Comments from Sustainable Livestock Farmers on the 2015 Dietary Guidelines Advisory Committee Recommendations

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To sign on, please contact Alexis Baden-Mayer at alexis@organicconsumers.org or Lynne Pledger at pledgerlynne@gmail.com by May 8 and please feel free to distribute this letter.

We encourage everyone who signs on to also submit your own unique comments at http://www.health.gov/dietaryguidelines/dga2015/comments/writeComments.aspx

May 8, 2015

Secretary Tom Vilsack
U.S. Department of Agriculture
1400 Independence Avenue SW, Room 200-A
Washington, DC 20250

Secretary Sylvia Burwell
U.S. Department of Health & Human Services
200 Independence Avenue SW
Washington, DC 20201

Dear Secretary Vilsack and Secretary Burwell,

We applaud the Dietary Guidelines Advisory Committee for addressing food sustainability. Considering our growing population, diminishing resources, and the global threat of climate change, it is imperative that we consider sustainability in making dietary choices. Education about food sustainability is one of the ways that government can protect the common good. We also agree wholeheartedly that most red meat produced in the US is bad for human health and the environment. But we offer an important caveat.

The data on the production and consumption of factory-farmed meat is presented *as if these facts applied to all red meat.* While most of the red meat consumed by Americans is corn-fed, feedlot beef, there is a widely available alternative that the Guidelines should acknowledge: 100% grass-fed beef, produced with no grain, and no feedlots. The rotational grazing approach utilized by grass-fed beef producers to finish (fatten) cattle in the last months of their lives, harnesses natural systems that increase soil fertility and combat climate change, and also produce healthy red meat without any of the problems associated with factory-farmed beef.

Though the Dietary Guidelines Advisory Committee distinguishes between farmed fish and wild fish, it makes no such distinction between the destructive practices of CAFO meat production and the sustainable production of 100% grass-fed beef, which offers multiple health and environmental benefits for our society, including **carbon sequestration; energy savings; soil fertility; water capture; and healthy, nutrient-dense food.** More and more consumers are demanding 100% grass-fed beef because of these benefits. It is now widely marketed even in the big box stores and is cheaper per ounce than a candy bar - but is not recognized in the Dietary Guidelines. The unintended consequence of this omission is that the Guidelines will work against the continued growth and success of a new, regenerative, agricultural model that produces high-quality food.

Health benefits of 100% grass-fed beef

Food produced from depleted soil lacks trace minerals that are essential for human health. **Much of the food in our markets today – vegetables as well as meat – does not deliver the same nutrition found in food decades ago.**[i] This nutrition deficit is caused by agricultural practices, widespread since the early twentieth century, that have degraded our farmlands. Many diseases now common in our society may be the result of missing vitamins, minerals, and trace elements that our grandparents were able to get from food. Also, our immune systems have been compromised by increasing exposure to pesticides[ii] and herbicides such as glyphosate,[iii] which is routinely used on corn grown for cattle fattened in feedlots, and is now recognized by the World Health Organization's cancer agency as a probable carcinogen.[iv]

This situation is reversible. The stewardship of pastures and skillful grazing management[v] employed by 100% grass-fed beef producers result in deep plant roots and abundant soil microbes that transfer essential nutrients to the plants. Grass and forage that is both nutritious and also free of pesticides and herbicides**,** means **healthy cattle with meat that is optimal for human health**:

- Laboratory tests confirm that **100% grass-fed beef contains a perfect ratio of omega-3 fatty acids to omega-6.**[vi] A healthy diet should consist of roughly one to four times more omega-6 fatty acids than omega-3 fatty acids. Grass-fed beef has 1.53 times more, while grain-fed beef has 7.65 times more. While the body requires some Omega 6, an excess can foster cardiovascular disease, cancer, and autoimmune disorders, which are suppressed by Omega 3s.
- Meat and dairy products from grass-fed ruminants are the **richest known source of conjugated linoleic acids** (CLA),[vii] which may be an important defense against cancer.
- Grass-fed meat has also been found to have **seven times more vitamin A** and **three times more vitamin E** than grain-fed beef.[viii]
- Also, **rotational grazing improves soil health and fertility** so that nutrients essential to human health are passed from the soil to the grasses and legumes eaten by the cattle; this ensures that the meat is nutrient-dense, that is, high in nutrition relative to the amount of calories.

