

**THE HUMANE SOCIETY
OF THE UNITED STATES**

Guide to Vegetarian Eating



About Vegetarian Eating

Vegetarian eating is an effective and positive way to help farm animals.

Indeed, any reduction in the amount of animal products we consume makes a difference for animals.

Praise yourself for every step you take toward adjusting your food choices and know that with every vegetarian meal you enjoy, you are helping to prevent animal abuse.

*Thank you
for your compassion.*



**THE HUMANE SOCIETY
OF THE UNITED STATES**
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Decisions We Make

Dear Friend,

Food choices can be a very personal matter. It's your body, and you decide what you eat.

It's clear as well that our food preferences and decisions are shaped by all sorts of external factors. Travel the world, or take a look at ethnic communities within the United States, and you'll find an endless array of foods prepared in distinctive ways.

The great variety of cultural food preferences reflects a basic truth—that food selections, at some level, are conditioned choices.



▲ Wayne Pacelle visits a rescued pig at Poplar Spring Animal Sanctuary.

I grew up in an ethnic household—with a Greek mother and an Italian father. Like many second or third generation ethnic families, we were not orthodox in eating only Greek and Italian fare. We sampled many foods—Asian, Mexican, and, most of all, what might be described as traditional American cuisine.

We ate what was common in supermarkets and restaurants. We ate what was advertised. We ate what was affordable—and what the “experts” said we should.

The Humane Society of the United States (HSUS) believes that food choices should be significantly influenced by an ethical concern for animals. In the United States alone, 10 billion domesticated animals are reared and slaughtered for food each year—most of them raised in harsh, sunless, intensive confinement.

With the rise of industrialized farming and the many miseries it inflicts, the decisions we make two or three times a day—when we sit down to eat—have vast implications for animals. We are deciding, in effect, whether or not we will add our own weight to the immense burdens placed upon factory-farmed animals.

As an animal protection organization, The HSUS is constituted to prod lawmakers, corporations, and individuals to do better when it comes to our food policies and choices.

The HSUS Guide to Vegetarian Eating is published for the benefit of our members and other Americans who, for reasons of conscience and health, want to reduce their consumption of animal products or replace them entirely.

Choosing vegetarian foods does not subtract from the total amount of enjoyment we derive from eating. Rather, it can add to the pleasure of a good meal by opening up a new world of foods. More importantly, though, it marks an acceptance of personal responsibility. We human beings, after all, are not just consumers, answering to our appetites or to supply and demand. We are creatures of conscience, and each one of us has the power to turn away from the cruelties of today's factory farm.

Animals raised for food are not just objects or commodities—they are fellow individuals, with the same spark of life that we have, the same desire to live and enjoy their time on Earth. By making better food choices, we carry a message of compassion into the world, and our own lives are richer for it.

For the animals,

A handwritten signature in black ink that reads 'Wayne Pacelle'.

Wayne Pacelle
President & CEO
The Humane Society of the United States

**We are creatures of conscience,
and each one of us has
the power to turn away
from the cruelties of
today's factory farm.**



Eating for the Animals

Each year in the United States, 10 billion land animals are raised and killed for meat, eggs, and milk.¹ Just like the dogs and cats we welcome into our homes, chickens, pigs, turkeys, and cows have their own personalities, inquisitive natures, likes and dislikes, and—most importantly—the ability to feel pain, suffer from boredom and frustration, and experience joy.

Yet these animals are routinely mistreated on industrialized factory farms. **No federal law protects animals from cruelty on the farm, and most states exempt customary agricultural practices—no matter how abusive—from the scope of their animal cruelty statutes.** The welfare of farm animals often loses out to the economic interests of factory farmers, who can make larger profits by intensively confining animals and breeding them for rapid growth with little regard for the animals' suffering.

Birds

Of the 10 billion land animals killed annually in the United States, 95 percent are birds. The overwhelming majority are “broiler” chickens raised for meat—with one million killed each hour. Additionally, nearly 300 million laying hens² are raised for eggs, and 250 million turkeys³ are slaughtered for meat.



COMPASSION OVER KILLING

▲ *In the United States, approximately 95 percent of egg laying hens are confined in wire “battery cages” so small the birds can’t stretch their wings.*

Chickens exist in stable social groups. They can recognize each other by their facial features. They have 24 distinct cries that communicate a wealth of information to one another.... They are good at solving problems. As a trick at conferences I sometimes list these attributes, without mentioning chickens, and people think I’m talking about monkeys.^a

—Chris Evans, Ph.D., Professor of Psychology, Macquarie University, Sydney, Australia



COMPASSION OVER KILLING

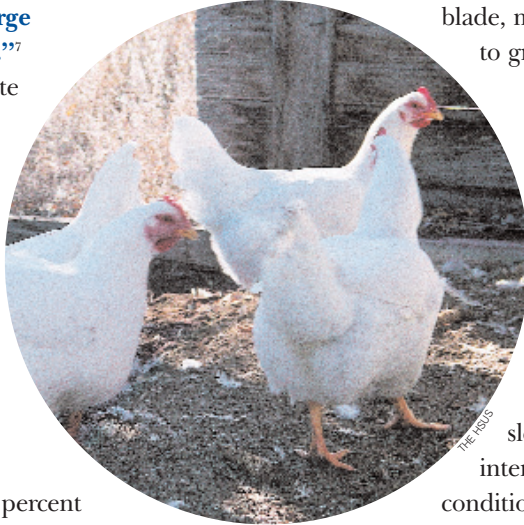
◀ *Every hour, one million chickens raised for meat are slaughtered after having spent their shortened lives inside ammonia-filled and barren sheds.*

On factory farms, birds raised for meat are confined by the tens of thousands in barren sheds,⁴ unable to carry out many normal behaviors, including roosting and foraging.⁵ The most significant assault on their welfare is fast growth.⁶ **The poultry industry has used selective breeding and growth-promoting antibiotics to produce birds whose bodies “are on the verge of structural collapse.”**⁷

To put their growth rate into perspective, the **University of Arkansas Division of Agriculture reports, “If you grew as fast as a chicken, you’d weigh 349 pounds at age 2.”**⁸ As a result, 90 percent of broiler chickens have painful⁹ leg problems¹⁰ and 26 percent suffer chronic pain as a result of bone disease.¹¹

After approximately 45 days for broiler chickens¹² and 16 weeks for turkeys,¹³ the birds have reached market weight. Workers hastily and roughly catch the animals, causing dislocated and broken hips, legs, and wings, as well as internal hemorrhages.¹⁴ Crammed into crates stacked one atop another on trucks, the birds aren’t typically given any food, water, or protection from extreme temperatures during their journey to the slaughterhouse.¹⁵

Like birds raised for meat, chickens in the egg industry suffer immensely—beginning right



after birth. Male chicks are considered by-products, as they’re unable to lay eggs and aren’t bred for meat production. **Millions each year are gassed, crushed, or thrown into garbage bins to die from dehydration or asphyxiation.**¹⁶ Most female chicks are painfully mutilated without any anesthesia.¹⁷ The tips of their sensitive beaks are sliced off with a hot blade, making it difficult for them to grasp food.¹⁸

Approximately 95 percent¹⁹ of hens in U.S. factory farms are intensively confined in small wire “battery cages,” stacked several tiers high and extending down long warehouses. **Each hen is given less space than the area of a letter-sized sheet of paper**²⁰ in which to eat, sleep, and lay eggs. This intensive confinement in barren conditions makes nesting impossible—the most significant source of frustration for battery-caged hens—and prevents them from engaging in other natural behaviors, including dust bathing and foraging.²¹ **While many countries are phasing out the battery cage system, U.S. egg producers still overcrowd hens in cages so small the birds can’t even spread their wings.**²²

After one to two years, the hens are no longer profitable and are forcibly removed from the cages, their limbs often torn²³ by teams working at hourly rates of up to 1,500 birds, with individual workers grabbing as many as seven hens at a time.²⁴ As with broiler chickens and

► *As ducks and geese raised for a delicacy called **pâté de foie gras** are violently force-fed an unnatural amount of food, their livers become diseased and swell to more than 10 times their healthy size.*

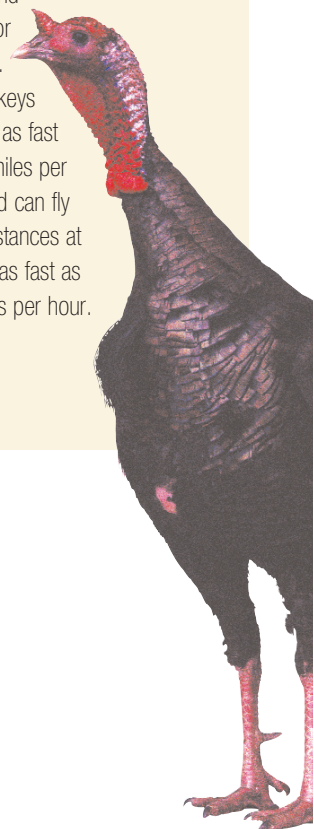


CITIZENS INITIATIVE FOR THE BANNING OF FORCE FEEDING

About Chickens and Turkeys

In nature, chickens live in stable social groups of as many as 30 birds and, like dogs and other animals, they establish social hierarchies. The flock mates coordinate their activities, dust bathing, foraging, resting, and roosting together. These birds use their sensitive beaks as we use our hands—for exploring their surroundings, picking up items, feeding, and more. They forage (search for food) by scratching with their claws and pecking with their beaks more than 10,000 times in a single day. Highly intelligent, chickens have communication skills so developed that they use different alarm calls depending on whether a predator is traveling by land or in the sky.

Turkeys, too, are active, social, and complex. These birds, who can live as long as 12 years, have strong feet and legs for walking and scratching, wings with a span of 4–5 feet for rapid flying, and beaks for pecking. Wild turkeys can run as fast as 25 miles per hour and can fly short distances at speeds as fast as 55 miles per hour.



About Pigs

Many people consider pigs to be equal—or superior—to dogs in intelligence. Pennsylvania State University professor Stanley Curtis conducted research that found pigs can respond to verbal communications and even play computer games, using their snouts to move joysticks that control cursors on the screen to hit their targets.

In nature, pigs choose to live in social groups and are so communal that they even sleep together, huddled in a nest. They spend many of their waking hours rooting and foraging, making great use of their snouts, which are highly sensitive tools that help them find fruits, roots, mushrooms, grasses, earthworms, snakes, and rodents.

