



# The Ethical Meat-Eater

## What is ethical meat?

- Ethical meat comes from an animal that enjoyed a *good life*. The animal acted out its natural tendencies, in a way that did not over-deplete resources but contributed to healthy natural cycles. It was cared for and not neglected. It endured little stress.
- Ethical meat comes from an animal that was afforded a *good death*. The animal endured little stress in handling on its way to slaughter. It did not suffer long, but was slaughtered in a way that rendered it unconscious instantly, and then humanely relieved of its blood.
- Ethical meat is *butchered properly*, making full use of the carcass out of thriftiness, efficiency and respect for the life that was given as food.
- Ethical meat is *cooked or preserved properly*, maximizing nutritional benefit and paying homage to the important rituals of deliciousness.

I was a vegetarian for nine years, and a vegan for two. I watched a grueling video in high school about the horrors of an industrial slaughterhouse. I did some light reading in environmental philosophy, and made a decision. I was largely ignorant. I was not making a huge difference in the lives and deaths of animals, was not looking at the bigger picture of global human health and environmental restoration, was not actively changing mass wrongdoing. I was motivated by deep empathy and

justified political aggravation, but my solution, sadly, mostly helped only me.

I spent my college career learning what I could about the scientific, political and cultural intricacies of agriculture. I traveled to different countries, learned about drastically different attitudes toward food and land, and saw the ways that people have shaped their corners of the earth in the quest for nutrition. In Vietnam it is a gesture of friendship to place food in another's bowl. When, in 2004 in a rural Hai Duong village in northern Vietnam, a small woman named Loi placed a stringy piece of water buffalo into my dish at dinner, I began my journey into the meaningful consumption of animals.

Before that moment, my diet had been one of luxury, and a desire to escape a system I felt I could not affect. When I ate the piece of flesh as an act of communion, I checked in to another way of thinking. Eating gained new meaning, as I was very aware that Loi herself had milked and cared for, and eventually slaughtered, that animal for our meal. I started to look for the bigger picture, and solidified my decision to devote my life to food. I have spent the decade since as an omnivore, working with food from almost every angle, with the belief that we can make a difference in the well-being of plants, animals and the earth, while still loving all food and seeking good health.

Time and again in North America, we're handed myriad reasons to question our food supply. Between climactic pressures, environmental resource limitations, food safety scares, political maneuvering, media hullabaloo, corporate mergers, impending energy crises, trade deals, population woes, consumption rates, worldwide hunger and poverty, and dominion over the very seed required to create the next generation of food and fiber, we're constantly vacillating, with our big national voice, between justification and condemnation of a globalized food system. Within this passion play, consumers, with their tiny individual voices, have both ultimate power and very little power at all. We drive the machine with our buying dollars, but we are simultaneously so hoodwinked by marketing ploys, dietary "rules" and nutrition trends that we become overwhelmed, dependent and easily duped.

Within this maelstrom, the meat and dairy sector are continually at the eye of the storm. Meat has been demonized since the 1960s, when our nation became afraid of fat and cholesterol. Since then, depending on what research we favor, meat and dairy are either entirely responsible or completely forgiven for all our health woes. Regardless of the trending attitude toward saturated fat, animal protein and cholesterol, we find it easy to banish animal products from our diet when we hear about inhumane treatment of animals, confined animal feed operations (CAFOs), pink slime in ground beef and the effects of added hormones and antibiotics on our meat. Yet I haven't set out to write a book revealing the horrors of the industrial food system or the meat industry within it, and I certainly do not aim to defend either. Others have done plenty of this work already, on both sides. Instead, this book seeks to offer alternatives to the status quo. It seeks to educate buyers and homesteaders about their role within the whole. In other words, you are not a victim; you are not helpless; and you are not merely the last link in a long chain of missteps, bloodlust and greed.

I join eaters everywhere in their opposition to genetically modified organisms, overuse of antibiotics and inhumane living conditions for all beings. I also seek to understand the vast lattice of past and current political, social, economic and environmental factors that make the question of what to put in your mouth three to six times a day very perplexing and outrageous indeed, whether you choose to eat meat or not. Our oppositions can be simple and absolute. Our options are not so easy. This book asks a number of "how" questions, and offers deeply pondered possible answers. How can we work from within a fantastically flawed food system to create real food? How can we work in accessible ways, without alienating any food citizen or farmer? How is it possible to create models that drive an economy, social synergy and environmental restoration that work for the world as we know it *now*, and the world we want later?

I urge you to come by your food more honestly by exploring the ideas presented in this book, because I believe there is a lot more the everyday food citizens can change—and that we can eat a lot better

in the process, too. May we endeavor to source and consume meat with more of an understanding of the issues across the supply chain; checking out is not our only option. I'd argue, too, that it's not the best option. Nor is it viable to make more and more demands of farmers, regardless of the size and type of their farms. If you come away from this book with nothing but a sausage recipe and one fun fact, let that fact be this: Across the meat supply chain, the farmer makes the least amount of money, and has possibly the most difficult and sacred job in the journey. It's time to kick it up another notch and realize that truly ethical meat is going to take community effort. If we are to be ethical meat eaters, or good eaters at all, we will buy differently, cook differently and eat different things.

### **Buying Differently**

We cannot expect ethical meat, or any other truly better food, to simply arise in some pure form from the food system we currently have. If we don't change the system, we will constantly be required to compromise what we know is right, and euphemize what we know is happening. Our behemoth of a food industry, which supports suffering and whole system degradation of epic proportions, is often justified by asserting that it is our job to feed the world. This goes with an unspoken assumption that there is only one way to feed the world, and it must be the way that we've found, and we must be doing it now. I'll not surprise you by saying that we are not, in fact, "feeding the world"—and there is another way. Whenever possible, food and necessity should happen in a sphere close to home, in an economy of body and household that I call the "first economy." After that, food should happen on the community level, in systems I call "middle economies." It is possible to foster agriculture on every soil that can feed communities, and so for basic needs, and that vital sovereignty for all, functioning middle economies are a more hopeful way to feed the world. Instead, a whole range of factors, mostly driven by money, have led us askew, into a dependency on "external economy," a vast system that takes place far away from us and involves too many players and too many resources.

I have been involved in movements for nearly fifteen years that address this fundamental issue: how to create middle systems within the current status quo, to produce food, and more. Many days, I wonder if it is working, and it is difficult to imagine us ever entirely abandoning external economy, because it now stretches across the globe. But I have seen small farms, conscious eaters and effective activism grow exponentially over the years, which leads me to think that we must keep trying. And like it or not, the huge and dysfunctional external system is what we are working with *right now*. We cannot avoid it, and we are both contributors to it and victims of it, both farmers and non-farmers. Within this reality, we need to promote first and middle systems as much as possible, because they are smaller, more synergistic, and include plants, humans and non-human animals, from which arise more conscious economies and trade. We also need to try to apply the positive aspects of synergy and diversity to larger systems, to see if that works as well.

