



ARBOR FARMS MARKET

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Our June 2017 Newsletter for Healthy Living

The Beauty of Being Grass-fed

There are a number of reasons to seek out grass-fed dairy products.

For foodies, the seasonal variations in flavor are a huge draw. For the health-conscious, milk from cows raised primarily on pasture has been shown to be higher in many nutrients, including vitamin E, beta-carotene and the healthy fats, omega-3 and conjugated linoleic acid (CLA). On an environmental level, grass fed dairy has a considerably reduced footprint compared to the way most dairy is produced in concentrated animal feeding operations (CAFOs).

When cows eat grass, it's a closed-loop system that bypasses the considerable resources used to produce the [genetically engineered] corn, soybeans or grains to feed dairy cows. And



on an ethical level, cows are designed to eat grass. When they eat corn and grain, not only does the quality of their milk degrade but

they live in a state of chronic inflammation, which increases their risk of infection and disease.

Farms producing grass fed dairy products are able to naturally regenerate the soil and maintain ecological balance without relying on chemical fertilizers and pesticides. By mimicking the natural behavior of migratory herds of wild grazing animals — meaning allowing livestock to graze freely, and moving the herd around in specific patterns — farmers can support nature's efforts to regenerate and thrive. This

kind of land management system promotes the reduction of atmospheric carbon dioxide (CO₂) by sequestering it back into the soil where it can do a lot of good. Once in the earth, the CO₂ can be safely stored for hundreds of years and adds to the soil's fertility. In fact, our favorite Michigan suppliers – Hilhof Farm Dairy (Hersey, MI), Lamb Farm (Manchester, MI), and Graham's Organ-

erty. Now and then, they also move the feed in order to encourage the cows to take a different path. In short, the idea is to imitate nature as much as possible, which includes the migration of wild herds across the land.

While raising livestock on pasture protects the environment, raising animals in CAFOs destroys it. U.S. CAFOs produce 500 million tons of manure

100% grass-fed, certified-organic, cream-top milk from Hilhof Farm Dairy now available, in returnable glass!

ics (Rosebush, MI) view themselves first as "grass farmers", for it is the grass that transforms the sun into energy that their animals then feed on.

By closely observing nature, each of these certified-organic farms have created a rotational grazing system that not only allows the land to heal but also allows the animals to behave the way they were meant to. Cows are moved every day, which mimics their natural patterns and promotes revegetation. By urinating and defecating on the land, the animals provide important nourishment for soil microbes.

Besides adding manure, the hoof activity helps break down the hard cap on the land. To get the animals to cover and "treat" the entire acreage, cows are enticed to move across the land by placing the hay at one end and the water at the other. This helps maximize the impact of their hooves on the land, and helps distribute the waste (manure and urine) more evenly across the prop-

annually, which is three times the amount of sewage produced by humans. This is far more manure than can be safely applied to farm fields and represents a top source of pollution in the U.S. Much of the waste is stored in open-air "lagoons" that may be breached by floodwaters from hurricanes. North Carolina waste lagoons, for instance, have overflowed due to hurricanes repeatedly: in 1996 following Hurricane Fran; in 1998 following Hurricane Bonnie; in 1999 following Hurricane Floyd; and in 2016 following Hurricane Matthew.

In early 2017, 35 advocacy groups, including Food & Water Watch, called on the U.S. Environmental Protection Agency (EPA) to close federal loopholes that are allowing CAFOs to continue polluting the planet. In a petition, the groups asked the EPA to require CAFOs housing a certain number of animals or using a certain kind of manure management system to obtain a permit.

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The Beauty of Grass-fed (continued from page 1)

The EPA has said that up to 75 percent of CAFOs need permits but only 40 percent have them. The petition also calls on the EPA to close the loophole that allows CAFOs to discharge pollutants when they're hit with severe storms, as the definition of storms that trigger the exemption is outdated and based on 1961 data.

"Antimicrobial resistance is an alarming threat putting human and animal health in danger."

In addition, Inside Climate News reported: *"The groups are also asking the agency to close a loophole that excludes these facilities from permitting requirements under an 'agricultural stormwater exemption.' That means, the groups say, that CAFOs are getting around permitting requirements. The Clean Water Act doesn't clearly outline what qualifies as an agricultural stormwater, leaving much room for legal interpretation, but the agency has authority to define it."*

Another problem of industrialized agriculture is the overuse of antibiotics, especially for purposes of growth promotion or providing low doses to prevent diseases that are likely to occur when animals are raised in dirty and

overcrowded living conditions. As a result, the threat of antimicrobial resistance is increasing around the globe, including in the European Union (EU), where the European Centre for Disease Prevention and Control (ECDC) and the European Food Safety Authority (EFSA) released a new report on this urgent matter. Antimicrobial resistance refers to

microorganisms — bacteria, fungi, viruses and parasites — that, after exposure to antimicrobial drugs (such as antibiotics, antifungals, antivirals, antimalarials and anthelmintics), evolve and become impervious to them. The resulting "superbugs" pose a serious threat to public health.