The bond between piglets and their mother is very strong. Before giving birth, the pregnant sow builds a large nest for farrowing, or birthing, her piglets and for protecting them after they're born. In nature, pregnant sows are very particular about the location and quality of this nest. A mother may walk 3–6 miles before finding a sufficiently isolated and protected spot, and she can take as long as 10 hours to build her nest.



Aren't There Laws That Protect Farm Animals?

From life on a factory farm to death at a slaughter plant, animals raised for meat, eggs, and milk suffer immensely. And, as shocking as it may be, much of the abuse these animals endure is perfectly legal.

There are no federal animal welfare laws regulating the treatment of the billions of animals raised for food while on the farm. And while all 50 states have cruelty statutes, most explicitly exempt common farming practices, no matter how abusive.

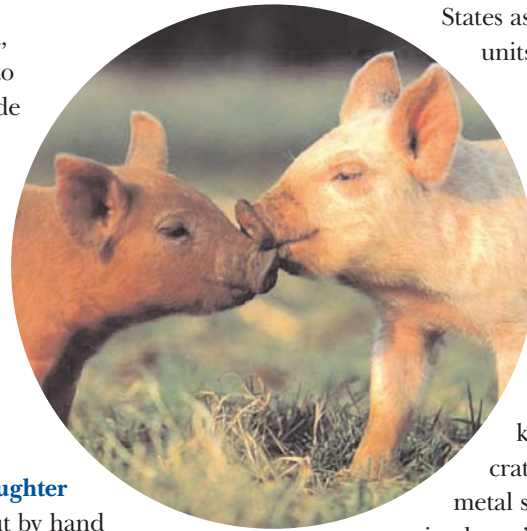
turkeys, egg-laying hens are crammed in crates stacked on transport trucks and are typically denied food, water, or protection from extreme temperatures during their journey to slaughter.²⁵

At the slaughter plant, the birds are dumped onto conveyors and hung upside down in shackles by their legs. **The U.S. Department of Agriculture (USDA) does not require that the birds be rendered unconscious before they are slaughtered, as the agency excludes poultry from the federal Humane Methods of Slaughter Act.**²⁶

Their throats are cut by hand or machine. Slaughter lines run at speeds of as many as 8,400 chickens per hour, so mistakes are common and some birds are still conscious as they enter tanks of scalding water intended to loosen their feathers.²⁷

Pigs

Pigs are intelligent, highly social animals, yet factory farmers treat the more than 100 million pigs²⁸ slaughtered annually in the United States as meat- or piglet-producing units.



Female pigs, known as sows, suffer through rapid cycles of impregnation, birthing, and nursing, all while intensively confined. During their four-month pregnancies, an estimated 60–70 percent²⁹ of sows are kept in barren “gestation crates”—two-by-seven-foot metal stalls³⁰—so small the animals can't even turn around. **While**

many countries have banned gestation crates because of their inherent cruelty, their use is still common in the U.S. pork industry.

Before giving birth, sows are moved into equally restrictive “farrowing crates”—stalls that are designed to separate a mother pig from her nursing piglets and that are so small that the



◀ *Pregnant sows are kept in two-foot-wide “gestation crates” so cruel they’ve been banned in many countries.*

► *Calves raised for veal are tethered inside individual stalls so small they can't even turn around. After 16 weeks, the calves are slaughtered.*

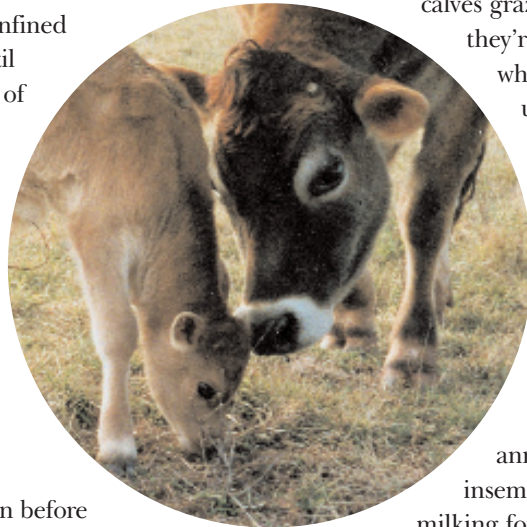


mother can only stand up and lie down. After the piglets are weaned prematurely,³¹ the cycle begins again for the mother pig, who averages 2.1–2.5 litters each year.³² Once the sows can no longer reproduce efficiently, they are sent to slaughter.

Pigs raised for meat undergo painful mutilations—including castration and tail docking—without anesthesia.³³

For six months, they're confined in filthy sheds or pens until they reach market weights of more than 250 pounds.³⁴ Like birds, pigs aren't typically given food, water, or protection from extreme heat or cold during their transport to slaughter.

According to the federal Humane Methods of Slaughter Act, pigs and other livestock are to be rendered insensible to pain before they're shackled and killed.³⁵ However, a January 2004 report by the U.S. General Accounting Office on the USDA's enforcement of the Act found that some animals are still conscious as they are hung upside down and their throats are slit.³⁶



Cattle

Every year in the United States, approximately 35 million cattle are killed for beef,³⁷ 9 million cows are raised for milk,³⁸ and 1 million calves are raised for veal.³⁹

Most beef cattle endure painful mutilations such as castration, dehorning, and branding⁴⁰ without any anesthesia.⁴¹ For seven months, calves graze on the range⁴² before they're transported to feedlots,⁴³ where they're fattened on unnatural diets. Within another six months, they reach market weights of 1,200 pounds⁴⁴ and are trucked to slaughter—with no food, water, or protection from the elements during the journey.

Dairy cows endure annual cycles of artificial insemination, mechanized milking for 10 out of 12 months⁴⁵ (including 7 months of their 9-month pregnancies), and giving birth. **Many cows are given antibiotics and hormones to get the highest possible milk yield.** This rigorous cycle overburdens the cows, who are considered

About Cattle

Cattle—including cows, heifers, steers, bulls, and calves—are complex individuals. Scientists have found that these animals nurture friendships. One in a small herd, for instance, will join with as many as three other animals to form a small group of friends. The animals in the group will spend most of their time together, frequently grooming and licking each other. They will tend to dislike other cattle who are not part of the group. And, like most animals, cattle also experience strong emotions such as pain, fear, and anxiety.

As in dogs, the tails of cattle provide insight into the animal's condition and mood. If the tail is hanging straight down, the animal is relaxed, grazing, or walking. If the tail is tucked between the animal's legs, he or she is cold, sick, or frightened. A tail held in a straight line, perhaps with a kink, signifies an animal in a playful mood, which is quite common for these social individuals.



[Pigs] have the cognitive ability to be quite sophisticated. Even more so than dogs....^b

—Donald Broom, M.Sc., Ph.D., Cambridge University Veterinary School

About Aquatic Animals

The Earth has been home to aquatic animals for more than 480 million years. Today, a vast diversity of aquatic wildlife inhabits the oceans, with animals having life spans ranging from a few weeks to 50 years or more.

Fish are fascinating individuals. Some fish have taste buds on their lips, and some use their mouths to build homes and even take care of their children. For instance, some father fish carry eggs in their mouths until the babies hatch. Others open their mouths and let their babies swim inside if their safety is threatened.

Crustaceans—such as shrimp, lobsters, and certain crabs—are characterized by their jointed appendages and hard shells. Lobsters live for about 15 years, and some may live to be 100. Most adult lobsters live anywhere from 10 to 600 feet beneath the ocean's surface. Despite their poor vision, they can navigate these dark and shadowy areas. Their entire body acts as a sense organ; tiny hairs covering the body are sensitive to touch. They also have “hedgehog hairs” along the inside of the pincers on their walking legs. These short bristles serve them in a manner similar to the way our taste buds work. If a lobster likes the taste of something these bristles detect, he or she will pass the food to the mouth.



▲ *On dairy factory farms, cows are artificially inseminated and milked for 10 of 12 months each year until their productivity wanes and they are killed.*

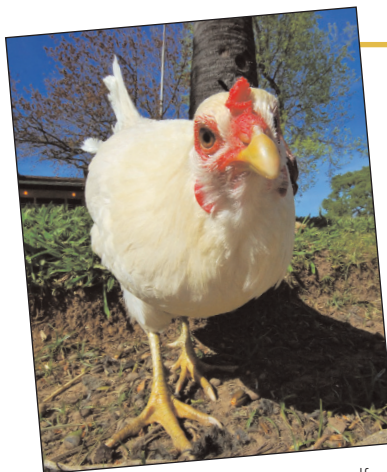
“productive” for only two years⁴⁶ and are slaughtered when four years old.⁴⁷

A by-product of the dairy industry is a calf per year per cow. Within their first few days of life, the calves are taken from their mothers.⁴⁸ Females usually join the dairy line, while males are often sold to veal farmers. **Indeed, the veal industry wouldn't exist without the dairy industry.** Calves raised for veal are confined



and tethered in individual stalls so small they can't turn around during their entire four-month lives before slaughter.⁴⁹ Veal crates are widely known for their inherent cruelty. **As with conventional battery cages and gestation crates, veal crates are being phased out in the European Union yet are still in use in the United States.**

Cows suffer the same mistreatment as pigs during both their transport and slaughter.



Don't Animals Have to Be Treated Well to Be Productive?

Animal agribusiness representatives often claim that it's in their own interests to treat animals well, and a common defense of factory farming is that “only happy animals produce.” But as farm animal welfare expert Donald Broom, M.Sc., Ph.D., explains, “efforts to achieve earlier and faster growth, greater production per individual, efficient feed conversion and partitioning, and increased prolificacy are the causes of some of the worst animal welfare problems.”^c

According to poultry welfare expert Joy Mench, Ph.D., “[i]t is now generally agreed that good productivity and health are not necessarily indicators of good welfare....Productivity...is often measured at the level of the unit (e.g., number of eggs or egg mass per hen-housed), and individual animals may be in a comparatively poor state of welfare even though productivity within the unit may be high.”^d



◀ *Fish caught in nets can suffer as they're quickly brought to the ocean's surface.*

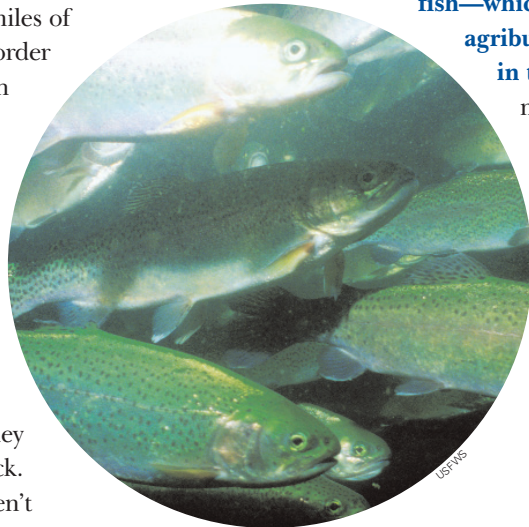
[I]n industrial agriculture, this link between productivity and well-being is severed. When productivity as an economic metric is applied to the whole operation, the welfare of the individual animal is ignored.