As a result of the system in place today, even if your meat has been fed organic grain, it may not have lived well. Even if your meat has suffered less in life, it may not have died a just and clean death. Some of the opportunities you have toward truly good meat come from extremely enterprising, well-meaning, expensive and risky capital investments in good farming; these efforts deserve our every praise, even if we are still struggling to see them grow to accommodate our needs. But other opportunities toward good meat come from extremely enterprising efforts to capitalize only on your desire for good meat; these efforts deserve our every skepticism. Unfortunately, the honest food citizen, with troubles of her own, living her amazing and busy life, is hard pressed to know if she is facing a praiseworthy effort toward good food, or a backward and greedy one. This is the catch-22 of our attempt to repair whole-scale foodthink, figuring it out as we go. This book does not pretend to have answers. Instead, it simply seeks to honestly air the conundrums, show us that we have more in common than we think, and assert that it is worth it to *keep trying* different agriculture, different economy and different philosophy to *improve all life*.

I believe that, *right now*, the best way to access good food and good meat is by raising it ourselves, or by buying it directly from a fellow community member who has done so. And for those of us not able or willing to produce our own animals for meat, I assert that exceptional, good meat, *right now*, for all who endeavor to support it, will require us to pay more money, stimulating a “middle market.” This is not an obvious activism for most people, because our current system supports tricky, big, global economics, whether we are buying meat by the carcass or by the cut-and-ready steak. As a result, we constantly buy meat from local farms like it is meat from industrial farms, and it is not the same thing.

Meat costs more than you realize. So does all food. If you’re purchasing from the supermarket, you’re buying meat that is heavily subsidized by the government (via your tax dollars), a process that removes much of the risk and cost of its production and allows the industry to drive a competitive price at the point of sale. Additionally, much of the meat from larger farms comes from vertically integrated food businesses, meaning that the business owns more than one piece of the supply chain, and thus decreases its cost.

Let’s take chicken, for example. A vertically integrated poultry business owns the hatchery (baby chick farm), the chickens (via contracts with farmers), the slaughterhouse and the entire packaging and distribution infrastructure. The corporation owns the whole process, from egg to table. This benefits the company because as the product changes it becomes more valuable, and the ensuing profits stay within the company. The costs of taking the product through all these changes are decreased, because there are not three or four different companies along the way trying to eke profit out of their rung on the ladder. And waste and cost can be controlled and even offset by the company anywhere along the way.

In his book *Meatonomics*, David Robinson Simon cites the many issues within the meat economy, especially the role of farm subsidies. He claims that industrial hog farmers pay an average of eight dollars more than they make on each animal to raise it, and that corporate beef pro-

ducers spend twenty to ninety dollars more than each animal is worth to raise cattle. While Simon ignores a few complexities within the meat industry, lumping players together and branding all producers as conspirators against the hungry but innocent taxpayer, I find his number crunching on production costs and consumer price perceptions valuable.

How is this backward economy possible? Due to subsidies, which incentivize the growers to continue producing; due to vertical integration, which allows the meat businesses to make that money back as the product moves up the supply chain; and finally, due to the sheer size of the operations. The more chicken our sample corporation offers the market, from whole birds to bone-in thighs to emulsified cartilage and string meat for nuggets, the less the company needs to charge on each product before breaking even.

Instead of paying the true cost for your food at the point of sale, you're currently paying for it in pieces. And the more corners that are cut in its production, the more you pay later, in higher healthcare costs and in degradation of your environment. If we can begin to see, as Simon asserts, that a Big Mac, which normally retails for about four dollars, should really be selling for about eleven, we can begin to see how strapped a small, family farmer must be. I know from experience. I began my journey into what would amount to a decade of farming in 2003, growing organic vegetables, cut flowers and meat. We raised a diversity of crops and livestock on our farm, to increase our marketing appeal, maximize nutrient cycling on our land and feed our family. We were doing what many small farmers feel called to do: creating a middle market for meat and other food that people could trust, and that could stimulate the local economy.

We had mixed results making money as community-supported farmers. Both my husband and I worked off-farm jobs full-time, while raising a family and trying to build, manage and market a farm on a big enough economic scale to support ourselves. We faced many problems in all of our enterprises, headlined by production inefficiencies and economy-of-scale issues. We had neither large enough numbers

of animals on the ground, nor the systems in place to raise animals in large enough numbers. When it came to the production of animals, we faced these main obstacles:

1. The high cost of *feed* inputs, largely not customizable by us *in relation to the price we could charge at the point of sale*.
2. The high cost of *slaughter and processing*, largely not customizable by us due to regulatory obstacles, and *in relation to the price we could charge at the point of sale*.
3. The *growing demand for gourmet and niche meat products* such as heritage breed, certified-organic/non-GMO and further-processed foods that we were inconsistent in our ability to profitably produce, due to reasons #1 & #2 above, as well as the price and volume competition we faced from vertically integrated industrial agribusiness. (See the sidebar case study: The True Cost of Organic, GMO-free Pork, p. 20).

Note the threads in these issues, which one might call roots. One is the *lack of control*, resulting in the need to outsource parts of the operation, which always costs money and always limits quality options. The other is the *disconnect at the point of sale*. Our middle business, operating within and alongside the huge, external system madness that our customers also patronized, made it very difficult for us to garner middle market prices. Community-level middle economies face these deeply rooted issues every minute of every day.

Our solution to the problems we faced was an attempt to specialize. We dropped commercial production of vegetables completely, drastically downsized commercial cut flowers, and focused on meat. We scaled up the number of animals, paid closer attention to feed and breeds, and sought to educate our customers and our processor about the difficulties within the supply chain that put limitations on the end product. We began carrying specialty products such as rubs and dry-cured salamis, produced by others with niche meat business ventures. At the end of 2012, when we saw that we were paying 52 percent of our

gross profits to processing and packaging, we developed plans for our own kind of middle-system vertical integration: a butcher shop.

The butcher shop would allow us to pay the processor only a kill fee, to slaughter and dress (remove the innards from) the animals. Then we could butcher the animals further at our own facility, turning them into retail muscle cuts, specialty fresh sausages, cured and smoked meats and other items. This would vastly increase the diversity and number of products available to our customers, and put processing revenues into our pockets, rather than someone else's. Granted, we would have additional labor and overhead costs establishing the shop, but our projections showed potential.

