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Our July 2017 Newsletter for Healthy Living

Food Systems at a Crossroads

Industrial agriculture, characterized by concentrated animal feeding operations (CAFOs) and vast swatches of genetically engineered (GE) monocrops, are touted as necessary to feed the world. Yet, not long ago, it was up to small family farms to provide the food for nearby communities and ensure food security for the U.S. During a presentation at the 10th Annual Farm and Food Leadership Conference, John Ikerd, author of *Farm Policy at a Crossroads: A Time to Choose*, explained "U.S. farm policies from the 1930s through the 1960s were premised on the proposition that food security could best be assured by keeping independent family farmers on the land. Family farmers had been the cultural foundation of American society and were committed to maintaining the productivity of their land — not only for the benefit of their families and communities but also for the food security of their nation."



Since the 1970s, however, farm policies have overwhelmingly favored the consolidation and industrialization of agriculture and the food supply. Federal farm subsidies, tax credits, crop insurance, price supports and disaster payments favor industrial agriculture and the streamlined production of cheap food. Unfortunately, while the transition has succeeded in providing inexpensive food, it has failed in virtually every other measurable parameter. Ikerd continued: "In spite of reducing the percentage of the average

American's disposable income spent for food, they have failed to provide everyone with enough good food to support healthy, active lifestyles. Indeed, the necessary shift in federal farm policy must be supported by public acceptance of the fact that the current industrial agricultural system isn't working and isn't going to work in the future."

In the U.S., genetically engi-

of-control obesity epidemic. Current farm subsidies bring you GE high-fructose corn syrup, soybean oil, fast food, junk food, grain-fed beef raised in CAFOs, monoculture and a host of other contributors to our unhealthy contemporary diet. The farm subsidies are what's keeping the wheel of this and other unhealthy and cheap food ingredients rolling. Meanwhile, according to Ikerd,

"Family farmers had been the cultural foundation..... committed to maintaining the productivity of their land."

neered (GE) corn is one of the top four most heavily subsidized food crops, so farmers have every reason to plant plenty of it. Unfortunately, since corn is a grain, it breaks down to sugar very rapidly and typically increases your insulin resistance if regularly consumed. Elevated insulin levels in turn are linked to most chronic degenerative diseases, including everything from obesity and diabetes to premature aging. In 2016, 15 billion bushels of corn were grown in the U.S. alone, and it's expected to make up 68 percent of the projected U.S. harvest of grains and oilseeds in 2017.

The intensive corn farming has pushed out many other crops, changing the landscape even in the last 25 years. In North Dakota, for instance, where crops such as wheat, barley and sunflowers were once prevalent, now corn is king. Far from providing Americans with critical nutrition, U.S. agricultural policies contribute to the declining health of Americans and worsen the out-

"Diabetes, heart disease, hypertension and various diet-related cancers are projected to claim about [\$1 for every \$5] spent for health care in the United States by 2020 — erasing virtually all of the gains in public health over the past several decades."

In addition to the corn that's used as cheap fillers in food or for use as animal feed, many farmers turned to growing corn crops for ethanol. Sadly, environmentally beneficial grasslands have been plowed under to make room for more ethanol-producing crops (i.e., corn), even though they're not as good for the environment as once believed. In fact, research shows biofuels such as corn ethanol are not carbon neutral; they're associated with a net increase in carbon dioxide emissions — even worse than gasoline. A meta-analysis of 350 studies conducted by the International Panel of Experts on Sustainable Food Systems (IPES-Food) recommended a paradigm shift from

continued on page 3

What's Inside This Issue

- Can't Beat Broccoli
- July Specials
- Elevate the Onion
- July Monthly Coupon

Can't Beat Broccoli

Broccoli and broccoli sprouts have potent anticancer activity courtesy of sulforaphane, a naturally occurring organic sulfur, and other chemoprotective compounds. Studies have shown sulforaphane: supports normal cell function and division and acts as an immune stimulant; causes programmed cell death (apoptosis) in colon, prostate, breast and

disease and kidney disease. Aside from sulforaphane, broccoli contains several other health-promoting nutrients and compounds, including:

Fiber, which helps nourish your gut microbiome to strengthen your immune function and reduce your risk of inflammatory diseases;

Glucoraphanin, a glucosinolate precursor

of sulforaphane that influences carcinogenesis and mutagenesis; compared to mature broccoli, broccoli sprouts can contain up to 20 times more glucoraphanin;

Phenolic compounds, including flavonoids and phenolic acids, which have a potent ability to eliminate damaging free radicals and quell inflammation, resulting in a lower risk for diseases such as asthma, type 2 diabetes and heart disease;