Environmental benefits of grass-fed beef production

How we grow food is critical to human survival.

Industrial agriculture is driving climate change by plowing millions of acres for corn; plowing allows soil carbon to oxidize, thereby releasing massive amounts of carbon dioxide to the atmosphere. Conventional farming has also diminished the organic matter in soils, making whole regions vulnerable to floods and drought. The widespread use of herbicides and pesticides is destroying the soil food web—the subterranean army of fungi, bacteria, protozoa and nematodes essential to soil health and fertility.[ix]

But **raising cattle on grass and forages—no grain, and no feedlots—can eliminate the multiple problems of industrial beef production.** Rotational grazing of ruminants sequesters carbon, restores grasslands and improves water retention capacity. It also avoids the energy uses characteristic of industrial agricultural operations, notably corn and conventional beef production.

Soil fertility and climate change mitigation

Though providing soil nutrients to plants involves complex chemical processes, **the basic pasture management practices are simple: (1) grass-fed beef producers allow the pasture plants to establish deep roots, and (2) employ methods that foster abundant soil life, of which mycorrhizal fungi and associative bacteria are key.**

When energy from the sun begins photosynthesis, carbon is channeled into the plant's roots. Deep roots, in addition to providing mechanical support, transfer between 5% and 21% of all the photosynthetically fixed carbon to the soil, well below the surface. In a two-way transfer brought about by soil microbes, the roots also take up water and nutrients for healthy plant growth.

Other important sources of fertility are (1) manure and urine, which the cattle spread evenly over the land (and is not concentrated in methane-producing lagoons), and which supply the land with microorganisms as well as soil nutrients, (2) weed residues and green manures that decompose, and (3) the root material that the plants shed when they are grazed in order to re-establish equilibrium between their root and leaf areas. After a paddock is grazed the land is allowed to "rest" and regrow tall grass (and corresponding deep roots) before it is grazed again.

The same grazing practices that increase fertility also increase carbon sequestration, which is the precursor to fertile soil.[x] Microbes convert the carbon to humus.

In summary, as the Rodale Institute asserts,[xi]

> ...we could sequester more than 100% of current annual CO_2 emissions with a switch to widely available and inexpensive organic management practices, which

> we term 'regenerative organic agriculture.' … [T]he wealth of scientific support for regenerative agriculture has demonstrated that these practices can comfortably feed the growing human population while repairing our damaged ecosystem:
>
> If management of all current cropland shifted to reflect the regenerative model ... we could potentially sequester more than 40% of annual emissions.
>
> If all global pasture was managed using a regenerative model, an additional 71% could be sequestered.

Water retention/drought protection

A recent study conducted by the USDA National Resource Conservation Service showed the **dramatic difference in water infiltration capacity on land managed by rotational grazing as opposed to cropland or land managed by conventional grazing**. An experiment on three nearby fields representing these three scenarios showed that the same amount of water took 31 minutes to infiltrate the cropland soil, 7 minutes to infiltrate conventionally grazed pasture, and *10 seconds* to infiltrate soil managed by rotational grazing. The key to the soil health of the land managed by rotational grazing is the presence of soil microbes, in this case Glomales fungi. (See the 6-minute NRCS video at http://youtu.be/IqB4z7lGzsg.)

High levels of carbon dioxide levels in the air stimulate Glomales fungi to produce a waxy substance called glomalin.[xii] Discovered in 1996, glomalin is a glycoprotein, bound together with iron and other ions. **Glomales fungi colonize plant roots and make a protective waxy coat out of glomalin that improves water infiltration and water retention** in the soil and keeps soil carbon from escaping. The production of glomalin has been linked to grazing.