The shop opened in October of 2013, and improved our processing costs and product availability to our customers almost immediately. But the farm still faced the issue of feeding animals on a large scale. Even with the shop buying animals at a reasonable price per pound on carcass weight (the weight once the animal is killed and dressed), the farm remained financially stressed. Then our marriage very suddenly collapsed. The farm shut down. All the animals were sold. The shop remains open, and maintains tight margins as it tries to offer only local meat to the communities in and around Asheville, NC.

I firmly believe that a farm such as ours, with a sister business like our shop, can become a viable model for food entrepreneurs in the growing middle food economy. But it will take community effort. It will take increased mindfulness and ingenuity among both farmers and consumers. The fact remains that farmers are still facing the same problems mentioned above, while trying to create new paradigms within the current framework. To boot, not every meat farmer can open a butcher shop, and in many ways, farmers are in the same boat as consumers, in terms of what type of food and agriculture they can afford to throw their weight behind. Ultimately, the consumer faces these problems as well, as he or she asks for reasonable prices on the finished product and seeks the cleanest product possible. More often than not, the consumer is unaware of the premium he or she is asking for, and

what business, profitable or not, is behind each premium applied as the meat travels along the supply chain.

So next time you see that sign for boneless pork chops at \$6.99/lb at the local grocery, ask yourself where that meat came from, and what systems are in place on a massive scale to drive that price. And then please, do not proceed to the farmers' market and ask why the boneless chops there cost \$8.99/lb when you can get them at the local grocery for \$6.99. When you make this argument, you are basically asking a farmer why you can't pay commodity prices for a homegrown pork chop—raised by a non-vertically integrated family business, who re-

### Enterprising in Agriculture

If you are the investing type, I urge you to invest in farmers. Land may be a place where people put their money, but land-based business is generally hard up. From my own experience as a grower, I know what obscene risks and stresses I undertook in order to try better farming practices, especially on a scale that could function alongside and within our current food system. While researching this book, I caught up with Jamie and Amy Ager, the owners of Hickory Nut Gap Farm (HNG), in my community. The Agers started their meat enterprise on Jamie's family land in 2000, inspired by Joel Salatin and others in the alternative agriculture movement, and began promoting grass-fed beef. Now you can find their meat at Whole Foods.

In Asheville, HNG is probably the best-known effort to scale up sustainably raised meat. "I was young when we started, and a different brand of idealistic than I am now,"

Jamie says. Since they started HNG, the Agers have taken many steps to market their grass-fed beef, pastured pork, lamb and poultry, including experimental production models and, in recent years, contracting with other growers to produce animals for their brand. These efforts to scale their local products to meet their customers' demands have been extremely stressful, exciting and full of opportunity as well as trial. The Agers goal is to create a brand that allows farmers to make money in a production paradigm that promotes high welfare, environmentally healthy livestock production systems. "I am still idealistic, to a degree," Jamie says. "I believe we have to change things in our food system."

The difference in the idealism lies in the knowledge Jamie and Amy have gained about the complexities of agriculture, and the flexibility and risk needed to face them head on. Not everyone can do it. "I've learned what an

ceived no subsidies and produces a small volume of pork under a completely different production system. These days, a pork chop is not a pork chop is not a pork chop. These are different systems, different products, different markets, different standards. Different prices.

Not everyone can pay more, *right now*, and not every farmer can happily embrace pastured, poison-free animals. I am well aware of this perplexing issue, and the fact that what we face is a giant, stinking problem. We may have the intention to create new systems, but the inability to do so. Many of us are stuck. Farmers can't pay more; most of the hungry, well-intentioned shoppers cannot pay more either; and so we

incredible amount of money, time and emotion it requires to move the needle on good meat," Jamie shares. This has bred in him a peculiar moderation, and an almost insatiable internal questioning about what to do and whether these systems are scalable. For Jamie and Amy, it's worth it to keep trying. They have seen positive change, and their buyers certainly thank them for it. "Every community, every farm and every market is going to look different, which is another thing that makes it hard," Jamie added. "At the end of the day, I'm a farmer," he says, "and I'm about farmers making money, and staying farmers. If the chance for a young farmer is to invest in a corporation, and put up a chicken house, so be it. He's enterprising in agriculture, and that is hard enough as it is."

I'd like to see us developing systems that are profitable for farmers, but better for the chicken and the diner as well. If it was easier for young farmers to enterprise in agricul-

ture that was more sustainable for whole systems than that corporate chicken house, that would be ideal. In pursuit of this wish, I charge food citizens to regard the effort of farming more politely, and consider enterprising in good agriculture, farm education and research into sustainable agriculture. You can do this by buying local food, and you can take it even further by investing in local food and a local farm. It is not enough for us to ask our stewards of the land to shoulder so much of the risk of forging our new systems. After all, come dinnertime, farmers have to choose what food to buy, just like you do, after spending their long day choosing how much to fund better agriculture. It's a double whammy. In this way, local farms, butcher shops, bakeries, feed mills and other middle-system business owners are indeed our bravest pioneers in the journey toward better food. ♦

go, around and around, asking more of each other, blaming each other and begging forgiveness from each other, our refrigerators and frying pans all the while full of filth. This is a ghastly problem, but don't stop reading. I believe enough of us can pay more and enough of us are industrious—and to some of us, both apply. Luckily, eating animals is most rewarding to the industrious soul. And I believe that any person, farmer or not, regardless his resources or intent, could take something from this book to build better first- and middle-meat economies.

### Cooking Differently

I remember speaking with a friend of mine who had opened two natural food stores in the foodie town of Asheville, NC, and asking him what department in the stores had the highest sales. His answer? Prepared foods. Of course, I thought; in our nation of convenience, in our culture of busy people seeking quick comfort. But if we're seeking truly good and honest food, we know we must cook more. We must be thrifter. We must learn to depend on ourselves again.

We not only need to cook more often, but we need to eat everything we're provided. The whole plant. The whole animal. Our selective use of food resources in America is so appalling that I lack an adequate adjective for it. And the ripple effects are endless, in the economy of the home, in our collective health problems, in our growing hunger problems, in our frenzied food production (more, more, more) and in our food waste management. A new approach to honest eating requires that we change this trend. Restaurants shall face this challenge, too. If there is only one hanger steak per beef carcass, it should not be a regular on the menu. Let's have better training in whole-animal butchery, so that we can feel comfortable seeing something like *herbed broccoli raab + date & sassafras sabayon + lamb* on a menu, and not need to know what the cut is, because the cut doesn't matter. The cut is whatever the chef needed to cook to make best use of the lamb's carcass. The fact of the matter is that poor land management and lack of attention to animal welfare has been bred in part by gross, disproportionate demand for rare muscle commodity. The industry and business of the

external economy are built to respond in a language of brute efficiency, not complex consciousness. It takes people to manage business consciously, all across the supply chain.

