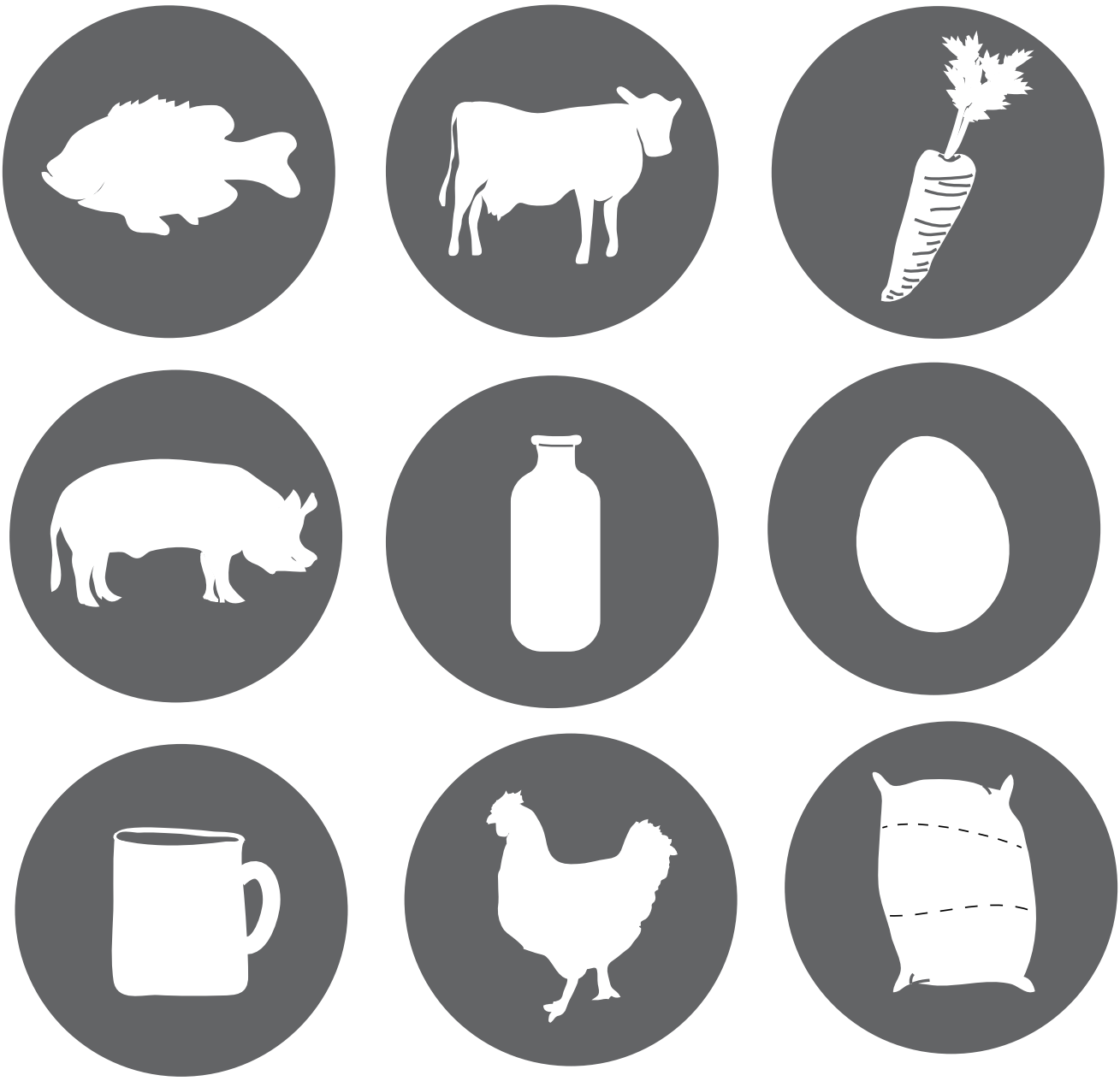

SUSTAINABLE FOOD PURCHASING GUIDE

FIRST EDITION

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INTRODUCTION

In the US today, there is a growing movement to purchase local, seasonal, and sustainable food. College students are a vocal part of this movement, and college and university purchasers, dining directors, and chefs across the nation are responding. They know that the way we eat and the way we produce food can slow the rate of global warming, build strong communities, and improve our health.

This guide was created to help institutions and individuals who want to do the right thing. It strives to eliminate the confusion that can come with new purchasing practices and sets a framework so you can purchase food that is good for you, your customers, the community, and the land.