—Agricultural ethicist Bernard Rollin, Ph.D.⁶

Aquatic Animals

Commercial fishers use a variety of techniques, from setting miles of line with baited hooks in order to catch large animals such as sharks, to ensnaring schools of fish in overcrowded large nets towed by trawlers. When deep sea fish are quickly brought to the surface, some may experience decompression and their organs can burst before they suffocate on the boat's deck.

The industry's nets aren't discriminating, catching fish, sea turtles, birds, and other animals. **The United Nations Food and Agriculture Organization estimates that one in four animals caught in fishing gear dies as "bycatch"—unwanted or unintentional catch.**⁵⁰ Leading marine mammal scientists have stated that entanglement in fishing gear is one of the largest threats to whales, dolphins, and porpoises worldwide, killing more than 300,000 animals per year.⁵¹



Another significant animal welfare problem is aquaculture—the factory farming of fish—which is the fastest growing agribusiness industry

in the world. By weight, more than one-third of all aquatic animals eaten in the United States—800 million pounds—are now raised in settings⁵² reported to be “basically an aquatic version of broiler chicken production.”⁵³



▲ *An increasing percentage of aquatic animals are raised in factory farm systems in the United States every year.*



Eating for Your Health

With each passing year, more Americans suffer from obesity, heart disease, cancer, diabetes, stroke, and high blood pressure.

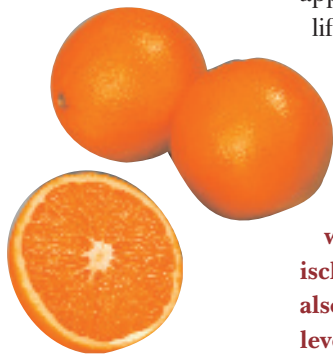


Choosing vegetarian options over meat, eggs, and dairy products not only helps animals and the environment—it helps our health, too.

Nutrition Experts on Vegetarian Diets

The American Dietetic Association, the leading nutrition authority in the United States, states that “appropriately planned vegetarian diets are healthful, nutritionally adequate, and provide health benefits in the prevention and treatment of certain diseases. Well-planned vegan and other types of vegetarian diets are appropriate for all stages of the life cycle, including during pregnancy, lactation, infancy, childhood, and adolescence. . . .

Vegetarians have been reported to have lower body mass indices than nonvegetarians, as well as lower rates of death from ischemic heart disease; vegetarians also show lower blood cholesterol levels; lower blood pressure; and lower rates of hypertension, type 2 diabetes, and prostate and colon cancer.”¹



Basic Vegetarian Nutrition

While studies have shown the many health benefits of vegetarian eating, merely removing animal products from your diet doesn't automatically ensure good health. As with any eating plan, it's important to know some basic nutrition information.



Staying physically active, avoiding foods high in saturated fat and cholesterol, and eating lots of fresh fruits and vegetables is good advice for anyone. Fortunately, this isn't hard for most vegetarians. However, there are some key nutrients to look out for:



Essential Omega-3 Fatty Acids. These fatty acids are important for a variety of reasons—including maintaining good heart and cardiovascular health—and it's important to have a reliable source, such as walnuts, ground flax seeds, flax oil, hempseed oil, canola oil, and supplements.



Vitamin B12. When nonvegetarians consume animal products, they also ingest this vitamin that is made by bacteria in some animals' bodies. Vegetarians can take a common multiple vitamin or B12 supplement, or enjoy fortified cereals or soy milk to get a reliable source of B12.

How Healthy Is Fish?

While the fishing and aquaculture industries tout the health benefits of fish consumption, what they don't tell us is that many fish carry high levels of mercury from industrial pollution that pose serious risks.⁹

Isn't Chicken Good for You?

Chicken meat is high in fat and cholesterol and can contain high levels of arsenic, which the poultry industry feeds to the birds to make them grow faster.

Cholesterol and Fat. Chicken meat has more cholesterol per calorie than beef and virtually the same amount of fat. Even when the chicken's skin is removed, the dark meat is thrown away, and a nonfat cooking method is used, chicken still derives 23 percent of its calories from fat.

Arsenic. After examining 5,000 samples of chicken meat, researchers from the National Institutes of Health and the USDA's Food Safety Inspection Service reported alarmingly high levels of arsenic contamination in the flesh of broiler chickens.^b In fact, the amount of arsenic found in chicken was six to nine times that allowed by the U.S. Environmental Protection Agency (EPA) for drinking water. **A bucket of chicken from a typical fast food restaurant would be expected to have as much as almost 50 times the amount of arsenic allowed in a glass of water.^c**



Vitamin D. This vitamin is important for good bone health. Our bodies make vitamin D when we're exposed to sunlight. Spending some time outdoors every day without sunscreen and, during the winter months, eating vitamin D-fortified foods or taking a supplement is a good idea for anyone, vegetarian or not.

Protein. A common misperception about vegetarian diets is that they don't provide enough protein. Numerous studies have shown that this simply isn't the case. Eating an adequate number of calories derived from any normal variety of plant foods generally gives us all the protein our bodies need.

Iron. Our bodies need iron to keep oxygen circulating throughout the bloodstream. In extreme cases, an iron deficiency can lead to fatigue and other disorders. Fortunately, iron is plentiful in animal-free sources. (For even greater iron absorption, eat foods high in vitamin C, like citrus fruits and bell peppers.)

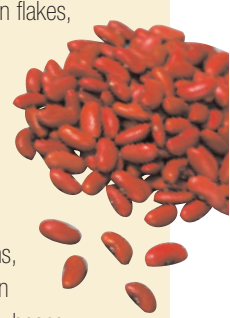
Calcium. Everyone knows we need calcium for strong bones, but what most people don't know is that our risk of osteoporosis can be lowered by reducing sodium intake, eating more fruits and vegetables, exercising, and getting enough vitamin D from sunlight or fortified food sources.

Protein-Rich and Vegetarian




Almonds, black beans, brown rice, cashews, garbanzo beans (chickpeas), kidney beans, lentils, lima beans, peanut butter, pinto beans, quinoa, seitan (a wheat-based mock meat), soybeans, soy milk, sunflower seeds, textured vegetable protein (TVP), tofu, vegetarian hot dogs and burgers

Iron-Rich and Vegetarian



Black beans, bran flakes, cashews, Cream of Wheat®, garbanzo beans (chickpeas), Grape-Nuts®, kidney beans, lentils, navy beans, oatmeal, pumpkin seeds, raisins, soybeans, soy milk, spinach, sunflower seeds, tofu, tomato juice, whole wheat bread

Calcium-Rich and Vegetarian



Almonds, black beans, broccoli, calcium-fortified orange juice, collard greens, great northern beans, kale, kidney beans, mustard greens, navy beans, pinto beans, sesame seeds, soybeans, soy milk, textured vegetable protein (TVP), tofu



A diet high in cholesterol and saturated fat can increase the risk of stroke, heart disease, and certain forms of cancer. Conversely, diets containing large amounts of vegetables and fruits offer protection against stroke, heart attack, diabetes, and various cancers, including colon, prostate, and likely breast, lung, and pancreas cancers. The foods highest in cholesterol and saturated fats are meats, dairy products, and eggs, so vegetarians enjoy a significant health advantage when it comes to protecting themselves from the leading killers and disablers of Americans. Non-animal-based diets are also far healthier for our planet and the rest of its inhabitants.



—David O. Wiebers, M.D., and Jennifer Leaning, M.D., serve on the board of directors of The HSUS. Dr. Wiebers is chair of the board, and Dr. Leaning is chair of the board's International Committee.



Eating for the Environment

Factory Farms and Public Health

- ▶ "In 1999, a University of North Carolina study found that neighbors of a 6,000-head hog factory, compared with a group of people in an area with no large-scale confinement units, reported more headaches, runny noses, sore throats, excessive coughing, diarrhea, and burning eyes."^a
- ▶ "Recent studies have found that children who attend schools near pig factory farms suffer elevated levels of asthma."^b
- ▶ "In February 2002, Iowa State University and the University of Iowa released a joint report finding that hydrogen sulfide and ammonia emissions from large-scale animal confinement facilities can pose a health risk to humans and that Iowa should develop air quality standards to stop factory farm air pollution."^c
- ▶ "In January 2004, the American Public Health Association passed a resolution urging government officials to adopt a moratorium on factory farms. Air quality near a factory farm is so poor that nearby residents experience respiratory problems, nausea, and severe headaches."^d

As factory farms intensively confine greater numbers of animals, the toll of such industrialized practices weighs heavily on the environment, depleting resources and contaminating habitats. **Toxins, chemicals, gases, and uncontainable amounts of manure from these facilities pollute the soil, water, and air, causing massive environmental degradation and deteriorating public health.**

Inefficient Use of Land and Food

Nearly 10 percent of the U.S. land area is used to grow feed for animals raised for meat, and another 32 percent is used for grazing cattle, making livestock production the largest single use of land in the country.¹ To produce a single pound of meat, egg, or milk protein, depending on the species, 3–12 pounds of feed protein are needed.² Producing all of this feed for farm animals uses more land, water, fertilizer, pesticides, and energy than would be used if we simply ate plant foods directly. Production of chicken meat, for instance, requires 14 times as much energy and 40 percent more cropland per unit of protein as the production of soybeans.³



▶ **A U.S. Senate report noted, "Spills of liquid animal waste directly into water... can result in fish kills, odor and overall degradation of water quality."**^e



▶ **Manure lagoons holding concentrated waste can leak, contaminating the surrounding land and water.**