In your home kitchen, learning to deal with a whole animal, or larger cuts of meat than retail-size ones, will necessitate ingenuity. You'll end up with rich stocks and meat that is best used for seasoning other foods. As you explore new ways to cook familiar cuts and adventure into unfamiliar creations, your mind will begin to unfold with ideas about pairing the meat with fresh vegetables, what fruit you may add to your porchetta or what herbs to try in the next sausage. You'll also find that meat is not always the main focus. Yes, you'll have some meat-centric, traditional American meals with those hunky ribeyes and roasts, but sometimes you'll get as much if not more nutrition and satisfaction if you let meat take back stage, using it to flavor, nuance and support the other food groups. If you can change your mindset about *how* to cook meat and *what* a meal looks like, you'll make excellent use of the whole animal.

Hopefully, in this journey, you'll begin to seek food that is more fresh and whole all around, and discover deliciousness without a lot of fuss. I have found that the confidence I have in the food at home and the joy I experience in the kitchen far outstrips the uncertainties of many experiences dining on the go. I have also found that it is easier to help people make full use of animal trimmings than it is to assist them in not wasting vegetable trimmings. Our collective allowance for vegetable waste is as appalling as our skepticism of animal offal.

Taking it further still, your ability to work with animal foods more competently will also change your desires about working with animal foods, which is a winning situation all around. For example, the muscles in a beef carcass you may not be aware of are now generally being processed into ground beef, a product we can all understand and afford. But if you learn to use the animal differently, you may find a way to eat those muscles differently, pay the same average price per pound of beef, but endure one less repetitive meal. And your farmer may have a greater chance of profiting off of one animal. This is just one example

of how your cooking bone is connected to your buying bone, which is connected to the way your community looks, feels and functions.

Lastly, I want to talk about time, often cited as a reason we don't cook or preserve or really even taste anything we eat. I teach classes every so often about cooking from scratch and whole animal utilization. To do it, truly, is to save time and money. The meat trimmings or the braise liquid or the cut herbs from tonight may become a third of tomorrow's meal. Or you might throw them all into a jar with nutmeg and brine and use them in a soup next month. Although it will not come naturally to everyone to think like a chef, saving almost everything, your brain working as you go to determine what will happen with each remnant, it can be learned. Further, it can be enjoyed. This is the adventure of cooking. As your habits of ingenuity develop, you will discover creativity that you never knew. And as you expand your good food horizons, you will see that most good cooking can either be done ahead of time or done quickly.

I can't tell you how many times people have come over to visit and been astonished at "how quickly you got such a fresh meal on the table." To be astonished at the ease and simplicity of something like roasted pork tenderloin rubbed briefly with balsamic and herbs, flash-cooked brussels sprouts with pecans and buttered sweet potatoes, shows me that people have either had a) too much wine or b) are accustomed to spending only five minutes on dinner. I couldn't disagree more with the thinking that our food should be our last priority as we schedule our day or budget our resources. No matter where you go, food is the common denominator. And people's food is either killing them slowly or bringing them great joy, flavor and experience.

My good friends and close colleagues will attest that I have been guilty of a cynicism that often finds me saying things like, "The only thing that will cause us to realize good food again in this country is peak oil." It would be embarrassing to admit how much time I have spent pondering how big the natural or resource cataclysm will have to be to shake us into our senses. Even still, there is a tiny voice saying, "What if?" What if we could realize deliciousness, and honest living,

out of our love for food and our desire for the journey and the experience it provides, rather than out of desperation? What if everyone just *knew* that the pursuit of better eating would make us better, happier people?

Cooking, and eating in general, should be one of the best things about our everyday existence. If it is a truly just a chore, a necessity, then we have surely sold our souls.

## Eating Different Things

I am not a meat-crazed woman. I do not wear bacon T-shirts (although I think many of them are amusing), insist on meat at every meal or argue that meat is essential to every person's diet. I largely believe that each one of us is the proper authority on our own best nutrition. I detest dietary dogma, am extremely suspicious of mass nutritional trends, roll my eyes at the demonization or lionization of individual compounds or food groups and tend to laugh at diets that have names. I argue that the more diverse a diet, the better, as long as it is based on real, whole foods. Many people are surprised to discover that I can offer a class on vegan cooking.

I very much enjoyed Michael Pollan's book *In Defense of Food*, particularly because of his exploration of what, for years, I've been calling "the food Gestalt"—the assertion that food is more than the sum of its constituent nutrients, diets are more than the sum of their constituent foods and our health is more than the sum of our dietary parameters. In my classes, I talk constantly about the importance of diversity, and often struggle to succinctly cover all the empirical evidence that seems to support a diverse diet.

Let's look at nature, which most people can agree tends to *work*, even if it is beyond our ability to understand. Everything in nature is connected, and no one thing supports or destroys the whole. In fact, I charge you to close your eyes and imagine something that exists in isolation. You won't be able to do it. The entire world is comprised of wholes within wholes, all hitched together in an infinite feedback loop of diversity and synergy.

There are many classic examples throughout ecology that demonstrate how tampering with one element in a system will have ripple effects on the whole. We have seen this, for example, when one species is removed from an aquatic ecosystem, or a foreign species is introduced to a system. These sudden presences or absences change the balance, and like dominoes, a chain of cause-and-effect is unleashed as the system attempts to re-adjust and survive.

Now think about all the factors that drive your decision-making about your diet. A few of them might be taste, calorie intake, resource consumption or allergic tendencies. There are countless others, and more often than not we find ourselves compartmentalizing our meals because of them, rather than zooming out and thinking holistically. You might hear arguments alleging that your consumption of a food requires xx trillion gallons of water annually, so therefore you should eat something else instead, because water usage will decrease. And as you home in on water, or methane or gluten or antioxidants, you forget that you have slowly lost sight of soil, or omega-3 fatty acids, or God forbid, taste, until something happens to pull your focus that way once again.

How exhausting, to pedal and pedal a bike without the ability to step back and check whether or not it has wheels. I'd like to help you zoom out, seeking the viewpoint that gives you a sense of each whole, or system of wholes, and how they connect.