In the EU, 25,000 deaths occur every year due to infections caused by antimicrobial-resistant bacteria alone. The EU Commissioner for Health and Food Safety, said in a press release earlier this year: *"Antimicrobial resistance is an alarming threat putting human and animal health in danger. We have put substantial efforts to stop its rise, but this is not enough. We must be quicker, stronger and act on several fronts."*

Unfortunately, the use of antibiotics is incentivized to farmers worldwide. Farmers in China, for instance, commonly give antibiotics to livestock. No prescription is needed, and the drugs are cheap, so many farmers routinely give them to their animals in the hope of preventing disease. As BBC news put it, there's hefty incentive for farmers to use them, despite the potential threat to humanity: *"... [S]uppose I run a pig farm. Giving routine low doses of antibiotics to my pigs is the perfect way to breed antibiotic-resistant bacteria. But that is not my problem. My only incentive is to care about whether dosing my pigs*



seems to increase my revenues by more than the cost of the drugs. This is a classic example of the tragedy of the commons,

where individuals rationally pursuing their own interests ultimately create a collective disaster." Choosing grass fed dairy and meat is a powerful way to make a difference for your health, the environment and animal welfare.

Reference: *Socially Responsible Agricultural Project*. Inside Climate News March 9, 2017. *EFSA Journal* January 26, 2017. World Health Organization. *Antimicrobial Resistance* September 2016. European Center for Disease Prevention and Control February 22, 2017. *BBC News* March 6, 2017.

Resveratrol and Aging (continued from page 3)

that contain it can go a long way toward lowering inflammation.

However, another immediate and meaningful way to deal with it is to rid your body of inflammation triggers in your diet. Four common aggravators include: oxidized cholesterol, such as from overcooked scrambled eggs; any food cooked at high temperatures; trans fats (read labels to avoid interesterified or hydrogenated oils); sugar and grain. Several herbs and spices come loaded with potent anti-inflammatory potential as well. Examples cited in *Bulletproof 360* note that one-half teaspoon of ground cinnamon has the same antioxidants as one-half cup of blueberries, and one-half teaspoon of dried oregano has similar antioxidants to those present in 3 cups of raw spinach. Others are cloves, thyme, ginger, cayenne, turmeric and marjoram.



A study in Spain discussed how free radicals play a key role in disease,

cause DNA damage and leave the door wide open for carcinogens to take root. In fact: *"Epidemiological studies have established a relationship between the incidence of cancer and consumption of certain types of food. The presence of antioxidants in diet has been directly related to lower incidence of cancer. In fact, chemoprevention has attracted the attention of oncologists and molecular biologists to modulate carcinogenesis. A chemopreventive agent can inhibit carcinogenesis either by blocking initiation or by stopping or reversing promotion and progression."*

Resveratrol is one of the top five chemopreventive agents found in food, among such illustrious players as curcumin, lycopene, capsaicin, lutein, beta carotene, selenium, vitamin E, flavonoids, dietary fiber and many others. Additionally, resveratrol's ability to lower inflammation also helps prevent certain enzymes from forming that would trigger the development of can-

cerous tumors. Resveratrol helps cut down cell reproduction, which in turn lowers the number of cell divisions that might cause cancer cell growth.

An example of the way resveratrol works was shown two different ways in one clinical study at the University of Missouri. Melanoma cancer cells were found to be more vulnerable to radiation treatment when treated with resveratrol beforehand. Notably, resveratrol used by itself caused 44 percent of the cancerous cells to undergo apoptosis, or programmed cell death. One very interesting review from Denmark revealed that it's a balance between resveratrol intake via supplementation and food sources, along with exercise, that keeps your sugar levels on an even keel and minimizes inflammation that helps maximize your health.

Reference: *The Journal of Gerontology* March 7, 2017. Virginia Tech March 7, 2017. *Examined Existence* 2017. Georgetown University Medical Center July 27, 2016. *Bulletproof 360* 2016. *Cancers (Basel)* 2012 June; 4(2):442-473. *Biochemical Pharmacology* 2006 May 14; 71(10):1397-1421. *Endocrine-related Cancer* 2014 June; 21(3): R209-R225. *Frontiers in Nutrition* 2016; 3: 8. *Journal for Surgical Research* August 2013, 183(2):645-53

Resveratrol and Aging

What happens when you begin exercising and cutting back on calories? Some may say "weight loss" and "getting healthier," which are good answers, but researchers have found that resveratrol, a compound in

in grape skins, red wine, raspberries, pomegranates, raw cacao, and dark chocolate, among other plant-based foods. It's a polyphenol designed to increase the life span of plants through disease resistance and such stressors as

grapes, which contain the highest concentration among foods, especially in the skin. Mulberries and blueberries are other good sources. A whole food resveratrol supplement containing bits of muscadine grape skin is another option. One of the most dramatic advantages resveratrol provides is its power to annihilate free radicals produced by your body as a part of normal metabolism.