Unlike other guides, this one focuses on agricultural practices, because these practices are inseparable from nutrition and sustainability. This guide establishes best – and worst – practices in the field. It provides a list of questions you need to ask to get the very best product for your institution. It also offers helpful hints, so that you can learn from work that has been done.

We believe that the most satisfying and sound purchasing decisions come out of having a relationship with your farmers and distributor: visit farms and get to know your growers. We hope that as you use this guide, you will let us know how it works for you. We think of it as a first, very necessary, version, and we aim to improve it with your input.

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HOW TO USE THIS GUIDE

The first section of this guide provides a general overview on what sustainability means and how it applies to food and agriculture. It is important to have this background information when reading the rest of the guide.

The "Purchasing Categories" section is broken down into categories that will make sense to institutional purchasers. The charts in these sections outline the questions you need to ask growers or distributors. We have ranked practices as "best," "good," or "avoid" to help you determine your very best options. Look for farms that have most of their answers in the "best" category.

You'll also find sections on "Easy First Steps" and "Some Strategies for Implementing Institutional Change"with suggestions for planning institutional change and working with distributors, farmers, and food processors. The Glossary is an invaluable list of terms, and the Resources section will aid you as you start to explore sustainable purchasing.

We hope this guide will be a resource for you, and we want to make it as useful as possible. We're eager to hear your feedback as we revise it for the next edition; please send your comments and your questions to us at food.purchasing@yale.edu.

WHAT IS SUSTAINABILITY?

A sustainable practice can continue indefinitely without degrading the systems on which it depends.

WHAT MAKES FOOD "SUSTAINABLE"?

Sustainable food is

- **produced by farmers and ranchers who care for the health of their animals and the land**
- **sourced locally and seasonally directly from family farms or farm cooperatives**
- **cooked from scratch to minimize processed ingredients**
- **good for the environment, the people who grow it, and the people who eat it**

WHY PURCHASE SUSTAINABLE FOOD?

It is fresher and more nutritious, and it tastes better.

- Nutrients degrade quickly after harvest, so you want food that is fresh from the field, not food that has traveled for days. After a week in the fridge, spinach retains just half of its folate and around 60% of its lutein (an antioxidant associated with healthy eyes).[1] Broccoli loses about 62% of its flavonoids (antioxidant compounds that help ward off cancer and heart disease) within ten days.[2]
- Organic produce is grown in healthier, more nutrient-rich soil than conventional produce, so its nutrient content is higher. Recent studies have shown that organic peaches and pears have higher levels of vitamins C and E, and organic berries and corn have more of the antioxidants that promote cell health and reduce the risk of cancer.[3]

Sustainable purchasing is better for the environment and the land.

The food we eat and the way we produce it can slow, or hasten, the rate of climate change. Determining the precise level of emissions from food and agriculture is tough, but by one count as much as 31% of greenhouse gas emissions can be attributed to food and agriculture, including emissions from land-use changes such as deforestation to make way for pasture-raising livestock or growing feed for livestock or biofuels. Note that this estimate does not include emissions from food transportation, waste, or manufacturing.

Purchasing locally preserves regional farmland and food security.

Connecticut loses between 6,000 and 9,000 acres of farmland a year to development. As of 1997, Massachusetts was losing around 6,000 acres of farmland a year, and New York around 18,000 acres of farmland a year. Nationally, America loses two acres of farmland every minute, and it lost 12% of its cropland between 1982 and 2003. Keeping local land in farms preserves a region's diversity, in terms of both ecology and culture.

Purchasing locally supports the local economy.

Purchasing from local farms and using local processors drives a robust local economy.

[1] S. Pandrangi and L. F. LaBorde, "Retention of Folate, Carotenoids, and Other Quality Characteristics in Commercially Packaged Fresh Spinach," *Journal of Food Science* 69, no. 9 (2004).

[2] Fernando Vallejo, Francisco Tomas-Barberan, and Cristina Garcia-Viguera, "Health-Promoting Compounds in Broccoli as Influenced by Refrigerated Transport and Retail Sale Period," *Journal of Agricultural and Food Chemistry* 51, no. 10 (May 2003). Released April 10, 2003, at http://pubs3.acs.org/acs/journals/doilookup?in_doi=10.1021/jf021065j.