For example, instead of looking strictly at water usage per pound of beef produced, consider instead the water cycle: the system by which water is used, converted and recycled across the planet. For while it is true that water resources are being depleted due to overuse, and that most methods of producing beef waste a lot of water, this does not automatically make it horrible to raise beef, or use water in general. Consider instead the way that it is used, and how it may cycle back into the system to be used by all beings once again. Or how water as a resource can be affected positively along the way. For example, the act of animals defecating into pasture fertilizes the soil and provides more organic matter on the ground, which then increases the soil's capacity

to retain water. As a result, water stays in the system and is made available to plants and other life forms. The animal, through many acts, is essential to the system. In this example, its poop alone is invaluable.

The automatic defensive argument is, of course, going to be that most cattle are not raised on pasture, so we are not seeing this manure benefit to the water cycle; instead, the beef industry is just wasting a lot of water. Too true. The equation is out of proportion. The challenge of holistic thought, and practice, is to recognize and reorganize the opportunities, and seek natural balance. Read: We cannot rid the planet of cattle. But we can change our systems to support planetary cycles and natural resource exchange. Poop of all kinds is a resource. We don't even begin to use it as such. This method of thinking can be extended to the other resource cycles essential to all life: mineral cycles, chiefly of carbon and nitrogen, and energy cycles. Holistic thought can happen on a small scale, to inform soil management on a fourteen-acre farm, and on a large scale, to inform waste management on an industrial feedlot.

It can happen in your home kitchen, too, and in your stomach. We ourselves are products of nature, and our bodies are complex systems of wholes. The very building blocks of our tissues, our cells, are complex systems of synergistic organelles. Beyond this fabric, we depend on other life forms incorporating their own systems into ours. Organic orchardist and author Michael Phillips illustrated this wonderfully in a recent visit to my hometown, when he said, "If you see me standing before you as one individual, one organism, you are wrong. I am standing before you as a community. And my eyeballs, teeth and intestines are all coated with trillions of microorganisms, without whom I would be a dead man."

It is so true. Your body and mine are all communities, wherein many individual beings live, all conspiring together to survive. Your gut alone is home to more than a hundred trillion microorganisms, a population that was mostly established by your diet and environment by the time you turned three. Without healthy internal bacteria, we would not be able to synthesize energy, extract minerals and vitamins

from our food, digest properly or maintain immunity. We require a healthy, diverse “gut flora” to maintain a healthy body. Further, we are beginning to understand that our diets support or destroy the health and diversity of our gut flora, affecting our ability to avoid chronic diseases and allergies, build immunity to common illnesses and derive maximum nutritional benefit from our foods. Freeze-dried stool from healthy individuals is even being used to inoculate the digestive tracts of sick people and heal illnesses, and it is working.

This is just a slice of the thinking that translates directly into an argument for a diverse diet. Of course! If diversity allows a forest or water ecosystem to thrive, it will also allow our bodies to thrive. And further, we must seek our diverse foodstuff from the type of farms that are using holistic thinking in their management, supporting diverse and synergistic feedback in their energy, water and mineral cycles to grow our food.

I absolutely believe that abundance is possible, and that we can feed ourselves by emulating biodiverse ecosystems in our farming, mimicking natural processes as much as possible. This is the argument for regenerative, ecological agriculture, the opposite of the highly specialized monocultures that dominate our agriculture today. Agriculture that restores and respects the earth seeks to be as diverse as the systems the planet would itself create, and includes plants as well as animals, because each contribute in unique ways to the resilience of the whole. Attempting to manage one without the other is not realistic, and not correct.

As an example, I want to mention the work of Zimbabwean ecologist Allan Savory. After decades of research into ecological restoration, namely reversing desertification (the process by which fertile land is reduced to desert due to overuse or misuse), Savory has found that high-density rotational grazing of livestock is the only way to restore much of the earth’s land. It works because the large herding animals mimic the wild herds with which grassland ecosystems evolved. A huge protestor of animal agriculture at the outset of his career, he has seen the effects of holistically managed animals on the restoration of

soil, aquatic, grassland and prairie ecosystems on five continents. And with an estimated two-thirds of the world's land currently turning to desert (including the US's vast rangelands and land within our national parks), Savory asserts that holistically managed livestock herds are the only way to restore 95 percent of the world's land and feed our growing population.

We can use principles from the work of Savory and others pursuing integrated, holistic livestock management to inform our own production. While you probably don't possess a land base that can support twenty-five thousand sheep or cattle, and are likely not trying to feed Africa, you can manage animals to mimic nature, and do so in conjunction with vegetables, fruits and herbs, so that each system benefits the whole, maintains and regenerates the land base and feeds your family well. If you do not intend to raise your own animals, understanding the ecological and economic principles behind holistic farming will still assist you in making responsible buying decisions, ones that not only make sense for your health but also contribute to a more sensible and sustainable food system.

Lastly, a new approach to honest eating will simply require more diversity in your kitchen. Anything else would be costly, wasteful and disrespectful. Just as throwing out the celery leaves or the onion's succulent, green top is silly, throwing away perfectly edible parts of the pig just because you've not discovered how to eat them is uncalled for.

Ethical meat is not a utopian farce. It is real and mouth-watering, and can be healthy too. Considering the limitations and opportunities we face in search of good food, I see two paths in service of getting truly good meat on your plate. This book should serve anyone on either path, or a combination of the two:

1. Ethical meat will require a more robust first economy, wherein more people own the process for themselves, either through raising their own animals or buying whole animals and processing those animals at home.
2. Ethical meat will require us to cooperate on a deeper level with farmers and community butcher shops to source our meat, giving

the farmer and the customer more power to choose and boosting the middle economy.

You'll find, in this quest for ethical meat, that you will be able to improve your diet, impress your friends, unlock culinary creativity you didn't know you possessed and save money, all while eating extremely delicious food.

Regardless of the approach you take, you will need to skill up in either animal production, processing, butchering, cooking or preserving meat. Or all of the above. Let's get started, shall we?

### The True Cost of Organic, GMO-Free Pork

This simple table compares total costs associated with raising a pig based on feed type. In the second column, you see costs associated with conventionally grown GMO feed. In the third column, you see costs of conventionally grown, GMO-free feed (while the seed is not genetically modified, the crop is grown with synthetic chemical herbicides and pesticides, and is not required to be managed according to organic standards). The fourth column lists

costs associated with certified organic feed, which by law does not contain genetically modified seed and is grown with adherence to standards for environmental and consumer health.