“The reduction in neuronal inflammation slowed the cognitive decline of patients.”

the skin of grapes, blue and purple berries and dark chocolate may impart many of the same neuroprotective benefits that working out and eating smaller portions offers. In fact, a new study reports that resveratrol is comparable to metformin, a drug often prescribed to treat type 2 diabetes, as it helps preserve the muscle fibers that break down during the aging process. It can also protect the neuromuscular junctions (NMJs) between neurons, known as synapses.

Synapses are important for voluntary movement because they relay motor commands from neurons in your spinal cord to your muscles. Scientists say they're hopeful the information will eventually help alleviate the detriments of aging as it did in studies on 2-year-old mice which, in mouse years, is considered elderly. The mice were treated with resveratrol for a year, during which time the researchers watched how their NMJs performed in comparison with mice fed a typical diet, and found the resveratrol group had fewer age-related symptoms.

In fact, their muscles and nerves were more like those of 3-month-old mice. Gregorio Valdez, Ph.D., an assistant professor at Virginia Tech Carilion Research Institute, where the study took place, who had already found that the double benefits of a good diet along with exercise can protect against age-related synapse damage, led the featured study. He explained: *“We all slow down as we get older. Gait, balance issues and impaired motor coordination contribute to health problems, accidents, lack of mobility and a lower quality of life. We work on identifying molecular changes that slow down motor deficits that occur with aging. I believe that we are getting closer to tapping into mechanisms to slow age-induced degeneration of neuronal circuits.”*

Resveratrol, which acts like a potent antioxidant, is a compound found

drastic changes in climate, too much ultraviolet light and disease. It was probably intuition that caused scientists to explore what resveratrol might be able to do for humans and, sure enough, it imparts very similar protective benefits. But if you read this and think you'll get the neuroprotective and anti-aging benefits by drinking more red wine, that's not how it works. In wine, resveratrol is in such small amounts you could not drink enough of it in your life to duplicate the benefits found in mice given resveratrol.

Another crucial way resveratrol helps your brain is that it can cross the blood-brain barrier, or BBB. Examined Existence explains that a century ago, scientists found that blue dye injected into animal tissues turned those tissues blue, but would not permeate the brain or spinal cord. That resveratrol is able to get across your brain barrier means that brain inflammation can be regulated and decreased in your central nervous system. Part of the significance of this ability is that brain inflammation is a factor in the development of most neurodegenerative diseases

The fact that resveratrol improves your brain blood flow is an indication that it may also improve brain function. According to a Georgetown University Medical Center (GUMC) report: *“Resveratrol given to Alzheimer's patients appears to restore the integrity of the blood-brain barrier, reducing the ability of harmful immune molecules secreted by immune cells to infiltrate from the body into brain tissues. The reduction in neuronal inflammation slowed the cognitive decline of patients, compared to a matching group of placebo-treated patients with the disorder.”* Scientists equated the role of resveratrol as imposing a sort of "crowd control" at the brain border, shutting out unwanted immune molecules that can worsen brain inflammation and kill neurons.

One way to access the benefits of resveratrol is by eating muscadine

Michigan Grass-fed Beef:
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They're a natural biological response to environmental toxins you encounter every day, such as lawn fertilizer, your pet's flea collar, food preservatives and medications. When your body can't fight the bombardment of toxins, your cells begin to oxidize, a process that's been described as "biological rusting."

Free radicals can damage your DNA, cause disease and compromise your entire immune system. Antioxidants, on the other hand, stave off the damage done by free radicals, which is one reason why resveratrol is so remarkable. It can also help fight the aging process throughout your body, from your skin to your cells. A list of several functions resveratrol may help with includes: neuroprotective benefits; suppresses brain inflammation; improves brain blood flow; may prevent plaque that leads to Alzheimer's; antioxidant and antimicrobial properties.

Because of resveratrol's extraordinary capabilities as an antioxidant and anti-inflammatory, taking resveratrol supplements and eating the foods

Reference: *Nature Communications* May 31, 2016. *Scientific Reports* April 28, 2016. *Newsweek* May 31, 2016. *The Guardian* April 26, 2016. PLoS ONE 8(7): e70182. Alliance for Natural Health April 19, 2016. Moms Across America March 24, 2016. Organic Consumers Association May 25, 2016.



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