[3] "Organically Grown Foods Higher in Cancer-Fighting Chemicals than Conventionally Grown Foods," *Science Daily,* March 4, 2003. Available at http://www.sciencedaily.com/releases/2003/03/030304073059.htm; The Rudd Center for Food Policy and Obesity, "Who We Are," online at http://www.yaleruddcenter.org/who/projectfaq.html#three.

OUR CRITERIA

WHAT ARE SUSTAINABLE AGRICULTURAL PRACTICES?

Sustainable agriculture refers to the ability of a farm to produce food indefinitely, without causing irreversible damage to the health of the ecosystem. Sustainable agriculture practices nourish the long-term health of the soil through crop rotation, green manures, and composting.

Sustainable animal husbandry builds an environment that reflects the needs of the animal (what farmer Joel Salatin calls "the chickenness of the chicken") and provides an animal with the diet it evolved to eat; it does not impose an industrial system of production on a set of living beings.

WHAT DOES "LOCAL" MEAN?

The definition of "local" will vary depending on your location and what is available to you. Institutions often choose to define "local" as coming from within 200 miles, or a day's drive. Don't get hung up on state borders or mileage limits. Think about minimizing distance from the source of the food to you, to cut down on fuel emissions from transportation.

WHAT DOES "SEASONAL" MEAN?

Eating in season means eating fruits and vegetables available locally when they're ripe and fresh, full of flavor and nutrients. Eating in season allows us to indulge in the best-tasting food while limiting the ecological impact of transporting food across the country.

This doesn't mean that if you live in the Northeast or somewhere with a similar climate you are left with just root vegetables and squash all winter. You can encourage local farmers to use a variety of techniques to extend the growing season (see p. 9). You can also freeze, bottle, or can local vegetables in peak season, when they taste best and are cheapest to buy (see p. 27).

WHAT IS A "FAMILY FARM"?

Like the term "local," the definition of "family farm" or "small farm" is fluid. A small wheat farm measuring 100 acres would be a very large vegetable farm in the Northeast. Don't measure in acres; measure in the relationship between the person primarily responsible for the farm's operations and his or her relationship to the land.

Look for farmers that own their own animals or land, participate in the daily labor and management of their farms, and get a good portion of their livelihood from their farms. Note that there are good farmers who don't own their own land, but who may lease it long term from organizations like The Nature Conservancy. If you find a farmer who doesn't own his or her own land but fits other criteria, ask more questions about land ownership.

HOW DO WE THINK ABOUT FARM LABOR?

We believe all workers should be paid a fair wage and have dignified working conditions: reasonable hours, fair treatment, good training, safe conditions, and proper washing facilities as minimums. The agricultural sector often depends on seasonal work and on migrant work, and abuses of workers have been widely documented. Though there is not a single certifying agent who evaluates labor practices on farms, you might inspect farm facilities and ask about their labor practices and wages.

SOME OTHER BASICS TO KEEP IN MIND

Know your terms
Terms like "organic," "grass fed," "naturally raised," and "cage free" don't always mean what they seem to mean. Some of these labels (like "organic") are third-party certified—meaning that a grower has to follow a certain set of practices in order to use this label. While certification holds growers accountable, it often falls short of a gold standard of sustainability. Other terms, like "naturally raised," aren't certified at all, and the label means very little. To avoid getting tripped up on these concerns, you need to know what questions to ask to get at the reality of a producer's practices rather than taking all labels at face value.

Go to the Glossary to find out exactly what these terms mean, and which are certified. The "Best Practices" section of this guide will give you more tools to make informed decisions.

Get ready for complexity
When you make purchasing decisions on the basis of sustainability, you will often be faced with a range of possible choices. Sometimes there is a clear best choice, but most of the time you will be weighing a number of competing factors. This guide will arm you with the tools for gold-standard sustainability.

Think about "big organic"
The national press carries big debates about "big organic," a term used to describe farms that follow the USDA's standards for organic certification but produce on an industrial scale. Is it good enough? Does it count as sustainable? At the Yale Sustainable Food Project our priority is to grow organic or sustainable markets that are both close to home and scaled in a way that means that farms' agricultural practices are in harmony with natural systems. This second goal is more difficult to achieve in large industrial agriculture systems.

We start by looking for local organic or sustainable producers; only once we find that a local organic or sustainable producer is not available do we turn to the organic commodity market. Right now, just 3% of the nation's market is organic. By supporting local organic producers whenever possible, we contribute to growing the organic sector overall.