Polluting Air, Water, and Land

Annually in the United States, farm animals produce 1.4 billion tons of feces and urine,⁴ and much of this waste—millions of gallons—eventually finds its way into neighboring ecosystems, devastating the environment and wildlife:

- ▶ In 2006, Premium Standard Farms was ordered to pay \$4.5 million in damages to three families affected by odors from one of its hog factory farms in Missouri.⁵
- ▶ About 13 percent of the domestic drinking-water wells in the Midwest contain unsafe levels of nitrates from fertilizers and manure lagoon spills or leaks.
- ▶ In 2001, the EPA forced five hog factory farms to supply bottled water for local residents because activities at the farms had contaminated the local drinking water.⁶
- ▶ A 1997 study found that 82 percent of animal farming operations producing nitrogen in excess of land capacity and 64 percent with excess phosphorus were poultry operations.⁷
- ▶ A recent report by the Chesapeake Bay Foundation identified chicken manure as the primary cause of pollution in the bay.⁸



◀ *Tropical rainforests are being clear-cut primarily to produce pasture or cropland for growing animal feed, devastating threatened animal and plant species.*

Resources	To Produce One Pound of Processed Soy Protein	To Produce One Pound of Processed Animal Protein
Land Needed	1	6 to 17
Water Needed	1	4.4 to 26
Fossil Fuel Needed	1	6 to 20

▲ *In this table,¹² the amount needed to produce one pound of processed soy protein is arbitrarily given the value of 1; the amount needed to produce one pound of processed animal protein varies by species and so is shown in a range.*

- ▶ A U.S. Senate report noted, “Spills of liquid animal waste directly into water have an immediate environmental impact, choking out fish and other aquatic life.”⁹
- ▶ One study estimated that between 1990 and 2000, farm animal manure was responsible for 74 percent of fish kills caused by agriculture and led to more fish kills than municipal and industrial sources of pollution, combined.¹⁰
- ▶ Aquaculture destroys coastal habitats and produces fish waste and harmful chemical pollutants.¹¹

Wasted Resources

A plant-based diet requires far fewer resources to sustain life than the typical American diet, which is heavy on animal products.

For perspective, note how many more resources are needed to produce one pound of processed animal protein compared to one pound of processed soy protein (see the table above).

According to a 2006 report by the United Nations Food and Agriculture Organization, the livestock sector damages the climate at a rate that surpasses emissions from cars and SUVs.¹

Union of Concerned Scientists—“Over the last 50 years, the way food animals are raised and fed has changed dramatically—to the detriment of both animals and humans. Many people are surprised to find that most of the food animals in the United States are no longer raised on farms at all. Instead they come from crowded animal factories, also known as large confined animal feeding operations (CAFOs).”ⁱ

Natural Resources Defense Council—“Factory farms, which mass-produce animals in assembly-line fashion, have harmed aquatic life, human health and ecosystems across the nation. As industrial-sized farms stagger under the vast burden of manure they are generating, environmental disasters are inevitable.”⁹

Waterkeeper Alliance—“[T]he vast majority of America’s meat and produce are controlled by a handful of ruthless monopolies that house animals in industrial warehouses where they are treated with

What Environmentalists Say

unspeakable and unnecessary cruelty. These meat factories destroy family farms and rural communities and produce vast amounts of dangerous pollutants that are contaminating America’s most treasured landscapes and waterways.”ⁱⁱ

Sierra Club—“Animal husbandry practices that accommodate the natural ways of animals tend to be much more in tune with sustainable and non-polluting farm practices.”ⁱⁱⁱ

Worldwatch Institute—“[A]s environmental science has advanced, it has become apparent that the human appetite for animal flesh is a driving force behind virtually every major category of environmental damage now threatening the human future—deforestation, erosion, fresh water scarcity, air and water pollution, climate change, biodiversity loss, social injustice, the destabilization of communities, and the spread of disease.”^{iv}

United Nations Commission on Sustainable Development—“A report from the International

Water Management Institute, noting that 840 million of the world’s people remain undernourished, recommends finding ways to produce more food using less water. The report notes that it takes 550 liters of water to produce enough flour for one loaf of bread in developing countries... but up to 7,000 liters of water to produce 100 grams of beef.”^{vk}

United Nations Food and Agricultural Organization—“The livestock sector emerges as one of the top two or three most significant contributors to the most serious environmental problems, at every scale from local to global. The findings of this report suggest that it should be a major policy focus when dealing with problems of land degradation, climate change and air pollution, water shortage and water pollution and loss of biodiversity. Livestock’s contribution to environmental problems is on a massive scale and its potential contribution to their solution is equally large. The impact is so significant that it needs to be addressed with urgency.”^{vi}



Making the Switch

Whether you do it to help animals, the environment, or yourself, **transitioning to vegetarian eating can take as little as a day or as long as you need.** Some people

become overwhelmed at the thought of changing their dietary habits, so it may surprise you to know that becoming vegetarian can be as easy as 1-2-3.

Step ONE

Swap This for That

If you take a quick look at your weekly menus, you'll probably see the same dishes popping up a few times. So, for two days a week, take your comfort foods and tweak them a bit to make vegetarian versions of those favorites. Swap the chicken in your wraps or burritos for black beans or grilled vegetables. Instead of sour cream, spoon on some guacamole or salsa. Replace the meat sauce on your pasta with spicy marinara. Trade burgers and dogs for any one of the many meatless versions on the market. After two weeks, you'll be well on your way!

Step TWO

Flexi-What?

Now that you've moved through step one, consider yourself a full-fledged flexitarian—a part-time vegetarian. Congratulations! Take the next two weeks to incorporate new foods, recipes, and products into your menu. Stroll through your local grocery store's "natural foods" aisle, or pop into your community health food store to fill your cart with some of the fantastic vegetarian items on the market. See pages 13 and 14 for a glossary of ingredients and a list of products that may be new to you, and turn to pages 15–18 for sample recipes. Have fun in the kitchen and bon appétit!

Step THREE

Whole (Veggie) Hog

Add just a few more days of vegetarian eating to your week and you've done it! At every meal, you're helping to make the world a better place, simply by enjoying vegetarian fare.

Simple Menu Suggestions

If you're scratching your head for some ideas on what to eat, here are some easy and delicious suggestions.

Breakfast

- ▶ Fruit smoothie
- ▶ Oatmeal with cinnamon, raisins, and maple syrup
- ▶ Cereal with soy or rice milk
- ▶ Toast with jam or peanut butter (or both!)
- ▶ Soy yogurt with fresh fruit

Lunch

- ▶ Veggie burger and fries
- ▶ Peanut butter and jelly sandwich
- ▶ Black bean and grilled vegetable wrap
- ▶ Lentil soup with sourdough bread
- ▶ Pasta spirals with sautéed vegetables and hearty marinara
- ▶ Mock meat sandwich

Dinner

- ▶ Grilled vegetable and marinated tofu fajitas
- ▶ Pasta with marinara sauce and vegetables
- ▶ Tacos with veggie burger crumbles and fresh vegetables
- ▶ Vegetable stir-fry over rice or pasta
- ▶ Eggplant manicotti
- ▶ Veggie chili with Italian bread

Menus and Glossary



Soy Cheese. The nondairy version of cow's milk cheese is made from soybeans. Available in slices, blocks, and even shreds for pizza or tacos.

Soy Margarine. The vegetarian alternative to butter doesn't have the cholesterol found in its animal product counterparts.

Soy and Rice Milks. Nowadays, you're hard pressed to find a store that doesn't carry a variety of nondairy milks. These soy- or rice-based drinks come in several different flavors, including vanilla, chocolate, and strawberry.



Ingredients to Stock the Shelves

Fear of the unknown can make you stop dead in your tracks. But there's nothing to keep you from walking down the aisles of your local market or health food store once you've glanced through this guide for vegetarian alternatives and ingredients!

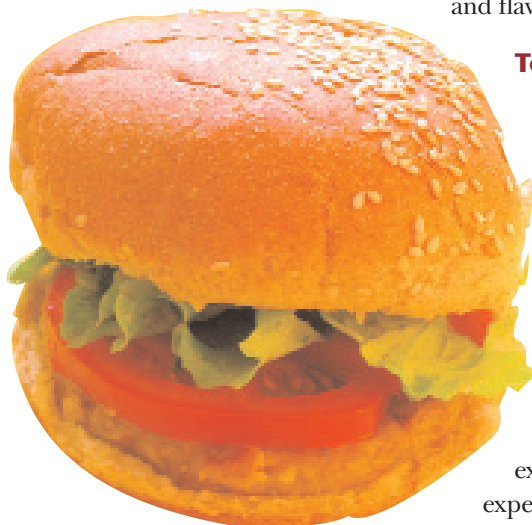
Ener-G's Egg Replacer®. This ready-made product is the perfect substitute for eggs in baking.

Nutritional Yeast. An inactive yeast chock-full of vitamins and minerals, nutritional yeast gives a cheesy flavor to soups, sauces, and casseroles.

Seitan. Pronounced *SAY-tan*, this high-protein "wheat meat" can be used in place of meat in any dish. Find it prepackaged in a variety of flavors.

Tahini. This calcium-rich, nutty flavored paste is made from sesame seeds and makes sauces, spreads, and dressings creamy and delicious.

Tempeh. Typically made from soybeans, this meat substitute has a wonderful texture and flavor.



Textured Vegetable Protein (TVP).

This dried soy product just needs a little water to turn it into a simple, yet delicious, vegetarian ground "beef."

Tofu. A staple in Asian cuisine, tofu is a high-protein meat alternative. It comes in a variety of textures—from silken (great for dressings and dessert fillings) to extra-firm (perfect for a stir-fry)—so experiment to your stomach's content!



Shopping Suggestions*

The vegetarian marketplace has exploded over the past 10 years, with major grocery stores carrying a fantastic variety of animal-friendly products. As you reduce the amount of animal products in your weekly menu, you don't have to give up the tastes you've enjoyed—just substitute vegetarian versions!

