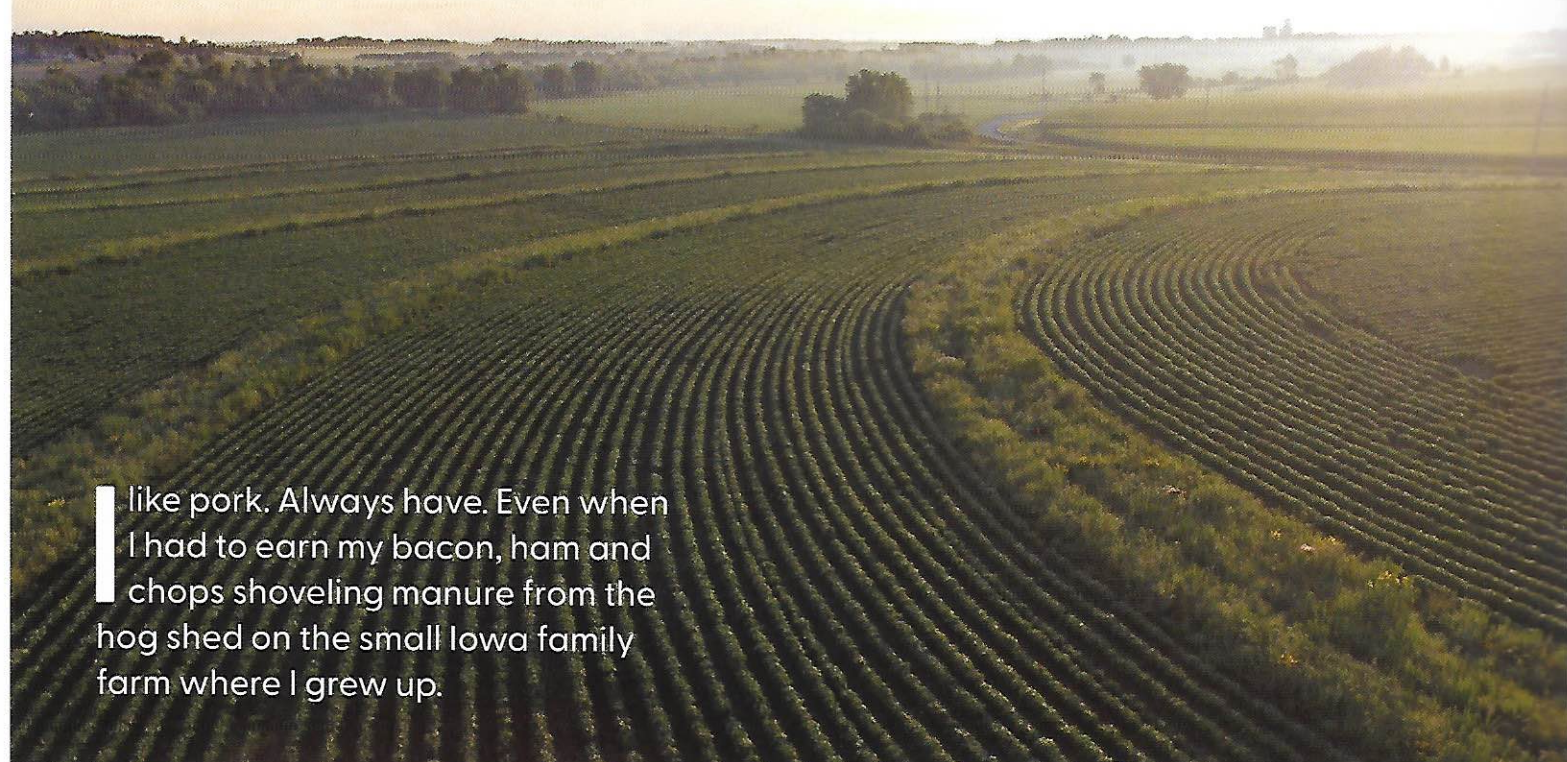


Food for thought...

about how we get our food

BY LARRY A. STONE | ELKADER, IOWA



I like pork. Always have. Even when I had to earn my bacon, ham and chops shoveling manure from the hog shed on the small Iowa family farm where I grew up.

As little as 10 percent of a crop field seeded with permanent prairie vegetation can reduce soil erosion and nutrient loss by up to 95 percent, according to Iowa State University research. Photo taken in Tama County, Iowa by Omar de Kok-Mercado.

But these days I shy away from “the other white meat,” as some marketing genius tried to depict it. I still like it, but I’ve concluded that our appetite for pork is jeopardizing human health.

That’s because most of Iowa’s annual output of more than 50 million hogs are raised in “factory farms,” or Concentrated Animal Feeding Operations (CAFOs.) Confined to huge buildings, the pigs’ urine and feces fall through slatted floors into deep pits, where the waste decomposes anaerobically for up to a year before being applied to fields.

Basic chemistry says that anaerobic decomposition of organic matter can produce some potent byproducts: methane, hydrogen sulfide, ammonia. Why

don’t the pigs die from inhaling those toxins? Well, because giant fans, running 24/7/365, blow the poisonous air out of the buildings. If the power should fail, the hogs would die within minutes.

Fortunately for the swine, the airborne toxins are dispersed outside of the building. Unfortunately, anyone living, working or going to school in the vicinity still has to breathe those poisons.

The result? A child who lives on an Iowa farm with a hog confinement is nine times as likely to suffer from asthma as other kids are. If a child attends a school within a half-mile of a CAFO, their chances of getting asthma increase about four times over the background rate.