Buy "farm-friendly" food from local people you trust, and almost all the problems of the industrial food system—its unconscionable cost in energy, public health, environmental degradation, and the deterioration of work and community—will pretty much take care of themselves.
— Michael Pollan

Purchasing Categories

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Fruits and Vegetables

Eat food. Not too much. Mostly plants. — Michael Pollan

A healthy plant doesn't make for a healthy bug. — Wayne Young, High Hill Orchard, Connecticut

FACTS

Professor Alyson Mitchell and colleagues at the University of California at Davis collected ten years of data from tomatoes grown in carefully controlled organic and conventional systems. Antioxidant contents varied from year to year but were consistently higher in the organic tomatoes.[4]

According to the EPA, chemical pesticide use in agriculture in the United States has increased from about 900 million pounds in 1992 to about 940 million pounds in 2000: this is more than three pounds of pesticides for every person in the United States.

HELPFUL HINTS

Apples and stone fruits: Apples and stone fruits (plums, peaches, and apricots) are hard to grow organically in the Northeast because of temperature (if it drops below negative 10 degrees Fahrenheit, their buds will freeze) and dampness (which causes an increased likelihood of disease, especially rot). Good apple and fruit farmers in the Northeast use integrated pest management techniques. While conventional growers spray chemical pesticides on a calendar schedule and without consideration for the number of pests actually in the field, an integrated pest management (IPM) farmer who follows the best practices will use a minimum of pesticides and spray only when his crop faces a pest problem rather than regularly. Make sure to ask questions of your IPM farmer to ensure he or she is using the best practices.

We recommend that if you are in the Northeast you choose local, ecologically grown apples from the region over organic apples from across the country. Since apples are heavy, it requires a great deal of fuel to truck them from Washington or Oregon. There is also a long tradition of apple farming in the Northeast, and purchasing from northeastern farms allows you to choose among the best-tasting eating varieties like MacIntosh, Macoun, and Empire.

[4] Alyson E. Mitchell, Yun-Jeong Hong, Eunmi Koh, Diane M. Barrett, D. E. Bryant, R. Ford Denison, and Stephen Kaffka, "Ten-Year Comparison of the Influence of Organic and Conventional Crop Management Practices on the Content of Flavonoids in Tomatoes," *Journal of Agriculture and Food Chemistry* 55, no. 15 (2007).

Tropical Fruits: The following fruits have become staples of the American diet (regardless of season) in the past fifty years. Though you won't find a local banana or a local orange in most parts of the country, you can still find smart ways to serve them.

> CITRUS: Serve oranges and other citrus fruits when they are in season (January, February, and March), even if they are not in season in the northern parts of the United States.
>
> BANANAS: Fair-trade, organic options are readily available. Making an institution-wide change to fair-trade organic bananas is an easy, labor-neutral way to make your purchasing more sustainable. In all-you-can-eat locations, put bananas out for students at breakfast. Students who want them later in the day can ask a staff person to provide one.
>
> MELONS: Eliminate honeydew and cantaloupe from your menus when they are out of season. Serve them during summer months and in the early fall, when they are in season and taste good. During other months, replace melons with hot cereal or other smart options for your area, like berries that were frozen in season.

Extend the season: You can have locally grown greens in January in the Northeast. Farmers can practice season extension through unheated greenhouses, hoophouses, or cold frames. These structures vary in size: some are the size of a building; others, often called "low tunnels," are just two or three feet high. Either way, the basic idea is the same: a frame of metal or wood is covered with a thick layer of transparent greenhouse plastic. The plastic keeps wind and snow out, helps stabilize temperature, and traps sunlight and warmth. The most environmentally sound options are unheated or minimally heated and use little or no fuel.

The unheated structures are perfect for growing early crops of peas or greens, and late crops of spinach, kale, mache, and claytonia. Work with local farmers to explore these options. For more information, look to expert Eliot Coleman's "Winter Harvest Manual" (http://www.fourseasonfarm.com/main/harvest/harvest.html), talk directly to your own farmers, or visit the Yale Farm.

Avoid hothouse tomatoes: Heated greenhouses require fuel for heat and electricity for grow lights. This makes hothouse tomatoes expensive to grow, expensive to purchase, and expensive for the environment. Save using fresh tomatoes for summer months, when they are truly in season.

Minimize pesticide residue: If you find that you must buy conventionally grown crops, consult this list developed by the Environmental Working Group (www.ewg.org) and choose crops with minimum pesticide residue.