Meat-Free "Meat"



Bacon: Yves' Canadian Veggie Bacon and Lightlife's Smart Bacon and Fakin' Bacon

Chicken: White Wave's Chicken-Style Seitan and Chicken-Style Wheat Meat

Chicken Nuggets and Strips: Morningstar Farms' Meal Starters Chick'n Strips, Nate's Chicken-Style Meatless Nuggets, Lightlife's Chick'n Strips, and Health Is Wealth's Chicken-Free Fingers and Buffalo Wings

Chicken Patties: Soy Boy's Okara Courage Burger and Gardenburger's Flame-Grilled Chick'n and BBQ Chik'n



Cold Cuts: Lightlife's Smart Deli (Country Ham, Old World Bologna, and Three Peppercorn Pastrami), Yves' The Good Deli (Veggie Bologna, Veggie Ham, Veggie Salami, and Veggie Turkey), and Turtle

Island Foods' Tofurky

Ground Beef: Boca's Ground Burger, Morningstar Farms' Ground Meatless Crumbles, Yves' Ground Round, and Lightlife's Smart Ground and Smart Menu Crumbles

Hamburgers: Boca's Vegan Original, Gardenburger's GardenVegan, Whole Foods Market's 365 Organic Vegan Veggie Burger, and Amy's California Veggie Burger and Texas Burger



Hot Dogs: Lightlife's Smart Dogs and Tofu Pups and Yves' Veggie Dogs, Tofu Dogs, and Hot 'n' Spicy Chili Dogs

Sausage: Turtle Island Foods' Tofurky gourmet sausages, beer brats, and kielbasa; Lightlife's Gimme Lean; Gardenburger's Meatless Breakfast Sausage; and Yves' Veggie Breakfast Patties and Links



Dairy-Free "Dairy"

Butter: Shedd's Willow Run Soybean Margarine and Earth Balance's Soy Garden and Earth Balance Natural Margarine

Cheese: Follow Your Heart's Vegan Gourmet and Tofutti's Soy-Cheese Slices



Cream Cheese: Tofutti's Better Than Cream Cheese

Eggs: Ener-G's Egg Replacer and Fantastic Foods' Tofu Scrambler

Ice Cream: Turtle Mountain's Soy Delicious product line, Tofutti's ice cream product line, and Whole Soy's Frozen Cultured Soy product line

Mayonnaise: Follow Your Heart's Vegenaïse and Nasoya's Nayonaïse

Sour Cream: Tofutti's Sour Supreme



Yogurt: Whole Soy's Creamy Cultured Soy, Silk's Cultured Soy, and Stonyfield Farm's O'Soy

*All company, product line, and product names are trademarks (registered or unregistered) of their respective corporations.

Dining Out Vegetarian-Style

The National Restaurant Association** reports that 8 out of 10 restaurants—from fast food to gourmet—are responding to the growing demand for animal-friendly fare by serving vegetarian entrées.

** "Tableservice Restaurant Trends, 2001," www.restaurant.org/dineout/nutrition.cfm.

InThe HSUSKitchen

Recipes from Our Staff



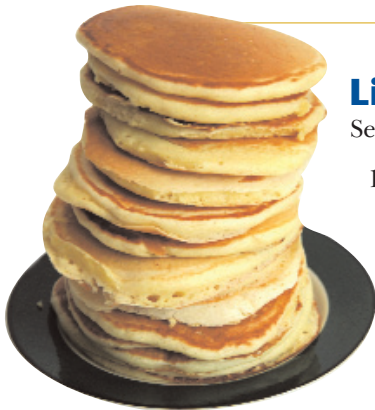
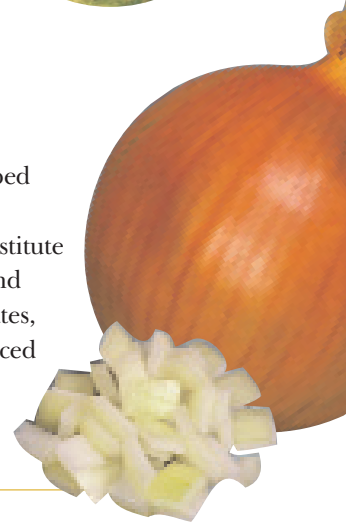
Savory Tofu Scramble

Serves 4

1 medium onion, chopped
1 vegetable bouillon cube, crumbled
1 14-ounce package extra-firm tofu, drained and crumbled
1 tablespoon soy sauce
1 jalapeño pepper, diced
2 teaspoons turmeric seasonings, to taste



In a large, nonstick pan, sauté the chopped onion with the crumbled bouillon cube until the onion browns. (Don't add water to reconstitute the bouillon cube.) Add the tofu crumbles and stir-fry until the water from the tofu evaporates, about 3 minutes. Then add the soy sauce, diced jalapeño, turmeric, and any seasonings you like, such as basil, oregano, or hot sauce. Serve immediately.



Light 'n Fluffy Pancakes

Serves 4

1 1/2 cups all-purpose flour
1 tablespoon sugar
1/2 teaspoon baking soda
1 teaspoon baking powder
1 1/2 cups soy milk or water
2 tablespoons vegetable oil

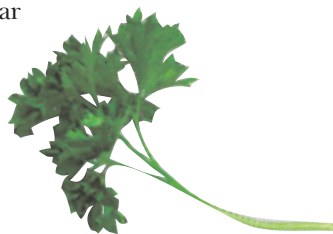
In a large bowl, mix together all the dry ingredients and then whisk in the soy milk or water and oil.

Pour the batter onto a nonstick pan and cook over medium heat, turning once when the edges begin to bubble and brown. Top with maple syrup and fresh fruit, and serve immediately.

Creamy Potato Salad

Serves 6

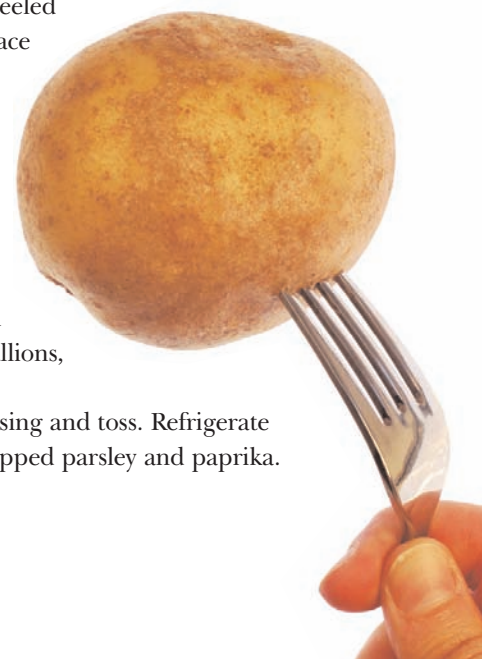
8 to 10 medium-sized potatoes (yellow or red work well)
2 tablespoons olive oil
1 tablespoon red wine vinegar
1 cup vegan mayonnaise, such as Veganaise or Nayonnaise
2 tablespoons yellow mustard
1 tablespoon balsamic vinegar
1 teaspoon sugar
dash of red pepper
dash of seasoned salt
pepper, to taste
1 celery stalk, diced
2 large dill pickles, diced
5 scallions, diced
1 3.8-ounce can sliced black olives
1/2 cup finely chopped parsley
dash of paprika

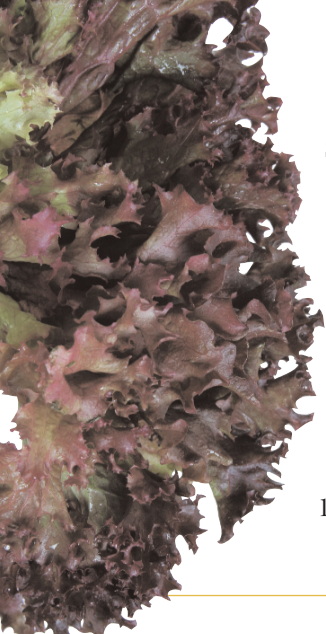


Boil the potatoes until tender—10 to 20 minutes, depending on what type of potatoes you're using. Remove the skins. Run cold water over the peeled potatoes and drain. Slice and place in bowl. Drizzle the olive oil and red wine vinegar over the potatoes, and let sit.

In a large bowl, combine the vegan mayonnaise, mustard, and balsamic vinegar. Stir in the sugar, red pepper, seasoned salt, and pepper. Then add the diced celery, pickles, scallions, and olives. Mix well.

Add the potatoes to the dressing and toss. Refrigerate for 1 hour. Garnish with the chopped parsley and paprika.





Festive Salad

Serves 4

For the Dressing:

- 3 tablespoons balsamic vinegar
- 3 tablespoons maple syrup
- 3 tablespoons extra-virgin olive oil
- pinch of salt

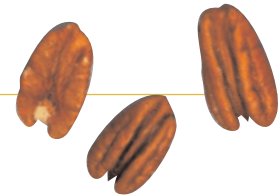
For the Salad:

- 1 head red leaf lettuce, washed and torn
- 1/2 cup toasted pecan pieces
- 1/2 cup dried cranberries



In a large serving bowl, whisk together the dressing ingredients. Add the lettuce and then toss. Sprinkle on the pecan pieces and dried cranberries.

Serve immediately.



Eggless Egg Salad

Serves 6

- 1 14-ounce package firm tofu
- 1/2 cup vegan mayonnaise, such as Veganaise or Nayonaise
- 2 tablespoons mustard
- 1/2 teaspoon turmeric
- 1 teaspoon garlic powder
- 1 teaspoon onion powder
- 1/2 cup diced scallions
- 1/2 cup shredded carrots
- pinch of salt and pepper



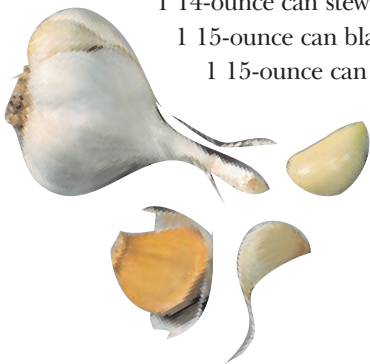
Drain and mash the tofu. Mix well with the vegan mayonnaise and spices, and then add the scallions, carrots, and salt and pepper. Serve on a bed of lettuce or as a sandwich spread.



Refried Bean Soup

Serves 5

- 1 large onion, chopped
- 2 teaspoons minced garlic
- 2 teaspoons olive oil
- 1 14-ounce can vegetarian broth
- 1 14-ounce can stewed tomatoes
- 1 15-ounce can black beans
- 1 15-ounce can red kidney beans
- 1 16-ounce can vegetarian refried beans
- 1/2 teaspoon cumin
- pepper, to taste



In a small saucepan, sauté the onion and garlic in olive oil until the onion begins to brown, about 5 minutes.

