

Liquid Gold

By **Kris Williams, MS, RD, LD** Master Gardeners of Greene County

Kris is the Dietetic Internship Director & Associate Professor at Cox College. She's a regular volunteer in the Kitchen Garden at the Master Gardener Demonstration Gardens at Nathanael Greene/Close Memorial Park. We're grateful to have her as part of our team!

The wonderfully rich, sweet liquid that is the miraculous product of honey bees (AKA liquid gold!) was the only available natural sweetener and a very important food for man from his very beginnings. Man's relationship with the honey bee started as early as the Stone Age. The first reference to honey was about its use as a drug and an ointment. This naturally delicious alternative to white sugar was an important carbohydrate source and the only largely available sweetener until around 1800 when industrial sugar began to replace it. At present the annual world honey production is 1.2 million tons, which is less than 1% of the total sugar production.

Honey has been found to offer multiple medicinal uses. It has been used to help treat gastrointestinal problems, eye conditions, gum disease and wounds. Most of the studies, however, have been based on amounts (often > 1/4 cup daily) of honey not normally consumed by the average individual. In addition, the biological effects are dependent upon the botanical origin of the honey, which reduces its predictability and reliability in treating health problems.

Carbohydrates are the main nutrient in honey,

comprising about 95% of its dry weight, with about 40% from fructose, 35% from glucose and about 4% from other sugars, including sucrose. Beyond carbohydrates, honey contains numerous other compounds such as organic acids, proteins/amino acids, vitamins, minerals, polyphenols and aromatic compounds. The contribution to the recommended

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daily intake (RDI) of vitamins and minerals is very small and insignificant. Nutrient composition, along with taste and color vary with botanical origin. Honey comes in a range of colors including white, amber, red, brown and almost black. Its flavor and texture vary with the type of flower nectar from which it was made.

While the most commonly available honeys are made from clover, alfalfa, heather and acacia flowers, honey can be made from a variety of different flowers, including thyme and lavender. Polyphenols in honey are mainly flavonoids and phenolic acids, which are known to have antioxidant properties.

As stated above and as with any other plant/natural food, its quality is a function of the plants and environment from which pollen, saps, nectars and resins were gathered. Other substances found in the environment - including traces of heavy metals, pesticides, and antibiotics - have been shown to appear in honey. The amount varies greatly. Although allergy to honey is rare, allergy to pollen or bee proteins is possible.

Honey is sold in individual containers or in bulk. It is usually pasteurized, although oftentimes at farmer's markets you can find raw honey. Raw honey that has not been pasteurized, clarified, or filtered - provided it is of the highest organic quality - is your best choice. Look for honey that states "100% pure." While regular honey is translucent, creamy honey is usually opaque and is made by adding finely crystallized honey back into liquid honey. Specialty honeys, made from the nectar of different flowers, such as thyme and lavender, are also available. Remember that the darker the color, the deeper the flavor.

Honey makes a good replacement for sugar in most recipes. Since honey is sweeter than sugar, you need

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Colusa Corn Muffins Made with Yogurt

Makes 12 muffins

3/4 C plain yogurt	3/4 C all-purpose flour
1/3 C butter or margarine, melted	3/4 C whole wheat flour
1/2 C honey	3/4 C cornmeal
2 eggs	2 1/2 t baking powder
	1/2 t salt
	1/2 t baking soda

Beat together yogurt, butter, honey and eggs in small bowl. Set aside. Combine flours, cornmeal, baking powder, salt and baking soda in large bowl. Add honey mixture. Stir just enough to barely moisten flour. Do not over mix.

Spoon batter into paper-lined or greased muffin cups. Bake in pre-heated 350°F oven for 20 to 25 minutes or until wooden toothpick inserted near center comes out clean.

Remove from pan; cool slightly on wire racks. Serve warm.

of honey can be substituted for each cup of sugar. For each cup of sugar replaced, you should also reduce the amount of liquid in the recipe by one-quarter of a cup. In addition, reduce the cooking temperature by 25°F since honey causes foods to brown more easily.