MOST PESTICIDE RESIDUE	LEAST PESTICIDE RESIDUE
peaches	onions
apples	avocado
sweet bell peppers	sweet corn (frozen)
celery	pineapples
nectarines	mango
strawberries	peas (frozen)
cherries	asparagus
lettuce	kiwi
grapes (imported)	bananas
pears	cabbage
spinach	broccoli
potatoes	eggplant

BEST

Healthy soil makes for healthy plants. Truly sustainable growers focus on the promotion of soil health through composting, mulching, cover cropping, crop rotation, and crop diversity. These practices build soil fertility by returning nutrients to the soil, building soil structure, and preventing erosion. By building soil health as a foundation, farmers eliminate the need for chemical pesticides, fertilizers, and herbicides.

While organically grown crops are best, ecologically grown or IPM crops are a second-best option. "Ecologically grown" is an uncertified label that signifies that a crop is grown without the use of chemical herbicides or fertilizers. Products with this label can be grown using IPM practices, which minimize but don't rule out the use of chemical pesticides. IPM growers use a variety of techniques: they apply natural substances like kelp, rock powders, and compost to keep crops disease resistant. They monitor trees and set traps to capture insects. Ideally, IPM growers use pesticides only as a last resort, when pest damage would keep them from bringing in a profitable crop.

A note on IPM: If you are working with IPM growers, make sure to listen closely to what they say about their practices. Some less scrupulous growers will adopt the term IPM but still spray regularly.

AVOID

Chemical farming and monocultures
Produce from conventional farms is grown using chemical pesticides, herbicides, and fertilizers. Chemical fertilizers feed the plant just three nutrients: nitrogen, phosphorus, and potassium (N-P-K) and skip a whole variety of trace minerals that are important for soil, plant, and human health. Chemical fertilizers are produced from petroleum, a limited natural resource, and are responsible for a large share of agriculture's greenhouse gas emissions. Nitrogen fertilizers are also responsible for nitrous oxide — the fourth largest contributor to climate change, leading to 6% of global warming.

Monoculture is a single crop grown over many, many acres. Growing a single crop over vast acreage, year in and year out, pulls the same nutrients from the soil every year. Even in a single growing season, this practice depletes the health of the soil and increases pest pressure.

Red flags:
If you hear any of the following comments, ask more questions of the grower.
"You can't grow organic produce in the Northeast."
"Organic crops can only be grown on the West Coast."
"We don't spray that much."

QUESTIONS TO ASK

	Best	Good	Avoid
Are your crops organically grown?	Certified organic Organic but not certified Transitional organic *	IPM (Integrated Pest Management)* Ecologically grown*	Non-organic
How do you fertilize your soil?	Composting Composted manure Cover crops/mulching Crop rotation Crop diversity		
How do you manage pests?	Encourage soil health Encourage holistic soil and plant health Diverse habitat for beneficial insects	Natural pest repellents (hot pepper wax, garlic juice, etc.) Exclusively organic pesticides IPM (integrated pest management) Trapping or monitoring insects for spot spraying or infrequent spraying	Chemical pesticides exclusively
Where is your farm located?	Locally	Regional National	International
What size is your farm? Who owns and operates it?	Family farm Small/mid-sized farm		Large corporate farm Monoculture/agribusiness
What are your labor practices/ policies?	Cooperative of small farms Livable wages Proper washing facilities Proper safety conditions and training (OSHA) Employee benefits/perks		Below minimum wage pay Unsafe work conditions Lack of washing facilities

*See Glossary for details, and ask more questions to determine actual farming practices.

Dairy

FACTS

Milk from pasture-raised organic cows has been shown to have significantly higher levels of vitamin E, omega 3 fatty acids, beta carotene, and other antioxidants than milk from cows raised in confinement.

Your best option is to go organic, but as a minimum first step, eliminate rBST.
Injecting cows with the genetically engineered growth hormone rBST (first engineered by Monsanto in the early 1990s and sold under the label Posilac) enables them to produce up to 10% more milk than they would naturally. At first glance this might seem like a good idea, but it causes severe health problems in dairy cows, such as mastitis, a bacterial infection of the udders. Cows fed rBST face a nearly 25% increase in the risk of clinical mastitis, a 40% reduction in fertility, and a 55% increase in the risk of lameness.[5]

rBST is prohibited in Canada, Japan, Australia, New Zealand, and in the twenty-seven countries of the European Union.