These numbers are based on the enterprise budget of a pork and poultry farm near my home in Asheville, NC. My friends Graham and Wendy Brugh, of Dry Ridge Farm, raise about 150 hogs a year, plus about 1,500

	Conventional	Non-GMO	Organic & Non-GMO	Notes
Feed	\$200	\$350	\$450	3.5 lb. feed produces 1 lb. meat
Non-Feed Costs	\$18	\$18	\$18	Equipment, fencing, labor, etc.
Slaughter	\$50	\$50	\$50	Kill & dress
Processing	\$200	\$200	\$200	Cut and wrap
<b>Total</b>	<b>\$468</b>	<b>\$618</b>	<b>\$718</b>	
<b>Total per lb.</b>	<b>\$2.84</b>	<b>\$3.75</b>	<b>\$4.35</b>	Based on 165 lb. dressed weight
<b>Sale Price per lb.</b>	<b>\$4.70–7.10</b>	<b>\$6.25–9.40</b>	<b>\$7.25–10.88</b>	Wholesale-retail range

chickens. They also sell lamb. These numbers allow them to sell weekly retail at farmers' markets and support some wholesale accounts with local butcher shops and grocers. Note that the price per pound of feed is based on the price their farm gets, since they buy their feed by the ton. For those raising pork on the home scale and thus buying feed by the bag, prices per pound will be slightly higher.

In the Notes column, on the first row, you'll notice a mention of feed conversion ratio. This is an important number in livestock production that refers to the amount of feed, in pounds, that the animal requires to gain one pound of meat. The ideal feed conversion ratio for pork is 3.5:1, meaning it will take you 3.5 pounds of feed to produce 1 pound of meat. Note that this ratio can vary greatly, depending on breed, feed quality and herd health. Using ideal ratios in this example, it will take the farmer about 962.5 pounds of feed to take one animal to a finished weight of 275 pounds.

Non-feed costs include equipment for fencing and watering, labor for moving and caretaking and other animal needs. Again, keep in mind that as volume goes up, price goes down. The more animals there are on the ground, the lower the non-feed cost per animal.

Slaughter costs include killing and dress-

ing, which is removal of the animal's innards. Some organs can be requested, but depending on regulations in your area, or the rules of the processing house, you may not be able to keep organs and blood. The example here omits organ and blood weight, assuming they are lost in the process. This is common in my area. If the slaughterhouse can sell them, perhaps they do, but the farmer can rarely make use of them, as regulations either prevent her from getting them back in the first place, or limit her ability to do any further processing (of blood sausages, salamis and pâtés) without having her own inspected facility.

Thus the final row, processing costs. This is the cost to "cut and wrap" or turn the carcass into chops, sausages and other retail units. This happens at the slaughterhouse, by regulation in my state, or at a facility permitted to further process meat, such as a butcher shop or grocery. The cut-and-wrap cost is one of the highest costs in small-scale livestock production.

In the final rows, you see conclusions regarding total cost per carcass, and then total cost per pound of meat. Note that the cost per pound is based on *dressed weight*, the weight of saleable meat once the animal is killed, bled and dressed. This is different from the earlier multiplier, the *finished weight*, which is the production goal the farmer seeks to reach before taking the animal to

slaughter. For this example, I am figuring a dressed weight of 165 pounds, meaning the farmer has lost 40 percent of the carcass during processing. The losses include blood, some bone, all the innards and, in many cases, the head. If the animal is shot with a gun rather than stunned and bled, the head cannot be used, and is added to the waste can.

My hope is that consumers of ethical meat can look at this and begin to see the economic conundrum in plainer view. If the farmer is to make a living off of production, he or she must charge 40 percent more than the cost per pound to wholesale customers, and up to 60 percent more than cost to retail customers. This is the arithmetic used to figure the average range in sale price per pound.

If you're still with me, consider that not all parts of the carcass are created equal. Per carcass, the farmer can expect to produce 25 lb. loin, 35 lb. shoulder, 25 lb. ham, 25 lb. sausage, 12 lb. shank, 20 lb. belly, 5 lb. ribs, 10 lb. fat, plus feet and maybe head. Some parts of the carcass are in higher demand than others—for example, customers prefer loin chops over leg shanks, so the farmers cannot apply the same price premium for the entire carcass. (You would not pay \$7/lb. for feet or back fat). So the markup is higher for meats that are coveted, and lower for lesser-used parts.

This is all designed to permit the farmer an average price per pound on the total animal, which ensures his or her success as a businessperson.

You can easily see how much of a premium the higher quality feed produces, and how this translates into price. For the farmer in business, options are limited. As any smart businessperson knows, if you cannot turn the cost increase over to the customer, you must limit costs in production. Looking at our table above, the highest costs are in feed and processing, both enterprises that are mostly out of the farmer's control. Even limiting the non-feed costs will not aid much in the end result, and increasing the number of animals may help some but requires sufficient land (which the farmer may not have).

He probably does not have the land or equipment to grow his own organic feed, nor does he have the capital or desire to build a feed mill (for grinding and mixing feed rations) or develop distribution for the feed once it is grown and milled. The feed mills that do exist are having a hard time selling premium feed in enough quantity to justify a better price, as their own costs in buying, grinding, mixing and delivering grain are also delivering tight margins. You see, feed mills are also small businesses, also trying to strategize about economy and quality so they can survive.

On the processing side, the farmer is up against limitations in regulation and customer expectation. If law dictates that she cannot keep or use the innards, and if the market does not demand blood sausage anyway, she loses a percentage of product. If slaughter practice and regulation does not permit her to keep the animal's head, and the customer will not buy it either, she loses a percentage of product. If she does not have the knowledge or infrastructure to cut and wrap her own animal, she is forced into paying a premium for cut-and-wrap services, which further gouges her profits.

Where is the answer? There are perhaps a few. Feed cooperatives and tighter com-

munities of farmers and associated feed mills would increase the volume of organic grains sold, potentially lowering prices across the board. Meat cooperatives and tighter communities of farmers and associated consumers could increase the volume of whole animals sold or cut-and-ready meat produced, lowering prices across the board. But the answer that is most readily in reach is you, the enlightened consumer. If you will buy a whole pig or half a pig and butcher it yourself, you will help the farmer eliminate processing expenses. If you will eat delicious pâtés and headcheese, we can make better use of the valuable animal. ♦





# General Notes on Raising, Cooking and Eating Animals

## Slaughter

Ideally, we would complete this most difficult part of animal production ourselves. This book does not have the capacity to offer instruction on slaughter for large animals, but I recommend books and materials in the Resources section that do.

Temple Grandin, renowned livestock handling expert, has said, “I believe that the place where an animal dies is a scared one. The ritual could be something very simple, such as a moment of silence. No words, just one pure moment of silence.”

If you can't do the slaughter yourself, take good care to find a facility that will do it in the least cruel way possible. This entails the company of the person who raised the animal, a calm transport to the slaughter facility, and calm entry into a holding pen. The best facilities use a stun gun to render the animal unconscious immediately. These devices fire a blank into the animal's head, between its eyes, or apply blunt force at the base of the neck (in pigs). Once the animal is stunned it is hung and its throat cut, so that blood drains out before the innards are removed, a process known as “dressing.”