Medical experts also warn that the

heavy use of antibiotics in food animals — 80 percent of all antibiotics used in the U.S. are given to livestock, not people — can lead to antibiotic resistance. Studies have documented the release of medically hard-to-treat Methicillin-Resistant Staphylococcus Aureus (MRSA) bacteria from these industrial-scale swine buildings.

Yes, we Americans like meat. But the sheer number of animals we consume—and the waste they produce—has planetary-scale impacts. University of Iowa researcher Chris Jones estimates that the waste from Iowa livestock—hogs, cattle, chickens, and turkeys—is roughly equivalent to the sewage from about 134 million people. By contrast, Iowa’s human population hovers around 3 million. And

human waste generally is treated in wastewater treatment plants or septic systems before returning to the environment. Livestock waste, by contrast, receives no treatment before it's spread on the land.

Call it unintended consequences, but the industrialization of agriculture in the past century—facilitated by fossil fuels—has dramatically impacted our environment. Witness the drained wetlands, bulldozed trees and fencerows and monoculture fields that have devastated habitat for everything from meadowlarks to mallards to jackrabbits.

Less obvious, but just as troubling, is how reliant on fossil fuels our agriculture has become. It now takes more than three calories of fossil fuel energy to produce one calorie of food energy. That's up from the 1940 estimate that farmers used one calorie of fossil fuel to produce 2.3 food calories.

Adding processing and transportation costs, it takes more than 10 calories of fossil fuel energy to put a calorie of food on your table, according to the University of Wisconsin's Center for Integrated Agricultural Systems.

It also takes huge amounts of chemicals to help produce those calories. Farmers dump 20 million tons of commercial fertilizers on U.S. cropland each year.

In addition, U.S. farmers annually use 1.1 billion pounds of pesticides to fight insects and weeds. And the insecticides don't just kill "bad" bugs. They wipe out insects that are essential to pollinate crops, as well as wasps and other insects that could prey on the pests.

Modern farmers have grown dependent on herbicides. I have not-so-fond memories of cutting weeds like cocklebur and velvetleaf in hot soybean fields. What a boon it was in the 1990s when Monsanto genetically modified soybeans to be resistant to its broad-spectrum herbicide, glyphosate, sold under the brand Roundup. You could just spray the field. The weeds died and the beans survived. No more "walkin' beans" for farm kids.

But, no surprise, weeds are adapting and becoming resistant, too. So, the chemical companies struggle to find more potent poisons to sell to farmers to try to keep ahead of the weeds.

Yes, farming has transformed our land. When my progressive great-grandfather bought our family's farm in 1919, he resolved to make a piece of "worthless" virgin prairie productive. So, he hired a neighbor to plow it up and, coincidentally, to vanquish some of the last prairie chickens in the state.

Sadly, not much has changed in a century. In the past dozen years, millions of acres of North and South Dakota prairie were converted to cornfields after corn prices shot up to \$6 or \$8 per bushel. The price spike—double the current market price—was due in part to demand for corn-based ethanol. Moreover, taxpayer-subsidized crop insurance eliminated much of the risk for planting land once thought best suited for livestock grazing and wildlife.

Soil scientists tell us that over-application of waste from

CAFOs on our corn and soybean fields "leaks" so much nitrogen and other nutrients into the Mississippi River system that we've created a "dead zone" the size of Connecticut in the Gulf of Mexico. The nutrients stimulate the growth of algae, which eventually die and decay, depleting oxygen needed by marine life. Corn grown in Iowa may destroy the livelihood of Louisiana shrimpers.

The good news? Agriculture could alleviate many of these problems, while helping tackle the climate change crisis. But we need to cut back on growing annual commodity crops—corn, soybeans, wheat—and transition to a more diverse agriculture.

The Intergovernmental Panel on Climate Change has estimated that changes in agriculture and forestry practices could reduce carbon and methane greenhouse gases by up to 20 percent.

Wes Jackson, at The Land Institute in Kansas, is experimenting with perennial food crops, such as Kernza, a deep-rooted intermediate wheatgrass.

Industrial hemp also has promise as an alternative crop, after being banned in this country for decades because of its similarity to marijuana.

Hemp provides food and fiber, can replace oil-based manufactured products and could revitalize rural America with factories and processing plants. (Mourning doves love it, too!)

Even with conventional crops, farmers can use no-till planting to save fuel and to avoid disturbing the soil and releasing carbon that plants sequester. Retaining carbon in the soil, or restoring it, also increases soil fertility and water holding capacity.

Cover crops, which keep growing plants in the ground after annual crops are harvested and before spring planting,

can reduce soil erosion and weed pressure and help build organic matter.

Iowa State University advocates for permanent prairie strips in crop fields. As little as 10 percent of a field planted with perennial prairie vegetation can cut soil erosion and nutrient loss up to 95 percent.

Putting livestock on permanent pastures rather than in confinement buildings can not only provide wildlife habitat, but also help rebuild organic matter in the soil. And animals on the land require far fewer antibiotics.

In his 1939 essay, "The Farmer as a Conservationist," Aldo Leopold observed that "soil, water, plants, and animals are an engine, subject, like any other, to derangement." We don't have to go back to 1939 to repair that engine. But with perennial crops, diverse crops, cover crops, livestock and wildlife on the land, we can, and should, transition to an agriculture that sustains and regenerates our soil, air and water.

—A boyhood playing in creeks and hunting quail and rabbits on an Iowa farm led Larry Stone to a 25-year career as an outdoor writer/photographer with the Des Moines Register. He's been an OWAA member since 1972, and is now a semi-retired freelancer.

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