HELPFUL HINTS

Packaging
Work with dairy farmers, cooperatives, or distributors to package their sustainably produced milk in five-gallon pouches for institutional service usage. This eliminates unnecessary packaging and makes the milk usable for your facility. Building a purchasing cooperative with other local institutions could give you the purchasing power to change packaging.

Purchase transitional milk
Transitional dairies are dairies switching from conventional practices to organic practices. Federal regulation requires a three-year conversion period. Because this transitional milk cannot be sold with the organic label, it is less expensive. Purchasing transitional milk can save costs for your institution and support the switch to organic farming.

Cheese
Artisanal cheeses may be most suitable for tastings, special occasions, or catered events. Other cheeses, such as Cabot or Organic Valley cheeses, are more affordable and appropriate for large-scale institutional food service.

[5] I. R. Dohoo, L. DesCôteaux, K. Leslie, A. Fredeen, W. Shewfelt, A. Preston, and P. Dowling, "A Meta-Analysis Review of the Effects of Recombinant Bovine Somatotropin," *Canadian Journal of Veterinary Research* 67, no. 4 (2003).

BEST

Cows are grazing animals, and their stomachs are made to digest grass. Their diets can be supplemented with grain but should not be primarily composed of it. They should never be given rBST or other growth hormones. Animals should be outdoors year round, and their pasture should be free from chemical sprays. Any additional feed they receive should be organic. In the ideal system, cow manure is used as a resource to fertilize pasture.

AVOID

Animals raised in CAFOs (Confined Animal Feeding Operations) are crowded in and fed a grain (usually corn-based) diet, and they are routinely given growth hormones. Their diets might also include animal by-products (the remains of other animals). In this system, manure is a waste product, and it collects in lagoons or is dumped.

QUESTIONS TO ASK

	Best	Good	Avoid
What do your cows eat?	AGA grass-fed certified Pasture-raised (grasses) Pasture-raised (hay and grain silage in winter)	USDA-certified grass-fed*	Conventional grain-fed (contains antibiotics and animal by-products)
What percentage of their diet comes from grazing on pasture?	All Most (they are mostly pasture-raised, except in bad weather)	Some	None (feedlot livestock raised in confinement on grain)
Are cattle given growth hormones or antibiotics?	No growth hormones No antibiotics	Antibiotics only if animals are sick	Routine growth hormone usage
How often are cows/goats milked?	Once or twice a day, seasonally		
Where is your farm located?	Locally	Regional National	International
What size is your farm? Who owns and operates it?	Family farm Small/mid-sized farm Cooperative of small farms		Large corporate farm Monoculture/agribusiness
What are your labor practices/ policies?	Livable wages Proper washing facilities Proper safety conditions and training (OSHA) Employee benefits/perks		Below minimum wage pay Unsafe work conditions Lack of washing facilities

*See Glossary for details, and ask more questions to determine actual farming practices.

Eggs O

The Certified Humane label assures our customers that we care not only about the quality of our eggs but about the well-being of our hens. — Kiasa Stiebrs, Stiebers Farm, Washington

A farm should make room for the chickenness of the chicken. — Joel Salatin, Polyface Farms, VA

FACTS

According to the USDA's Nutrient Database, factory-farm eggs contain 20% less iron and 59% less vitamin A than they did in 1975.

Eggs from pasture-raised chickens are healthier than their factory-farmed counterparts. A study from Pennsylvania State University found that eggs from pasture-raised birds have 10% less fat, 34% less cholesterol, 40% more vitamin A, and four times more omega-3s than factory-farmed birds.[6]

The terms "cage free" or "free range" as defined by the USDA means **the birds have "access" to the outdoors.** Farmers have to take only minimal steps to provide this kind of access; they may, for example, cut one small doorway in a barn filled with thousands of chickens. Many of the birds will never actually be able to go outside. Even if they do go outside, farmers may provide only a yard covered in concrete or gravel, or an area full of animal feces, rather than a space with the grass and bugs chickens need to graze on.

If producers or distributors call their birds "cage free" or "free range," **ask more questions** to determine if their farming practices are actually sustainable and humane.

[6] "Transitioning to Organic Production," Sustainable Agriculture Research and Education Bulletin, available online at http://www.sare.org/publications/organic.htm.

BEST

Eggs from birds raised on pasture, roaming and grazing, with room to peck and eat bugs. The birds' feed should be organic, all-vegetarian feed; this ensures that they are not eating animal by-products. Their food should also be free of antibiotics.