Diindolylmethane (DIM). Your body produces DIM when it breaks down cruciferous vegetables. Like many other broccoli compounds, DIM has shown multiple potential benefits, including boosting your immune system and helping to prevent or treat cancer;

Nicotinamide mononucleotide (NMN), an enzyme involved in the production of nicotinamide adenine dinucleotide (NAD), a compound involved in mitochondrial health and energy metabolism. NAD may slow age-related decline in

health by restoring your metabolism to more youthful levels. Previous research has shown that, with age, your body loses its capacity to create NAD — an effect thought to be related to, or the result of, chronic inflammation. When you eat raw mature broccoli, you only get about 12 percent of the total sulforaphane content theoretically available based on the parent compound. You can increase this amount and really maximize the cancer-fighting power of broccoli by preparing it properly. Steaming your broccoli spears for three to four minutes will optimize the sulforaphane content by eliminating epithiospecifier protein — a heat-sensitive sulfur-grabbing protein that inactivates sulforaphane — while still retaining the enzyme myrosinase, which converts glucoraphanin to sulforaphane.

If you prefer raw food, you'd be better off eating raw broccoli sprouts instead of mature broccoli, as they're a far more potent source of sulforaphane. Tests show three-day-old broccoli sprouts consistently contain up to 50 times the amount of anticancer compounds found in mature broccoli, including sulforaphane. This super-charged nutrient density means you can eat far less of them while still maximizing your benefits.

Reference: *Cancer Research* March 1, 2000. *Science Direct* August 2012. *Clinical Cancer Research* May 1, 2010; 16(9):2580-90. *Cancer Research* Sept 15, 2005; 65(18):8548-57. *Science Daily* March 7, 2017. *Cancer Prevention Research* June 9, 2014 (Epub). *Diabetes* August 4, 2008. *Medical Daily* August 4, 2016. *Journal of Biomedical Research* Sept. 2014; 28(5):339-48. *Cell Metabolism* October 27, 2016.

“Steaming your broccoli spears for three to four minutes will optimize the sulforaphane content.”

tobacco-induced cells; three servings of broccoli per week may reduce your risk of prostate cancer by more than 60 percent; activates nuclear factor-like 2 (Nrf2), a transcription factor that regulates cellular oxidation and reduction and aids in detoxification, as well as other phase 2 detoxification enzymes.

Broccoli sprouts, in particular, have been shown to help detox environmental pollutants. Sulforaphane also reduces damaging reactive oxygen species (ROS) by as much as 73 percent, thereby lowering your risk of inflammation, which is a hallmark of cancer.

However, the health benefits of this cruciferous veggie do not end there. Research shows it may reduce your risk for a number of common diseases, including but not limited to arthritis, heart



Elevate the Onion

Have you ever sat in a restaurant and smelled the tantalizing sizzle of sautéed onions moving past to another table? You may wonder why you didn't order the same thing, and resolve to get out some onions and other veggies for your next evening's meal. But did you know there's a difference between all the onion varieties and their impact your health?

Besides the fact that both red and white onions are a low glycemic food, a new study has determined that red onions are superior in many ways, one of the most important being the dramatic influence they had on study participants' cancer risk. It also turns out that, among five onion varieties, red onions kill between three and four times more cancer cells than the yellow and

white ones.

The Canadian study, no doubt prompted at least in part because cancer is that country's leading cause of death, noted that the high levels of flavonoids, specifically quercetin, myricetin and kaempferol, in the five onion types were shown to "exert potential anticancer activities." Further: "*All onion varieties exhibited antiproliferative activity similar to purified flavonoids. The cytotoxic effects of the Stanley and Fortress onion varieties were strongest among the selected cultivars.*"² What other nutritional benefits do red onions have compared to white onions? Besides being milder, one advantage is antioxidant activity, which is one reason they have a greater ability to protect against cancer. While both red and



white onions help to thin your blood, red onions are better at it due to their rich flavonoid presence. The study also revealed that organic onions have a significantly higher flavonoid content vs. conventional onions.

One more bit of wisdom: The outside skins of onions contain the highest nutrients. If you should remove the two outermost layers, you'd also be removing 75 percent of the anthocyanin content. Scientists suggest eating at least one red onion per week to get the most nutritional benefit. There are numerous delicious ways to do this: Cut them up in cold salads, slice them for a colorful, zippy layer on a cheeseburger, and toss them into your sautéed veggies.

Reference: *Science Daily* June 14, 2017. *Journal of Agricultural and Food Chemistry*, 2017; DOI: 10.1021/acs.jafc.7b01352.

