share)*

Ingredients

1 quart Kale, *raw, stemmed, and cut into chip-sized pieces*
1 Tbsp Oil, *olive, salad, or cooking*
3/4 tsp Salt

Preparation

1. Preheat oven to 225°F.
2. Remove large stems from leaves leaving the kale in "chip-size" pieces.
3. In single layer on sheet tray, place leaves face up, lightly spray with olive oil, and lightly season the kale with the salt.
4. Bake for 40-60 minutes, or until the kale is completely dehydrated and will easily release from the pan when you shake the pan back and forth. Using a low oven temperature ensures that you will not burn the chips.

Activities

Kale Investigation

Adapted From: Hardy Greens Lesson, Upper Valley Farm to School

Objectives

Students will be able to:

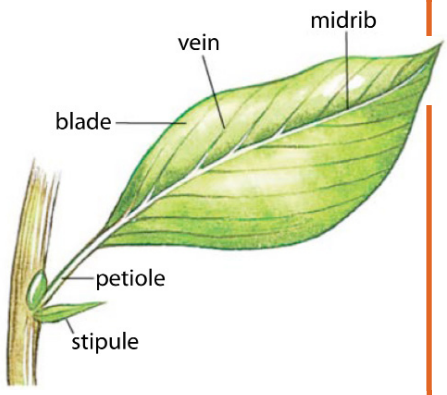
- Practice observation and scientific drawing skills with different types of cold-hardy greens.
- Identify and label the parts of the kale plant and function/job of each.
- Describe why eating kale is healthy and why it is possible and special to eat greens in the winter months.
- Taste kale.

Materials

- Kale leaves of different varieties, one leaf per student for observations
- Kale leaves to taste
- Magnifying glasses
- Science journal or paper for each student
- Colored pencils
- Images showing patterns in trees, veins, lungs, roots
- The book *Captain Kale and the Super Foods* by Amy Roth (for younger students)
  *If possible, harvest kale from your school garden, community garden, or nearby farm with your class for the activity or even complete step 1 and 2 in the garden with the kale plants

Directions

1. Introduce the lesson by telling students that today we are going to talk about leaves! Are there many leaves on the trees right now? Depending on the time of the month, there may be leaves on the trees or the leaves may have all fallen off for the winter. Ask students if they think there are still leaves we can eat even though it's getting closer to the winter? Explain that we can still eat greens in the colder months because there are some greens that survive the cold. Introduce the word "hardy". The leaves may not be growing very much during cold months, but they stay alive and we can continue to harvest their leaves! Ask students to talk with a partner about whether they think Montana is a good place to grow hardy greens and why.
2. Introduce kale! Kale is one of the hardiest greens so farmers in Montana love to grow it. Tell students that there are many different varieties of kale, just like there are different varieties of apples, tomatoes, potatoes, and other foods. Introduce the different types of kale by holding up a leaf and having the students repeat the name. If you cannot find more than one variety, use pictures or seed catalogs to show different varieties. Read the book *Captain Kale and the Super Foods,* by Amy Roth, to younger students.
3. Scientific Drawing: Have students wash their hands. Hand out a leaf to each student and ask them to draw, in detail, what they see. If age-appropriate, students should label the parts: stem (petiole), veins, blade, and epidermis. You may choose to display a diagram of a leaf on the board for students to reference or draw the parts on the board with the students. Discuss the functions of each part of the leaf. Compare diagrams of different varieties of kale—does each type have the same parts? What are other similarities? Can you see any differences between the varieties?



4. Other discussion points: What are the things we can see, and what is going on inside a leaf that we cannot see?

a. Veins: Do we see these patterns anywhere else in nature? Provide examples of tree branches and veins in human bodies to demonstrate the similar patterns in plants and animals. Discuss how the function of veins in both plants and animals is to carry nutrients (food) to the body and the plant parts.

b. Vitamins and Minerals: The leaf's job is to make food for the plant. Vitamins like vitamins A, B, C, E, and K and minerals such as calcium are found in the plant and these help our bodies fight sickness, support our skin and brain, and keep our bones strong and heart healthy. Ask students to research what the six main nutrients do for their bodies and report back to the class. The six main nutrients are Carbohydrate, Protein, Fat, Vitamins, Minerals, and Water.

c. Photosynthesis: This is the process leaves use to convert light into food for the plant. Carbon dioxide and water are used by the plant and oxygen is released. It is not visible.

d. Chlorophyll: This is the pigment that makes the leaves green, so we can see chlorophyll. It is used in the process of photosynthesis.

5. Taste Test: Give students a taste of the different varieties of kale. If there is time, make kale salad, kale chips, or a smoothie with kale with the students to show them different ways to eat the kale.
6. Wrap up: Review the parts of the kale plant, the different varieties of kale, and the health benefits of kale. Challenge students to eat kale at home this month!

Book Nook

Captain Kale and the Super Foods,
by Amy Roth

The Tale of Kale: Based on a Real Kid's Real Story,
by Lisa Borden

Dig Deeper

For sources and photo credits along with more recipes, lessons, quick activities, resources, and guides, visit: mtharvestofthemonth.org.

Notes:

The Montana Harvest of the Month program showcases Montana grown foods in Montana schools and communities. This porgram is a collaboration between Montana Farm to School, Office of Public Instruction, Montana Team Nutrition Porgram, National Center for Appropriate Technology, Montana State University Extension, Gallatin Valley Farm to School, Montana Department of Agriculture, Montana Organic Association, and FoodCorps Montana. More information and resources are available at: mtharvestofthemonth.org

Funds were provided in part by a USDA Team Nutrition Training grant, a USDA Farm to School grant, Montana Healthcare Foundation, Northern Pulse Growers Associataion, Montana Department of Public Health and Human Services, and Montana School Nutrition Association. USDA is an equal opportunity provider and employer. The Montana State University Extension Service is an ADA/EO/AA/Veteran's Preference Employer and Provider of Educational Outreach. This publication was supported by the Grants or Cooperative Agreements Numbers, 6 U58DP004818-03-01 & 5 U58DP004818-03-00, and funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the DPHHS.