AVOID

Factory-farmed eggs from birds raised in unsanitary and inhumane conditions, like tiny cages or huge, overcrowded barns. Because birds want to peck, farmers debeak them so that they won't peck one another in their packed cages. These chickens are fed conventional grain feed, which sometimes contains animal by-products or genetically modified (GMO) grains, as well as antibiotics to help them fight off the illnesses brought on by their unsanitary living conditions.

QUESTIONS TO ASK

	Best	Good	Avoid
What do your chickens eat?	Certified organic feed, and they graze outside every day	All-vegetarian feed with no antibiotics, and they graze outside every day Certified organic feed*	Conventional grain feed (contains antibiotics and animal by-products)
Are your chickens free range or cage free?	Yes, they spend a good portion of every day outside grazing on grass and pecking dirt	Yes, they have access to outdoors*	Yes, but they "prefer" to stay in the barn No, they are caged or in a crowded barn
Are your chickens debeaked or force-molted?	No debeaking or force molting Certified humane beak trimming		Debeaking Forced molting
Where is your farm located?	Locally	Regional National	International
What size is your farm? Who owns and operates it?	Family farm Small/mid-sized farm Cooperative of small farms		Large corporate farm Monoculture/agribusiness
What are your labor practices/ policies?	Livable wages Proper washing facilities Proper safety conditions and training (OSHA) Employee benefits/perks		Below minimum wage pay Unsafe work conditions Lack of washing facilities

*See Glossary for details, and ask more questions to determine actual farming practices.

Poultry

In sullen moments I blame almost everything on the vertical integration of the broiler industry. — Calvin Trillin

FACT

Eggs from free-range hens have more folic acid and vitamin B12—both of which promote healthy skin—than eggs from caged hens raised on factory farms.

HELPFUL HINTS

Free-range birds tend to vary in size compared with industrially raised birds. For example, one case of free-range boneless chicken breasts may contain breasts that range in size from three to seven ounces. When developing recipes, use chicken parts **by weight rather than by piece** to have more accuracy in production and ordering. Large cutlets could be filleted to meet the appropriate portion size, or chicken could be sliced rather than using whole breasts.

Beware of chicken breast overkill: Cuts like thighs and legs are cheaper and can be braised or roasted for large-scale production. Using these parts also gives you an opportunity to show students through your menu that there is more to chicken than just the breast.

BEST

Poultry raised on pasture, roaming and grazing, with room to peck and eat bugs. The birds' feed should be organic, all-vegetarian feed; this ensures that they are not eating animal by-products. Their food should also be free of antibiotics.

AVOID

Factory-farmed poultry raised in unsanitary and inhumane conditions, like tiny cages or huge, overcrowded barns. Because birds want to peck, farmers debeak them so that they won't peck one another in their packed cages. These chickens are fed conventional grain feed, which sometimes contains animal by-products or GMO grains, as well as antibiotics to help them fight off the illnesses brought on by their unsanitary living conditions.

QUESTIONS TO ASK

	Best	Good	Avoid
What do your birds eat? Are they organic?	They graze outside every day (in season and weather permitting) and eat certified organic feed	All-vegetarian feed with no antibiotics, and they graze outside every day Certified organic feed, with outdoor access	Conventional grain feed (contains antibiotics and animal by-products) raised in a cage or crowded barn
Are the birds ever given antibiotics?	Never given antibiotics	No routine antibiotics, only when a flock is sick	Routine antibiotic usage
Are your chickens free-range or cage-free?	Yes, they spend a good portion of every day outside grazing on grass and pecking dirt	Yes, they have access to outdoors*	Yes, but they "prefer" to stay in the barn No, they are caged or in a crowded barn
Are your birds debeaked?	No debeaking Certified humane beak trimming		Yes
Where is your farm located?	Locally	Regional National	International
What size is your farm? Who owns and operates it?	Family farm Small/mid-sized farm Cooperative of small farms		Large corporate farm Monoculture/agribusiness
What are your labor practices/policies?	Livable wages Proper washing facilities Proper safety conditions and training (OSHA) Employee benefits/perks		Below minimum wage pay Unsafe work conditions Lack of washing facilities

*See Glossary for details, and ask more questions to determine actual farming practices.

