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## How Cows (Grass-Fed Only) Could Save the Planet

By Lisa Abend

On a farm in coastal Maine, a barn is going up. Right now it's little more than a concrete slab and some wooden beams, but when it's finished, the barn will provide winter shelter for up to six cows and a few head of sheep. None of this would be remarkable if it weren't for the fact that the people building the barn are two of the most highly regarded organic-vegetable farmers in the country: Eliot Coleman wrote the bible of organic farming, *The New Organic Grower*, and Barbara Damrosch is the Washington *Post's* gardening columnist. At a time when a growing number of environmental activists are calling for an end to eating meat, this veggie-centric power couple is beginning to raise it. "Why?" asks Coleman, tromping through the mud on his way toward a greenhouse bursting with December turnips. "Because I care about the fate of the planet."

Ever since the U.N. Food and Agriculture Organization released a 2006 report that attributed 18% of the world's man-made greenhouse-gas emissions to livestock — more, the report noted, than what's produced by transportation — livestock has taken an increasingly hard rap. At first, it was just vegetarian groups that used the U.N.'s findings as evidence for the superiority of an all-plant diet. But since then, a broader range of environmentalists has taken up the cause. At a recent European Parliament hearing titled "Global Warming and Food Policy: Less Meat = Less Heat," Rajendra Pachauri, chairman of the Intergovernmental Panel on Climate Change, argued that reducing meat consumption is a "simple, effective and short-term delivery measure in which everybody could contribute" to emissions reductions. ([See the top 10 green ideas of 2009.](#))

And of all the animals that humans eat, none are held more responsible for climate change than the ones that moo. Cows not only consume more energy-intensive feed than other livestock; they also produce more methane — a powerful greenhouse gas — than other animals do. "If your primary concern is to curb emissions, you shouldn't be eating beef," says Nathan Pelletier, an ecological economist at Dalhousie University in Halifax, N.S. noting that cows produce 13 to 30 lb. of carbon dioxide per pound of meat. ([See where cows eat and what it means for the environment.](#))

So how can Coleman and Damrosch believe that adding livestock to their farm will help the planet? Cattleman Ridge Shinn has the answer. On a wintry Saturday at his farm in Hardwick, Mass., he is out in his pastures encouraging a herd of plump Devon cows to move to a grassy new paddock. Over the course of a year, his 100 cattle will rotate across 175 acres four or five times. "Conventional cattle raising is like mining," he says. "It's unsustainable, because you're just taking without putting anything back. But when you rotate cattle on grass, you change the equation. You put back more than you take." ([See the top 10 scientific discoveries of 2009.](#))

It works like this: grass is a perennial. Rotate cattle and other ruminants across pastures full of it, and the animals' grazing will cut the blades — which spurs new growth — while their trampling helps work manure and other decaying organic matter into the soil, turning it into rich humus. The plant's roots also help maintain soil health by retaining water and microbes. And healthy soil keeps carbon dioxide underground and out of the atmosphere.

Compare that with the estimated 99% of U.S. beef cattle that live out their last months on feedlots, where they are stuffed with corn and soybeans. In the past few decades, the growth of these concentrated animal-feeding operations has resulted in millions of acres of grassland being abandoned or converted — along with vast swaths of forest — into profitable cropland for livestock feed. "Much of the carbon footprint of beef comes from growing grain to feed the animals, which requires fossil-fuel-based fertilizers, pesticides, transportation," says Michael Pollan, author of *The Omnivore's Dilemma*. "Grass-fed beef has a much lighter carbon footprint." Indeed, although grass-fed cattle may produce more methane than conventional ones (high-fiber plants are harder to digest than cereals, as anyone who has felt the gastric effects of eating broccoli or cabbage can attest), their net emissions are lower because they help the soil sequester carbon.

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From Vermont, where veal and dairy farmer Abe Collins is developing software designed to help farmers foster carbon-rich topsoil quickly, to Denmark, where Thomas Harttung's Aarstiderne farm grazes 150 head of cattle, a vanguard of small farmers are trying to get the word out about how much more eco-friendly they are than factory farming. "If you suspend a cow in the air with buckets of grain, then it's a bad guy," Harttung explains. "But if you put it where it belongs — on grass — that cow becomes not just carbon-neutral but carbon-negative." Collins goes even further. "With proper management, pastoralists, ranchers and farmers could achieve a 2% increase in soil-carbon levels on existing agricultural, grazing and desert lands over the next two decades," he estimates. Some researchers hypothesize that just a 1% increase (over, admittedly, vast acreages) could be enough to capture the total equivalent of the world's greenhouse-gas emissions.

This math works out in part because farmers like Shinn don't use fertilizers or pesticides to maintain their pastures and need no energy to produce what their animals eat other than what they get free from the sun. Furthermore, pasturing frequently uses land that would otherwise be unproductive. "I'd like to see someone try to raise soybeans here," he says, gesturing toward the rocky, sloping fields around him.

By many standards, pastured beef is healthier. That's certainly the case for the animals involved; grass feeding obviates the antibiotics that feedlots are forced to administer in order to prevent the acidosis that occurs when cows are fed grain. But it also appears to be true for people who eat cows. Compared with conventional beef, grass-fed is lower in saturated fat and higher in omega-3s, the heart-healthy fatty acids found in salmon. ([See](#)

[pictures of the world's most polluted places.\)](#)

But not everyone is sold on its superiority. In addition to citing grass-fed meat's higher price tag — Shinn's ground beef ends up retailing for about \$7 a pound, more than twice the price of conventional beef — feedlot producers say that only through their economies of scale can the industry produce enough meat to satisfy demand, especially for a growing population. These critics note that because grass is less caloric than grain, it takes two to three years to get a pastured cow to slaughter weight, whereas a feedlot animal requires only 14 months. "Not only does it take fewer animals on a feedlot to produce the same amount of meat," says Tamara Thies, chief environmental counsel for the National Cattlemen's Beef Association (which contests the U.N.'s 18% figure), "but because they grow so quickly, they have less chance to produce greenhouse gases."

To Allan Savory, the economies-of-scale mentality ignores the role that grass-fed herbivores can play in fighting climate change. A former wildlife conservationist in Zimbabwe, Savory once blamed overgrazing for desertification. "I was prepared to shoot every bloody rancher in the country," he recalls. But through rotational grazing of large herds of ruminants, he found he could reverse land degradation, turning dead soil into thriving grassland. ([See TIME's special report on the environment.](#))

Like him, Coleman now scoffs at the environmentalist vogue for vilifying meat eating. "The idea that giving up meat is the solution for the world's ills is ridiculous," he says at his Maine farm. "A vegetarian eating tofu made in a factory from soybeans grown in Brazil is responsible for a lot more CO<sub>2</sub> than I am." A lifetime raising vegetables year-round has taught him to value the elegance of natural systems. Once he and Damrosch have brought in their livestock, they'll "be able to use the manure to feed the plants, and the plant waste to feed the animals," he says. "And even though we can't eat the grass, we'll be turning it into something we can."

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