References: Allsop KA, Miller JB: Honey revisited: A reappraisal of honey in pre-industrial diets. *Br J Nutr* 75:513–520,1996. Helbling A, Peter C, Berchtold E, Bogdanov S, Müller U: Allergy to honey: Relation to pollen and honey bee allergy. *Allergy* 47:41–49,1992. Khan FR, Ul Abadin Z, Rauf N. Honey: nutritional and medicinal value. *Int J Clin Pract* 2007;61:1705-7. Tyler, VE. *The Honest Herbal*, 3rd Ed., 1993. Pharmaceutical Products Press

Discover More About Bees in Free Seminar

Two local nonprofits have come together to provide the public with a free one-day educational seminar on beekeeping and the major role honey bees play in bringing Americans their food supply. The seminar is approved as continuing education

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for members of the Master Gardener organization according to Patrick Byers, Horticulture Extension Specialist for Greene County. The seminar, sponsored by the Beekeepers Association of the Ozarks and the Friends of the Garden, will be held from 9 a.m. until 6 p.m. on Saturday, February

5, at the Botanical Center in Nathanael Greene/Close Memorial Park, 2400 S. Scenic Ave. The two, four-hour sessions cover races of bees, basic equipment, installation of packages, extraction, marketing, diseases, pests and other topics.

Registration is required. Register online at friendsofthegarden.org or ozarksbeekeepers.org. You can also call Dave Kayser at 417.547.2338.

“It’s estimated that one of every three bites of food is a result, either directly or indirectly of honey bee pollination,” said Kayser. “According to the U.S. Department of Agriculture, of all domestic crops requiring pollination, the honey bee is responsible for pollinating 80% of those crops, making them a very important element of the food chain.”

The welfare of bees and their pollination activities are directly related to the Friends of the Garden’s mission, said president George Deatz. “We support our partner organizations that provide educational venues for the public.”

Organic Gardening for Beginners Class

Saturday, February 19 | 1-2:30 pm | Registration required: 862-0135. Registration starts February 8. Midtown Carnegie Library, 397 E. Central St, Springfield, MO.

Vegetable Gardening Class

Saturday, February 19 | 1 pm | Lawn & Garden Show, East Hall, Dr. Clydette Alsup-Egbers, MSU Dept of Agriculture

Master Gardeners of the Ozarks 2011 Spring Gardening Workshop

March 19, 2011 | 9:30 am - 3:15 pm | \$16/person, includes continental breakfast | Faith Lutheran Church, Branson, MO | Registration required 417-357-6812

Pines Suitable for Southwest Missouri

Robert Lovett - *The Pinetum, Springfield*

2011 Plants of Merit

Chris Nejeleski - *Missouri Botanical Garden, St. Louis*

Invasive Plants of the Ozarks

Linda Ellis - *Horticultural and Natural Science Illustrator, Galena*

Hosta Specifics

Lee Coates - *Peggy’s Flowers, Highlandville*

Practical Home Vegetable Gardening

Sarah Becker - *Lincoln Univ. Horticulture Specialist, Mt. Vernon*

2011 Master Gardener Training Schedule

January 25 - March 3, 1-4 pm [with two snow days]

Tuesday, January 25 | Introduction What is Horticulture?

Plant Propagation Patrick Byers: *Horticulture Specialist, Greene County Southwest Region, University of Missouri Extension*

Thursday, January 27 | Trees in the Landscape

Cindy Garner: *Urban Forester, MO Department of Conservation*
Frances Main: *Resource Forester, MO Department of Conservation*

Tuesday, February 1 | Soils

Brie Menjoulet: *Agronomy Specialist, Greene County Southwest Region, University of Missouri Extension*

Thursday, February 3 | Basic Botany

Tim Schnakenberg: *Agronomy Specialist, Greene County Southwest Region, University of Missouri Extension*

Tuesday, February 8 | Woody Landscape Plants

Chris Starbuck: *Associate Professor Division of Plant Sciences, University of Missouri Extension*

Thursday, February 10 | Annuals & Perennials

Clydette Allsup-Egbers: *Associate Professor, Agriculture, MSU*

Tuesday, February 15 | Vegetables

Sarah Becker: *Lincoln University Cooperative Extension*

Thursday, February 17 | Fruit

Patrick Byers: *Horticulture Specialist, Greene County Southwest Region, University of Missouri Extension*

Tuesday, February 22 | Landscape Design

Patrick Byers: *Horticulture Specialist, Greene County Southwest Region, University of Missouri Extension*; Special Presentation: **Water Wise Landscaping**, Barbara St. Clair: *Xeriscape Garden Coordinator*

Thursday, February 24 | Plant Diseases

Adam Leonberger, *Plant Diagnostic Clinic Director, Extension Associate Division of Plant Sciences, University of Missouri Extension*

Tuesday, March 1 | Insects

Anastasia Becker: *Integrated Pest Management, Missouri Department of Agriculture*

Thursday, March 3 | Lawns & Turf

Brad Fresenberg: *Turfgrass Specialist, Univ. of Missouri Extension*