Glomalin holds 27 percent of the soil's stored carbon and lasts 7 to 42 years, depending on conditions. It permeates organic matter, storing it in both its protein and carbohydrate sub-units, and is 30-40% carbon.

Glomalin also glues together silt, sand, or clay soil particles, forming large granules or aggregates that improve soil condition, providing what is commonly known as "tilth." Aggregates protect soils from the eroding forces of winds and water. Previously, plowing was thought to increase tilth, but now it is understood that soil disruption actually contributes to soil compaction and that no-till practices increase soil glomalin. Healthy soil results in lush pasture that can withstand drought.

A 2013 study[xiii] of three grazing scenarios and three cropland scenarios found the highest concentration of glomalin in native grassland pastures managed by rotational grazing.

Land use

Studies have shown that rotational grazing produces more herbage biomass than one all-season grazing paddock or a non-grazing paddock, and that the additional herbage translates into increased weight gain of livestock that are grazed in a rotation rather than conventional grazing.[xiv] **Once a piece of land has become healthy and fertile, it can be used for cropland in rotation with pasture for livestock; crop yields will be more abundant than could be expected on land that has not been managed by rotational grazing.**

A map recently published by the Huffington Post on revenue from agriculture, state by state, reveals that agriculture in the Midwest is largely devoted to crops for animal food (or ethanol): Iowa 100%, Illinois 97%, Indiana 97%.[xv] Much of this land is in cow corn, which would be entirely unnecessary with rotational grazing. All the land that is managed as monoculture instead could produce 100% grass-fed beef while fostering soil health and biodiversity above and below the soil line.

Energy savings

A study by the USDA Economic Research Institute looked at agricultural energy use between 2001 and 2011. The use of energy on farms and ranches can be divided into (1) direct uses: fuels (including diesel and gasoline) and electricity, and (2) indirect uses: energy-intensive inputs, such as chemical fertilizers and pesticides (including herbicides).[xvi] The dominant share of direct energy use on US farms is fuel.[xvii] Fertilizer, an energy-intensive input, accounted for slightly more than half of indirect energy use on US farms in 2011.[xviii] Pesticides, the other energy-intensive input, accounted for slightly less than half of indirect energy use.[xix] Chemical fertilizers and pesticides are used heavily for corn production.

Grass-fed beef production saves both direct and indirect energy because the cattle spend their entire lives on pasture and never eat corn.

<u>Our Recommendation</u>

The Dietary Guidelines states,

> The impact of food production, processing, and consumption on environmental sustainability is an area of research that is rapidly evolving. As further research is conducted and best practices evaluated, additional evidence will inform both supply-side participants and consumers on how best to shift behaviors locally, nationally, and globally to support sustainable diets.

As ranchers and farmers who produce 100% grass-fed beef, we submit that the research on our product is already in. We are already employing techniques that soil scientists have validated since the 1990s. We know that corn is bad for cattle and that corn-fed meat is unhealthy for humans. Therefore we raise our beef on grass and pasture alone. We are managing our pastures and our herds to foster the soil microbes that science has shown to be critical to producing healthy meat, sequestering carbon, restoring soil fertility, and retaining water.

Currently the market for grass-fed beef is 2-3 billion dollars per year, and has been projected to be 30 billion dollars per year within 6-7 years.[xx] But many consumers are confused by the various labels on red meat, and need to understand what these labels mean in order to make good choices.

We urge you to balance the concerns about the dominant industrial model of red meat production with an acknowledgment of the healthy environmental alternative: 100% grass-fed beef.

Sincerely,

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[viii] Ibid.

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[xii] D. Comis, Glomalin: Hiding Place for a Third of the World's Stored Soil Carbon, Agricultural Research (2002). http://agresearchmag.ars.usda.gov/2002/sep/soil

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