Food Systems, *continued from page 1*

industrial agriculture to diversified agroecological systems. While succeeding in growing large volumes of food, the report noted that the current industrial model has generated "negative outcomes on multiple fronts," including:

“Diversified agroecological systems can improve biodiversity and pave the way for diverse diets and improved health.”

widespread degradation of land, water and ecosystems; biodiversity losses; persistent hunger and micronutrient deficiencies; a rapid rise in obesity and diet-related diseases, and livelihood stresses for farmers. The growing of monoculture crops and widespread reliance on CAFOs, which in turn depend on chemical fertilizers, pesticides and preventive use of antibiotics, were specifically mentioned as downfalls of the system. While tweaking some of these practices could help, the report noted that even this would "not provide long-term solutions to the multiple problems it generates."

According to IPES-Food:

"What is required is a fundamentally different model of agriculture based on diversifying farms and farming landscapes, replacing chemical inputs, optimizing biodiversity and stimulating interactions between different species, as part of holistic strategies to build long-term fertility, healthy agro-ecosystems and secure livelihoods, i.e., 'diversified agroecological systems.' There is growing evidence that these systems keep carbon in the ground, support biodiversity, rebuild soil fertility and sustain yields over time, providing a basis for secure farm livelihoods. Data shows that these systems can compete with industrial agriculture in terms of total outputs, performing particularly strongly under environmental stress, and delivering production increases in the places where additional food is desperately needed. Diversified agroecological systems can also pave the way for diverse diets and improved health."

Pesticide makers like Monsanto are in a unique position to profit not only from the sales of chemicals like glyphosate (the active ingredient in Roundup herbicide) but also the sale of GE seeds designed to go with them. A number of food and agriculture industry front groups, many of them backed by corporate donors including Monsanto, DuPont, Dow Chemical, BASF and ma-

lor food companies like Coca-Cola and Kraft, spend more than \$25 million a year to improve the steadily declining image of industrial agriculture. Ikerd noted, "The agricultural establishment seems to consider their PR campaign as

little more than a 'holding action' against growing public concerns. They are using their political power to establish legislative protections that would prevent effective regulation."

Meanwhile, an increasing number of people are suing Monsanto over claims that exposure to Roundup caused them to develop non-Hodgkin's lymphoma. Most of the approval process for glyphosate was based on studies Monsanto had done by outside contractors, a process that began in the late 1970s and concluded around 1983 with the registration of the chemical. The U.S. Environmental Protection Agency released a paper in October 2015 stating that glyphosate is not likely to be carcinogenic to humans, even though it was determined to be a "probable carcinogen" by the International Agency for Research on Cancer (IARC), which is the research arm of the World Health Organization (WHO). In April 2016, the EPA posted this WHO report online, briefly, before pulling it and claiming it was not yet final and had been posted by mistake. According to Sustainable Pulse, Monsanto was also able to persuade the EPA to change the classification of glyphosate from a Class C Carcinogen (suggestive carcinogenic potential) to Class E, which means there is evidence of noncarcinogenicity in humans. The change occurred while Monsanto was creating Roundup Ready genetically engineered (GE) crops.

A team of 900 scientists funded by the World Bank and United Nations determined that the use of industrialized agriculture including GE crops is simply not a meaningful solution to the complex situation of world hunger. Instead, the scientists suggested that agroecological methods would provide the most viable means to ensure global food security, including the use of traditional seed varieties and local farming practices already adapted to the local ecology. Industrial agriculture ensures that the busi-

ness of food is highly concentrated, not only in terms of being a monoculture with very few crop varieties available, but also in terms of ownership of these few precious crops. This concentrated power of food diversity and of the food supply actually ensures food insecurity. Meanwhile, problems with hunger are typically not related to a shortage in food production but rather to poverty,

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problems with the way that food is used and distributed and the types of food being grown in the first place.

At present, most governments around the world are subsidizing and/or promoting a food production system that is unsustainable. Moreover, it's done at the cost of both human and environmental health. Yet, research suggests a switch to sustainable agriculture could easily be done, allowing farmers to produce the same amount of food on the same amount of land while cutting out chemical fertilizers. As IPES-Food noted, "Change is already happening. Industrial food systems are being challenged on multiple fronts, from new forms of cooperation and knowledge-creation to the development of new market relationships that bypass conventional retail circuits." You can help to prompt significant change in the agricultural industry by boycotting CAFO and GE products and instead purchasing food grown organically and without chemicals, from local sources supporting the development of a sustainable food system.



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