In a large pot, add all of the ingredients and bring to a boil. Reduce heat and stew for about 10 minutes before serving.



Sun-Dried Tomato Pistachio Spread

Serves 15

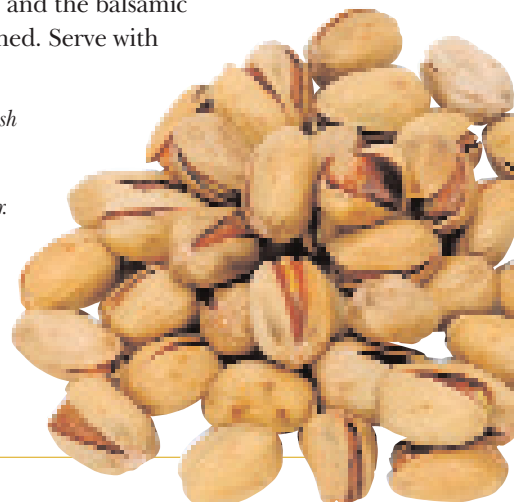
- 2 cups chopped pistachios
- 2 tablespoons olive oil
- 3 cups chopped sun-dried tomatoes*
- 1 clove garlic, diced
- 1/2 cup olive oil, halved
- 3/4 cup balsamic vinegar

In a large saucepan, toast the chopped pistachios in the 2 tablespoons of olive oil for 5 to 7 minutes until the nuts begin to turn golden.

In a food processor or high-powered blender, add the toasted pistachios, sun-dried tomatoes, garlic, and 1/4 cup of olive oil. Once the ingredients begin to mix, add the

remaining 1/4 cup of olive oil and the balsamic vinegar. Mix until well combined. Serve with toasted bread or crackers.

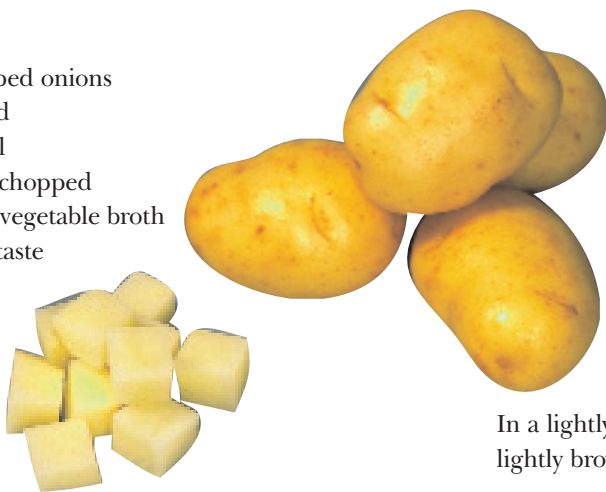
**Sun-dried tomatoes are sold fresh in olive oil or dehydrated in bags. To rehydrate the tomatoes, place them in a bowl and cover with warm water. Let soak for 20 minutes or until plump.*



Colcannon (Mashed Potatoes with Kale)

Serves 5

- 1 pound kale
- 1/2 cup finely chopped onions
- 4 cloves garlic, diced
- 2 teaspoons olive oil
- 2 pounds potatoes, chopped
- 1/2 cup soy milk or vegetable broth
- salt and pepper, to taste



Wash and trim the kale, removing the hard stems and tearing into bite-sized pieces. Sauté with the chopped onion and garlic in olive oil until the kale is tender. Set aside.

In a large pot, boil the potatoes in lightly salted water until the potatoes are soft, about 20 minutes. Drain and then add the soy milk or vegetable broth. Mash well. Mix in the sautéed kale and onions. Add salt and pepper to taste. Serve immediately.

Leftovers? Form the colcannon into pancakes.

In a lightly oiled, nonstick pan, fry both sides until lightly browned.

Mushroom and Almond Paté

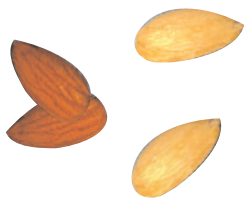
Serves 10

- 2/3 cup almonds
- 2 tablespoons soy margarine, halved
- 8 ounces mushroom pieces
- 2 scallions, diced
- 1 clove garlic, diced
- tarragon, to taste
- pepper, to taste
- 1/4 cup firm tofu, mashed

Sauté the almonds in 1 tablespoon soy margarine until lightly toasted, about 5 minutes. Set aside.

In a saucepan, melt the second tablespoon of soy margarine. Cook the mushrooms, scallions, garlic, and spices for 2 minutes until reduced. Remove with a slotted spoon, reserving the liquid.

Put the mushroom mixture in a high-powered blender or food processor and add 1 tablespoon of the reserved liquid, the sautéed almonds, and the mashed tofu. Blend until smooth and well mixed. Chill for 2 hours to blend the flavors. Serve as a dip for crackers or vegetables.



Spicy Peanut Noodles

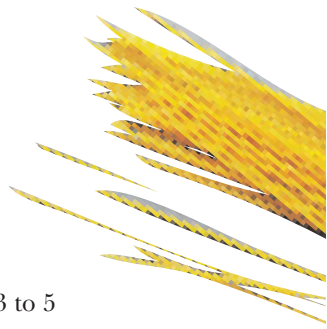
Serves 2

- 1 cup vegetable broth
- 1/2 cup peanut butter, crunchy or creamy
- 1/4 cup maple syrup
- 2 tablespoons lime juice
- 2 tablespoons soy sauce
- 1 tablespoon minced jalapeño pepper
or crushed red pepper flakes, to taste
- 4 cups cooked pasta noodles



In a small saucepan, mix together all of the ingredients except the cooked noodles and bring to a boil, stirring frequently. Reduce heat and simmer for 3 to 5 minutes.

In a large bowl, toss the spicy peanut sauce with the noodles. Serve immediately.



Fudge Brownies with Creamy “Butter” Icing

Makes about 16 brownies

For the Fudge Brownies:

- 1 1/3 cups sugar
- 1 cup unsweetened applesauce
- 2 tablespoons water
- 2 teaspoons vanilla extract
- 1 1/3 cups all-purpose flour
- 1/2 teaspoon baking powder
- 3/4 cups unsweetened cocoa powder
- 1/4 teaspoon salt
- 1 cup dairy-free chocolate chips

For the Creamy “Butter” Icing:

- 1/3 cup soy margarine
- 1/4 teaspoon salt
- 1 teaspoon vanilla extract
- 3 1/2 cups (1 pound) powdered sugar
- 3 tablespoons soymilk



Preheat oven to 350°F.

Brownies: In a large bowl, mix together the first four ingredients, sugar through vanilla extract. Set aside.

In a separate bowl, whisk together the next four ingredients, flour through salt. Stir in the sugar mixture and combine well. Then add the chocolate chips.

Pour into a lightly oiled 8-inch square baking pan and bake for 45 minutes or until an inserted toothpick comes out fairly clean. Set aside to cool before frosting.

Frosting: In a large bowl, add the soy margarine, salt, and vanilla. Beat until light and fluffy. Gradually add in the powdered sugar, continuing to beat the frosting. Then add the soymilk, beating until smooth. If desired, beat in more soymilk for a smoother, more spreadable consistency.

Frost the cooled brownies, cut, and serve.

Easy Spice Cake with Caramel Frosting

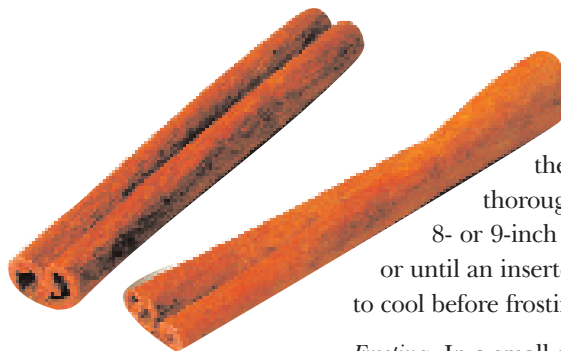
Serves 6

For the Easy Spice Cake:

- 1 1/4 cups all-purpose flour
- 1 cup packed brown sugar
- 1/4 cup cornstarch
- 1 teaspoon baking soda
- 1 teaspoon allspice
- 1 teaspoon cinnamon
- 1/2 teaspoon ground cloves
- 1/2 teaspoon salt
- 1/3 cup oil
- 1 tablespoon vinegar
- 1 cup water

For the Caramel Frosting:

- 1/4 cup soy margarine
- 1/2 cup packed brown sugar
- 2 tablespoons soymilk
- 3/4 cup powdered sugar



Preheat oven to 350°F.

Cake: In a large bowl, mix the dry ingredients (flour through salt). Add the oil, vinegar, and water. Whisk until thoroughly blended. Pour into a lightly oiled 8- or 9-inch square baking dish. Bake for 30 minutes or until an inserted toothpick comes out clean. Set aside to cool before frosting.

Frosting: In a small saucepan, melt the soy margarine and then add the brown sugar. Cook over low heat for 2 to 3 minutes, stirring constantly. Add the soymilk and bring to a boil. Remove from heat and allow to cool. Slowly beat in the powdered sugar until smooth. Frost the cooled Easy Spice Cake and enjoy.



Eating for the Animals

¹USDA, National Agricultural Statistics Service, "Poultry Slaughter: 2006 Annual Summary," February 2007, usda.mannlib.cornell.edu/usda/current/PoulSlauSu/PoulSlauSu-02-28-2007.pdf; USDA, National Agricultural Statistics Service, "Livestock Slaughter: 2006 Summary," March 2007, <http://usda.mannlib.cornell.edu/usda/current/LiveSlauSu/LiveSlauSu-03-02-2007.pdf>.

²USDA, National Agricultural Statistics Service, "Chickens and Eggs: 2006 Summary," February 2007, <http://usda.mannlib.cornell.edu/usda/current/ChickEgg/ChickEgg-02-27-2007.pdf>.

³USDA, National Agricultural Statistics Service, "Poultry Slaughter: 2006 Annual Summary," *op. cit.*

⁴Ernst RA, "Poultry Fact Sheet No. 20," University of California Cooperative Extension, June 1995, <http://animalscience.ucdavis.edu/Avian/pfs20.htm>; Voris JC, "Poultry Fact Sheet No. 16c," University of California Cooperative Extension, Sept. 1997, <http://animalscience.ucdavis.edu/Avian/pfs16c.htm>.