After it is dressed, the animal is skinned or de-haired and halved. At most USDA- and state-inspected facilities, sides of beef are then aged for at least fourteen days in cold storage before being wrapped and shipped or further cut.

Because cattle are such large animals, I recommend that homesteaders who do not slaughter on their property have the animal cut into quarters, or even further (discussed in the next chapter). Assess your workspace and equipment before deciding how much you want the processor to do for you. If you have a standard-sized, six-foot worktable, you will likely need primals, as the larger quarters of beef can average 150 pounds or more. For pork, you can choose to have the processor break each half into three pieces, or you can work from intact halves. Lamb, goat, poultry species and rabbit are all manageable in as whole a form as you can finagle from the processor.

### Notes on Cooking and Eating Muscle

Regardless of species, we must recognize the impact an animal's life has on its muscle and on the eating experience. What the animal eats, how it moves, how old it is, how it is handled at slaughter, the composition of its parents and the breed from which it arises are just a few of the many factors that affect muscle quality. No two animals are the same, ever. Nature is endlessly various, which is why farming, butchery, charcuterie and cooking are all art forms that seek to work with the fascinating and dynamic materials nature provides.

In general, the muscles that the animal uses more frequently tend to be leaner and have more blood flow to them, and thus more flavor. In cooking, this translates to tougher but more succulent cuts that should be braised, slow roasted, stewed or smoked. The muscles that the animal uses less frequently will be fattier, tenderer and less flavorful. These muscles should be cooked quickly using high heat, as in broiling, grilling or frying. Similarly, younger animals will have tenderer, paler muscles, while older animals will have moved more, put on more fat and gained more flavor.

One thing you absolutely cannot do without is a meat thermometer. If you plan to eat meat and do it right, this is an indispensable piece of kitchen equipment. No compromises. Everyone at my shop used to ask, "How long do you cook that for?" when tasting the meat we had on our menu. Our serious-joke answer was always, "Until it's

right.” Meaning, there is no time prescription, usually. It depends on the size of the muscle, the smoker or oven temperature and the preparation. The internal temperature of the meat is the best indicator of done-ness: 145°F for pork, 155°–160° for poultry. Beef and lamb is not as good when cooked that completely, but if you are going for well done, take it to 140°. I prefer to take my beef to 120° or 130°, and then remove it from the heat. All meat will continue to cook after it comes off of the flame.

With most of the recipes in this book, I’ve chosen to focus on cuts that you’re probably less familiar with, or more likely to have trouble with. I will touch on basic techniques for different parts of the carcass in the butchery sections, based on muscle origin, but the details will focus on the lesser-used parts.

For general guidelines on smoking and sausage making, refer to the charcuterie section first.

## Disclaimers

**On Farming:** Production notes for each species are intended as overviews only. The logistics and science behind best management practices are much more complicated than this book can possibly contain. Out of respect for the animals themselves, and out of a personal loathing for literature that oversimplifies farming and responsible land management, I have compiled a Resources section that I hope you will use to further your education on production techniques. I believe the best farmers learn by doing, but I also believe there are solid scientific principles that should not be taken for granted in caring for animals, plants and the soil.

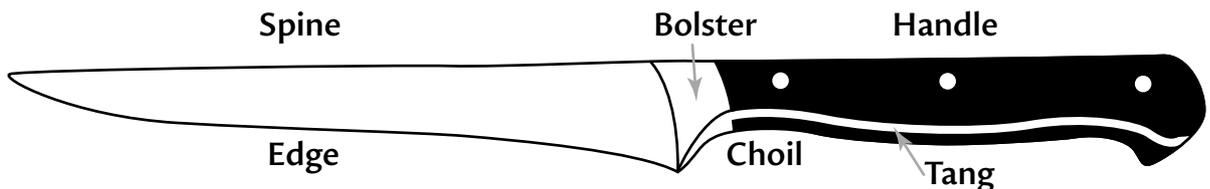
**On Cooking:** It is very hard to write recipes. I cook using my senses, and often do not record exactly what I have done. To put exact numbers on ingredients and try to perfect so many ratios has been a challenging process. I urge you to come at it organically, and use your intuition and sensory wisdom. The more you can do this, the better off you’ll be in the kitchen, anyway.

**Note to Reader:** All recipes for fresh meat have ingredient measures by volume. This is the way most people cook. However, weighing ingredients is the most precise way to prepare food, and it becomes essential when you are curing products, or working with fine-tuned ratios in sausage making. As such, all sausage and cure ingredients are noted by weight.

## Butchery Tools and Tips

If you're ready to try your hand at whole-animal butchery, you need to get a few things straight. Your tools are important—and dangerous. Diligent care and good technique are the two things that will keep them, and you, intact. Here are a few rules, which we'll see in action as we discuss butchery of each species:

- Cut across the grain of the meat, and keep muscles as whole and undamaged as possible.
- Leave as much fat on the muscle as you can muster. It will turn into deliciousness. You can always remove fat after cooking, if you desire.
- Use big knives to break and push, a boning knife otherwise.
- Never saw through meat. Saw only on bone.
- Keep your stance grounded, moving the meat to assist you, when possible. You don't always need to run around trying to get the best angle.
- Use sharp knives, always.
- Keep conditions sanitary. Make sure surfaces are disinfected at start, clean blood as you go, and always keep meat as cold as possible.



As you proceed in your practice, you'll develop preferences for knife grips, knife varieties and other equipment. I've listed my tools below for your reference.

Knife grips are worth mentioning. There are three main grips. While you may be more comfortable making variations on these three, note that over time, creative/renege handling can lead to arthritis and bone spurs. Butchery is very hard on the hands. The three main grips:

- **Pinch:** your hand clasps around the base of the spine and the bolster, and the upper part of the handle. Used for slicing and boning.
- **Thumb:** Your thumb is braced against the back of the knife's handle, while your fingers curl around the front of the handle. Used for boning and pushing through meat.
- **Dagger:** Your fingers are curled around the back of the handle, your thumb curled around the front. Used for big breaks and pulling through meat.

You'll use your *boning knife* most. I use a Forschner-Victorinox semi-flexible 6-inch boning knife most of the time, but for trimming and work on retail cuts, I also have a stiffer Messermeister (German) forged knife. Semi-flexible, stamped knives are ideal starter tools.

You'll also need a larger knife, such as a *butcher's knife* or *cimeter* (pronounced like "simitur"). I use these interchangeably, so you need only invest in one or the other to get started. I had my cimeter hand-forged by my friend G. Kearney at Kearney Knifeworks near Winston-Salem, NC. Forschner-Victorinox makes good breaking knives to get you started.