⁵Duncan IJH and Hughes BO, "Free and Operant Feeding in Domestic Fowls," *Animal Welfare* 20 (1972): 775.

⁶Duncan IJH, "Welfare Problems of Poultry." In: Benson GJ and Rollin BE (eds.), *The Well-Being of Farm Animals: Challenges and Solutions* (Ames, IA: Blackwell, 2004): 310.

⁷Wise D and Jennings A, "Dyschondroplasia in Domestic Poultry," *The Veterinary Record* 91 (1972): 285–86.

⁸University of Arkansas Division of Agriculture, Cooperative Extension Service, "Top Ten Facts about Chickens," 2006, www.kidsarus.org/kids_go4it/growit/raiseit/chickens.htm.

⁹Danbury TC, Weeks CA, Chambers JP, Waterman-Pearson AR, and Kestin SC, "Self Selection of the Analgesic Drug Carprofen by Lame Broiler Chickens," *The Veterinary Record* 146 (2000): 307–11.

¹⁰Kestin SC, Knowles TG, Tinch AE, and Gregory NG, "Prevalence of Leg Weakness in Broiler Chickens and Its Relationship with Genotype," *The Veterinary Record* 131 (1992): 190–94.

¹¹Ibid.

¹²Duncan IJH, "Welfare Problems of Meat-Type Chickens," paper presented at the Farmed Animal Well-Being Conference at the University of California, Davis, June 28–29, 2001; personal correspondence with Stephen Pretanik, director of Science and Technology, National Chicken Council, Washington, DC, Jan. 14, 2004.

¹³National Turkey Federation, "Turkey Facts & Trivia," 2006, www.eatturkey.com/consumer/raising/raise.html.

¹⁴Duncan IJH, "The Assessment of Welfare During the Handling and Transport of Broilers." In: Faure JM and Mills AD (eds.), *Proceedings of the Third European Symposium on Poultry Welfare* (Tours, France: French Branch of the World Poultry Science Association, 1989): 79–91. Gregory NG and Wilkins LJ, "Skeletal Damage and Bone Defects During Catching and Processing." In: Whitehead CC (ed.), *Bone Biology and Skeletal Disorders in Poultry* (Abingdom, England: Carfax Publishing, 1992): 313–28. Gregory NG, *Animal Welfare and Meat Science* (Wallingford, England: CABI Publishing, 1998): 183–94.

¹⁵Weeks C and Nicol C, "Poultry Handling and Transport." In: Grandin T (ed.), *Livestock Handling and Transport* (Wallingford, England: CABI Publishing, 2000): 363–84. "Twenty-Eight Hour Law of 1877," Michigan State University College of Law Animal Legal & Historical Center, Jan. 2005, www.animallaw.info/statutes/stusfd149usc80502.htm.

¹⁶MacArthur M, "Analyst Says Poultry Growers Oblivious to Poor Conditions," *Western Producer*, Dec. 12, 2002; Fraser D, Mench J, and Millman S, "Farm Animals and Their Welfare in 2000." In: Salem DJ and Rowan AN (eds.), *State of the Animals: 2001* (Washington, DC: Humane Society Press, 2001): 89.

¹⁷Duncan IJH, "Animal Welfare Issues in the Poultry Industry: Is There a Lesson to Be Learned?" *Journal of Applied Animal Welfare Science* 4 (2001): 207–21; Mench J, "The Welfare of Poultry in Modern Production Systems," *Poultry Science Review* 4 (1992): 112.

¹⁸Mench J, "The Welfare of Poultry," *op. cit.*

¹⁹United Egg Producers, *United Egg Producers Animal Husbandry Guidelines for U.S. Egg Laying Flocks: 2006 Edition* (Alpharetta, GA: United Egg Producers, 2003), www.uepcertified.com/docs/2006_UEPanimal_welfare_guidelines.pdf

²⁰Ibid. at 4,15.

²¹Duncan IJH, "The Pros and Cons of Cages," *World's Poultry Science Journal* 57 (2001): 385.

²²Stamp Dawkins MS and Hardie S, "Space Needs of Laying Hens," *British Poultry Science* 30 (1989): 413–16; Mench J and Swanson J, "Developing Science-Based Animal Welfare Guidelines," speech delivered at the 2000 Poultry Symposium and Egg Processing Workshop, <http://animalscience.ucdavis.edu/Avian/mench.pdf>.

²³Duncan IJH, "Animal Welfare Issues," *op. cit.*

²⁴Estevez I, "Poultry Welfare Issues," *Poultry Digest Online* 3 (2002): 2.

²⁵Weeks C and Nicol C, "Poultry Handling and Transport," *op. cit.*; "Twenty-Eight Hour Law of 1877," *op. cit.*

²⁶Wolfson DJ, *Beyond the Law* (Ithaca, NY: Farm Sanctuary, 1999): 14.

²⁷Higgins KT, "Tools of the New Trade," *Food Engineering* 4(1), Jan. 2002: 46; Boyd F, "Humane Slaughter of Poultry: The Case Against the Use of Electrical Stunning Devices," *Journal of Agricultural and Environmental Ethics* 7 (1994): 221–36.

²⁸USDA, National Agricultural Statistics Service, "Livestock Slaughter: 2006 Summary," *op. cit.*

²⁹Barnett JL, Hemsforth PH, Cronin GM, Jongman EC, and Hutson GD, "A Review of the Welfare Issues for Sows and Piglets in Relation to Housing," *Australian Journal of Agricultural Research* 52 (2001): 1–28. Cited in: Pajor EA, 2002, "Group Housing of Sows in Small Pens: Advantages, Disadvantages and Recent Research." In: Reynells R (ed.), *Proceedings: Symposium on Swine Housing and Well-being* (Des Moines, IA: USDA Agricultural Research Service, June 5, 2002): 37–44, www.ces.purdue.edu/pork/sowhousing/swine_02.pdf (accessed March 6, 2006).

³⁰McGlone J, "The Crate." In: Reynells R (ed.), *Proceedings: Symposium on Swine Housing and Well-being, op. cit.*, 35.

³¹Rollin BE, *Farm Animal Welfare: Social, Bioethical, and Research Issues* (Ames, IA: Iowa State Press, 1995): 95.

³²North Carolina State Cooperative Extension Service, "Obtaining Optimal Reproductive Efficiency," *Swine News* 29(1), Feb. 2006, http://mark.asci.ncsu.edu/Swine_News/2006/February/February06.pdf (accessed May 5, 2006).

³³Purdue University Cooperative Extension Service, *Pork Industry Handbook* (2001): 8.

³⁴USDA, National Agricultural Statistics Service, "Livestock Slaughter: 2006 Summary," *op. cit.*

³⁵Humane Methods of Livestock Slaughter, 7 U.S.C.A. § 1902(a). Humane Methods, www.animallaw.info/statutes/stusfd7usca1901.htm.

³⁶U.S. General Accounting Office, "Humane Methods of Slaughter Act: USDA Has Addressed Some Problems But Still Faces Enforcement Challenges," GAO-04-247, www.gao.gov/atext/d04247.txt.

³⁷USDA, National Agricultural Statistics Service, "Livestock Slaughter: 2006 Summary," *op. cit.*

³⁸Ibid.

³⁹Weise E, "Illegal Hormones Found in Veal Calves," *USA Today*, Mar. 28, 2004, www.usatoday.com/news/health/2004-03-28-veal-usat_x.htm.

⁴⁰Goodrich R and Sticklin WR, "Beef," South Dakota State University College of Agriculture and Biological Sciences, Department of Animal and Range Sciences, Extension & Research, Oct. 19, 2004, <http://ars.sdstate.edu/animaliss/beef.html>.

⁴¹Rollin BE, *Farm Animal Welfare, op. cit.*, 65–68.

⁴²Ibid.

⁴³Lawrence J, Shouse S, Edwards W, Loy D, Lally J, and Martin RE, *Beef Feedlot Systems Manual*, presented by the Iowa Beef Center and Iowa State University Extension as a supplement to the Cattle Feeding in Iowa for the 21st Century Conference, Nov. 1–2, 2000, www.extension.iastate.edu/Publications/PM1867.pdf.

⁴⁴Goodrich R and Sticklin WR, "Beef," *op. cit.*

⁴⁵USDA, Animal and Plant Health Inspection Service, "Dairy 1996 NAHMS Study," 15–16.

⁴⁶"Extending Functional Longevity," *Country Folks of Pennsylvania*, May 12, 1997: A9.

⁴⁷Wallace RL, "Market Cows: A Potential Profit Center," University of Illinois at Urbana-Champaign, 2004, www.traill.uiuc.edu/dairynet/paperDisplay.cfm?Type=Both&ContentID=354.

⁴⁸USDA, Animal and Plant Health Inspection Service, "Dairy 1996 NAHMS Study," *op. cit.*, 21; USDA, Food Safety and Inspection Service, Consumer Education and Information, "Veal from Farm to Table," Oct. 2006, www.fsis.usda.gov/Fact_Sheets/Veal_from_Farm_to_Table/index.asp.

⁴⁹USDA, Food Safety and Inspection Service, "Veal from Farm to Table," *op. cit.*

⁵⁰Alverson D, Freeberg M, Murawski S, Pope JG, "A Global Assessment of Fisheries Bycatch and Discards," FAO Fisheries Technical Paper No. 339 (Rome: United Nations Food and Agricultural Organization, 1994), www.fao.org/DOCREP/003/T4890E/T4890E00.htm.

⁵¹Cetacean Bycatch Resource Center, www.cetaceanbycatch.org (accessed February 21, 2007).

⁵²Harvey DJ, "U.S. Seafood Market Shifts to Aquaculture," USDA, Economic Research Service, *AmberWaves*, Apr. 2004, www.ers.usda.gov/AmberWaves/april04/Findings/USSeafood.htm.

⁵³Cheeke P, *Contemporary Issues in Animal Agriculture* (Upper Saddle River, NJ: Pearson Education, 2004): 282.