If you want to keep your knives for a while, a *honing steel* will help you along the way. You can buy these at kitchen stores, or order online. Since your cimeter is likely to be at least 12 inches long, you'll need a 10- to 12-inch steel; anything shorter will be a waste of your money. Figure out a plan for *sharpening your knives* as well. You can send them off to have them sharpened, find a local butcher shop that will do it for you, or sharpen them yourself. Grinders and electric sharpeners are

expensive, and it is easy to buy something that will wreck your blade. I use oilstones to sharpen by hand.

A *bone saw* will be your go-to for getting through ribs, spines, arms and legs. A 25-inch meat saw will be versatile enough for any species you choose to tackle. Beginners, or folks interested in smaller animals, may choose to look for a more manageable saw, something along the lines of 19 inches. Butcher and Packer ([butcher-packer.com](http://butcher-packer.com)) is a good source for these, as well as replacement blades. In fact, this company is a great start for many of your equipment needs.

You'll need a *cleaver* for getting through rib and spine in some applications. Dexter-Russell makes the best cleaver. You'll need a *rubber mallet* to pair it with, and you can pick these gems up for under five bucks at the local hardware.

A *bone scraper* or bone duster is an optional tool for removing bone fragments from muscles after sawing. If you choose not to invest at first, you can achieve this with a damp rag. *Butcher's twine* is another handy item as you go.

*Meat hooks* are helpful as well. You can get them with handles, at which point it is proper to call them *boning hooks*, and use them as additional grip when you are butchering large portions or working "on the rail" (butchering a hanging carcass). We'll discuss butchering "on the bench" in this book, assuming that your best option is to keep the carcass on a work table in front of you. Other meat hooks you might choose to acquire are *s-hooks*, *ham hooks*, and *rail hooks*, for hanging portions in the cooler or hams for curing. There are also *bacon hangers*, *belly spreaders*, and *gambrels*, which are often used for hanging smaller portions or carcasses, curing bacon and salami, and making other cured items.

Your *worktable* is an important consideration. Since you're planning to work with larger portions, you need space. Half of a pig can sometimes be eight feet long, and a quarter of beef can easily be four feet by eight feet, if not bigger. What you can accommodate weight and space wise will determine how much you need your meat processor to break the animal before you receive it. At bare minimum, set up a six- to eight-foot table on level, sturdy flooring. A table top that is about

six inches above your wrist when your arm is held straight down and relaxed at your side is a good working height for butchery. Some may prefer it slightly lower, to help them bear down on larger portions of meat. In general, it is not a great idea to have your table against a wall. Free space around the table is best, so you can move around larger portions and big bones and considerable girth won't keep knocking the wall and keeping you from moving the meat around freely.

*Cutting boards* will go atop your worktable, and can be sourced of polypropylene or wood. If you choose wood (it's the best), look for end-grain maple construction. Your knives will thank you for it. Boos is the leading manufacturer of maple butcher blocks. If you have a limited budget, look for commercial-grade, large poly cutting boards, at least a half-inch thick. Make sure your boards won't be slipping around while you work, by placing damp rags under them or wrapping your table's top with plastic wrap. The latter is a real lifesaver with cleanup to boot.

*Wear* close-toed shoes and sturdy clothing. Knives slip and get knocked off of tables, and you will make mistakes. The question is not whether you will cut yourself, but rather when; don't take your toes or fingers for granted. You can opt to use a *cutting glove* on the hand that you usually use to hold meat steady. These are made of chain mail, Kevlar or other high-density synthetic materials.

Put some thought into *storage* supplies for your meat once it is processed. Plastic wrap and butcher paper will only get you so far. Consider investing in a small vacuum sealer, such as a FoodSaver, especially if you intend to freeze a lot of meat. Vacuum sealing can also be a good way to set cures, if you intend to venture into preservation.

You'll definitely want a *meat grinder* for making sausages. There are several tabletop models available. I like LEM's products. For this book, I wanted everything to be small-scale and appropriate for the homestead, so all these recipes were tested using a Chef's Choice stainless steel grinder attachment for a standard KitchenAid mixer. I found that this worked pretty well for five- to ten-pound batches of sausage.

Get a *sausage stuffer* that you can use by yourself. I use an Omcan vertical stuffer, and I hear water stuffers are good for working solo. I advise against the stuffer attachments for mixers, as they require you

to shove the meat into the stuffer as you work, which only invites unwanted air into the mixture. Vertical stuffers allow you to put all the meat into the hopper before you start and use a press to keep the mixture tight as it moves through the machine.

*Casings* are either natural (from the intestines and organs of beef, pork and sheep) or fibrous (made from collagen or other materials), and you'll use different types for different applications. I strive to use natural casings as much as possible. I use natural hog casings for fresh sausages, sheep casings for breakfast-type links, beef middles for most salamis, and beef bungs and hog bladders for some of my whole-muscle ferments. I get all my casings for home production from [butcher-packer.com](http://butcher-packer.com)

You may also find yourself looking at *netting and bags*, for containing some of the larger sausages and cured items in the charcuterie cabinet.

A *spice grinder* or old coffee grinder is essential for sausage making and general mad scientist fun.

A *food processor* is indispensable in any kitchen, in my view, but especially if you're interested in making emulsified sausages or pâtés. You may also want to invest in an *immersion blender*. I use both all the time.

*Loaf pans* or *terrines molds* for making headcheese, terrines, pâtés, and rillettes.

*Cheesecloth* for bouquet garni and for wrapping meat before hanging.

*pH strips* (cheaper) or a *pH meter* (better) for checking the status of your charcuterie projects. Hanna is the generally recommended manufacturer for pH meters with calibration capabilities. They run upward of \$300, so for starters you can look into the colored test strips sold at hardware stores. These are also used for testing the water in home swimming pools, so anywhere you can get pool chemicals you can usually find pH test strips.

A *digital g and oz. scale* is definitely needed for getting proper ratios in sausage making, and for getting start and finish weights on cured meats.

### Butchery Tools Checklist

- boning knife
- cimeter or butcher's knife
- bone saw
- cleaver
- rubber mallet
- bone duster
- butcher's twine
- hooks (boning hooks and s-hooks)
- sturdy table, at working height
- cutting boards
- cutting gloves
- vacuum sealer and vacuum bags
- honing steel, for keeping your knives up
- plan for sharpening your knives
- meat grinder
- sausage stuffer
- bowls for mixing
- spice grinder
- cheesecloth
- food processor
- casings, netting and bags
- loaf pans or terrine molds
- pH meter
- digital scale