- a. Grimes W, "If Chickens Are So Smart, Why Aren't They Eating Us?" *New York Times*, Late Edition, Jan. 12, 2003: 2.
- b. "New Slant on Chump Chops," *Cambridge Daily News*, Mar. 29, 2002.
- c. Broom DM, "Does Present Legislation Help Animal Welfare?" Sustainable Animal Production: Workshops, Discussion, Online Resources, <http://agriculture.de/acms1/conf6/aw5alegisl.htm>.
- d. Mench J, "The Welfare of Poultry," *op. cit.*, 108–9.
- e. Rollin BE, "Farm Factories," *The Christian Century*, www.religion-online.org/showarticle.asp?title=2194.

Eating for Your Health

¹*Journal of the American Dietetic Association* 103(6), June 2003: 748–65.

- a. Mahaffey KR, Clickner RP, and Bodurov CC, "Blood Organic Mercury and Dietary Mercury Intake: National Health and Nutrition Examination Survey, 1999 and 2000," *Environmental Health Perspectives* 112(5), Apr. 2004: 562 (www.ehponline.org/members/2003/6587/6587.pdf).
- b. Lasky T, Sun W, Kadry A, and Hoffman MK, "Mean Total Arsenic Concentrations in Chicken 1989–2000 and Estimated Exposures for Consumers of Chicken," USDA, Food Safety and Inspection Service, Office of Public Health and Science, *Environmental Health Perspectives* 112(1), Jan. 2004, www.ehponline.org/members/2003/6407/6407.html.
- c. One bucket of chicken from KFC contains three legs, three breasts, three wings, and three thighs (http://cspinet.org/new/pdf/letter_to_kfc.pdf), weighing 1,176 grams (www.yum.com/nutrition/documents/kfc_nutrition.pdf) and containing up to 108.5 micrograms of inorganic arsenic (Lasky T, Sun W, Kadry A, and Hoffman MK, "Mean Total Arsenic Concentrations," *op. cit.*). This exceeds the U.S. EPA limit on an eight-ounce glass of water by a factor of 48.4 (www.epa.gov/fedrgstr/EPA-WATER/2001/October/Day-05/w25047.htm).

Eating for the Environment

¹Vesterby M and Krupa KS, "Major Uses of Land in the United States, 1997," USDA, Economic Research Services Statistical Bulletin No. 973, 2001, www.ers.usda.gov/publications/sb973.

²Council for Agricultural Science and Technology (CAST), "Animal Agriculture and Global Food Supply" (Ames, IA: CAST, 1999): Tables 4.17–4.24.

³Pimentel D and Pimentel M, *Food, Energy, and Society* (rev. ed.) (Niwot, CO: University Press of Colorado, 1996): 83, 126, 127; Smil V, *Feeding the World* (Cambridge, MA: MIT Press, 2000): median values, Table 5.2.

⁴Minority Staff of the U.S. Senate Committee on Agriculture, Nutrition and Forestry, "Animal Waste Pollution in America: An Emerging National Problem," report compiled for Senator Tom Harkin, Dec. 1997.

⁵"P.S.F. to Pay \$4.5 Million in Odor-Related Lawsuit," *Meat & Poultry*, October 2006: 5.

⁶The Sierra Club, *The Rap Sheet on Animal Factories*, 2002.

⁷Kellogg RL, Lander CH, Moffitt DC, and Gollehon N, "Manure Nutrients Relative to the Capacity of Cropland and Pastureland to Assimilate Nutrients: Spatial and Temporal Trends for the United States," USDA, Natural Resources Conservation Service, Economic Research Service, Dec. 2000.

⁸Chesapeake Bay Foundation, "Manure's Impact on Rivers, Streams and the Chesapeake Bay," 2004, www.cbf.org/site/DocServer/0723manurereport_noembargo_.pdf?docID=2143.

⁹Minority Staff of the U.S. Senate Committee on Agriculture, Nutrition and Forestry, "Animal Waste Pollution," *op. cit.*

¹⁰Hopper R, *Going to Market: The Cost of Industrialized Agriculture* (St. Paul, MN: Izaak Walton League of America, 2002).

¹¹Goldburg R and Triplett T, "Murky Waters: Environmental Effects of Aquaculture in the US," Environmental Defense Fund, 2007, www.environmentaldefense.org/documents/490_AQUA.pdf (accessed February 21, 2007).

¹²Reijnders L and Soret S, "Quantification of the Environmental Impact of Different Dietary Protein Choices," *American Journal of Clinical Nutrition* 78(3), Sept. 2003: 664S–68S (www.ajcn.org/cgi/content/full/78/3/664S).

- a. Brad Trom, "Say No to Factory Farms: Health and Prosperity of Rural Communities at Stake," *Grand Forks Herald*, Feb. 28, 2005.
- b. Mirabelli MC, Wing S, Marshall SW, and Wilcosky TC, "Asthma Symptoms among Adolescents Who Attend Public Schools That Are Located near Confined Swine Feeding Operations," *Pediatrics* 118 (2006): 66–75; Sigurdarson ST and Kline JN, "School Proximity to Concentrated Animal Feeding Operations and Prevalence of Asthma in Students," *Chest* 129 (2006): 1486–91.
- c. Brad Trom, "Say No to Factory Farms," *op. cit.*
- d. Ibid.
- e. Minority Staff of the U.S. Senate Committee on Agriculture, Nutrition and Forestry, "Animal Waste Pollution," *op. cit.*
- f. Union of Concerned Scientists, "The Reality of Feed at Animal Factories," 2006, www.ucsusa.org/food_and_environment/sustainable_food/they-eat-what.html (accessed November 2, 2006).
- g. Natural Resources Defense Council and Clean Water Network, "America's Animal Factories: How States Fail to Prevent Pollution from Livestock Waste," 1998, www.nrdc.org/water/pollution/factor/cons.asp (accessed March 6, 2006).
- h. Kennedy RF Jr., "Good Food versus Green Eggs and Ham," *Waterkeeper Magazine*, Spring 2006: 4–5, www.waterkeeper.org/magazines/WK%20Sp%2006%20WHOLE.pdf (accessed November 2, 2006).
- i. Sierra Club, "Inhumane Treatment of Farm Animals," www.sierraclub.org/factoryfarms/factsheets/inhumane.asp (accessed March 6, 2006).
- j. Worldwatch Institute, "Meat: Now, It's Not Personal!" *Worldwatch*, July/August 2004: 12–20, www.worldwatch.org/pubs/mag/2004/174 (accessed March 8, 2006).
- k. United Nations Commission on Sustainable Development, "Water: More Nutrition Per Drop," as referenced in: "Is Meat Sustainable?" *World Watch*, July/August 2004, www.worldwatch.org/pubs/mag/2004/174.
- l. Steinfeld H, Gerber P, Wassenaar T, Castel V, Rosales M, and De Haan C, "Livestock's Long Shadow: Environmental Issues and Options" (Rome: United Nations Food and Agriculture Organization, 2006), www.virtualcentre.org/en/library/key_pub/longshad/A0701E00.pdf (accessed February 19, 2007).



About The HSUS's Farm Animal Advocacy

FARM ANIMALS ARE SOCIAL AND INTELLIGENT INDIVIDUALS, AS CAPABLE OF FEELING pain, frustration, joy, and excitement as the dogs and cats we welcome into our families.

Unfortunately, most of the animals we use for meat, eggs, and dairy in the United States are raised on factory farms, where their welfare often suffers as a result of intensive confinement, mutilations without painkillers, and inhumane slaughter practices. These abuses are of particular concern to The Humane Society of the United States (HSUS) because nearly 10 billion land animals are slaughtered for food every year in the country—more than one million every hour.

What We Do to Help Farm Animals

As the largest animal protection organization in the nation, The HSUS takes a leadership role on farm animal advocacy issues. We strive daily to improve the lives of these animals through a number of means:

- ▶ Strategically campaigning to halt the worst farm animal abuses
- ▶ Persuading national and regional restaurant chains to serve products from nonintensive confinement systems
- ▶ Helping communities stop the proliferation of factory farms
- ▶ Working with students and employees to implement institutional purchasing policies that mandate animal welfare improvements
- ▶ Lobbying state and federal legislatures to pass laws that improve farm animal welfare
- ▶ Working with corporations and organizations to develop farm animal welfare guidelines
- ▶ Working with retailers and distributors to mandate animal welfare improvements by their suppliers
- ▶ Reviewing scientific research on the welfare of farm animals and the suffering caused by industrialized animal agricultural practices
- ▶ Investigating and exposing farm animal cruelty
- ▶ Working in the courts to enforce the animal cruelty laws already on the books
- ▶ Helping individuals make compassionate choices at every meal through resources, including *The HSUS Guide to Vegetarian Eating*



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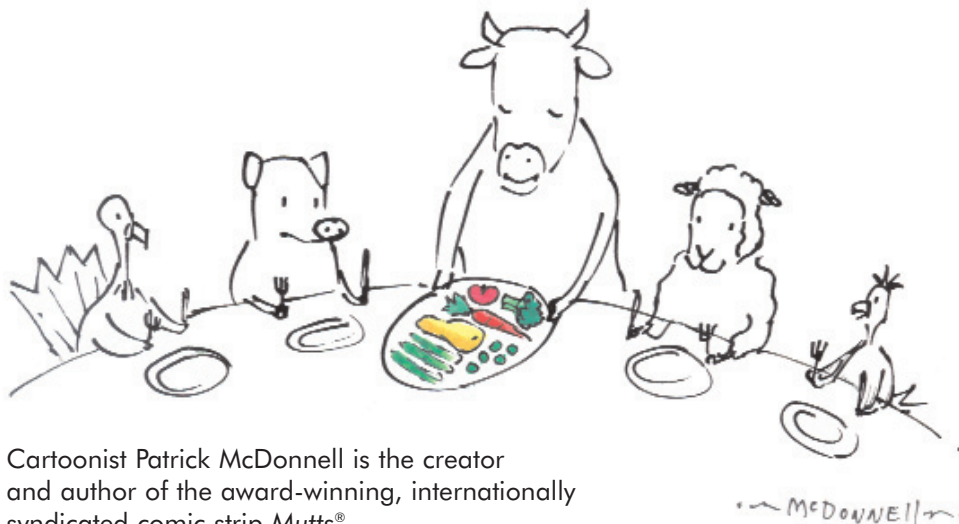


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Patrick McDonnell



Cartoonist Patrick McDonnell is the creator and author of the award-winning, internationally syndicated comic strip *Mutts*®. www.MuttsComics.com