Beef & Lamb

If humane treatment and animal health are the focus of the producer, most of the other best practices will follow suit. — Craig Haney, Stonebarns Center for Food and Agriculture

FACTS

"Compared to grain-fed meat, grass-fed meat is lower in saturated fat and higher in omega-3 fatty acids, vitamin E, and conjugated Linoleic Acid (CLA), a nutrient associated with lowered cancer risk."
— www.sustainabletable.org

Cow and lamb stomachs are made to eat grass, not grain. Grain fattens cows and lambs up more quickly but also changes the acidity in their stomachs, leading to **the presence of *E. coli* bacteria 0157:H7,** which can cause severe illness or death in humans. Crowded, unsanitary conditions in feedlots where animals are often knee-deep in manure mean that manure (and *E. coli*) gets on animal hides. At slaughterhouses, the manure and *E. coli* are spread from the hides to the meat itself.

HELPFUL HINTS

Farmers may be able to sell expensive cuts like tenderloin to restaurants and retailers but have a hard time moving less costly cuts of meat. Offer to use the rest of the animal and incorporate the cheaper cuts into your menus. These cuts tend to be more flavorful and better suited to institutional markets. For instance, many farmers have ground beef in excess and will make purchasing deals if you can buy it in bulk. Incorporate it into the burgers, meatloaf, lasagna, and tacos on your menu.

Deli meats: Deli meats often have added preservatives and other artificial ingredients. Look for deli meats free of nitrates, sodium benzonate, corn syrup, artificial colors, or flavors. Be wary of phrases like "natural flavors," which often mean very little.

Grass-finished or grain-finished: Try to find animals that are grass fed and grass finished. Know that the best grass-finished beef is available only during the grazing season (late spring, summer, and early fall). During the rest of the year, animals are finished on grain, which adds some fat to the meat. If you can only find animals that are grass fed and grain finished, look for animals that have been grain finished for as short a time as possible (this will usually mean the last 60 to 90 days of the animals' feeding period) by small or mid-sized farmers. Find out what the finish diet is composed of; a good producer will feed cows a finish diet that is 50% forage (grass based). Be wary if the finish diet is 80% to 90% grain. Conventional beef production takes calves that began their life on pasture and brings them to confinement feedlots, where they are brought to weight on grain. It is possible to spin this process and describe it as "grass fed, grain finished."

We believe that there is a difference between a conventional beef operation that does this and a local, mid-sized grass-based grower who, for the last six weeks of a cow's life, incorporates grain into its diet. Although the grass-fed, grass-finished diet is the gold standard, it may not be practical in all parts of the country. The best advice is to know your farmer and understand what works best for your local agricultural community.

BEST

Cows and lambs are meant to graze on grass and to be outdoors year round. Their pasture should be free from chemical sprays. In winter months, they may be fed silage or bailage, since snow cover makes grazing impossible. They should not be routinely fed antibiotics or growth hormones. Any additional feed they receive should be organic. In this system, manure is a source of fertility and is used to fertilize pasture rather than collecting in lagoons that pollute the air, surface water, and ground water.

AVOID

Conventionally grown beef, beef that is grain fed, and beef from feedlots. Cows in CAFOs eat a diet that is designed to be cheap and to fatten them up quickly; they eat mostly grain and are routinely given growth hormones and antibiotics. These diets might also include animal by-products (the remains of other animals). In this system, manure (which is contaminated by the animals' unnatural diet and the antibiotics and growth hormones given to the animals) is a waste product and collects in lagoons.

QUESTIONS TO ASK

	Best	Good	Avoid
What do your herds eat?	Grass (AGA certified grass-fed) Pasture (grasses) Pasture hay and grain silage in winter)	Fresh pasture, hay and grain USDA-certified grass-fed	Conventional grain feed (contains antibiotics and animal by-products)
What percentage of their diet comes from grazing on pasture?	All Most, except when season does not permit	Half	None
Are cattle given growth hormones or antibiotics?	No growth hormones No antibiotics	Antibiotics only if an animal is sick	Routine growth hormone usage Routine antibiotic usage Antibiotics mixed into feed
Where is your farm located?	Locally	Regional National	International
What size is your farm? Who owns and operates it?	Family farm Small/mid-sized farm Cooperative of small farms		Large corporate farm Monoculture/agribusiness
What are your labor practices/ policies?	Livable wages Proper washing facilities Proper safety conditions and training (OSHA) Employee benefits/perks		Below minimum wage pay Unsafe work conditions Lack of washing facilities

*See Glossary for details, and ask more questions to determine actual farming practices.

Pork

Someone has observed that a pig resembles a saint in that he is more honored after death than during his lifetime.
— The Joy of Cooking

FACT

Pigs are omnivores: they eat both plants and animals. They are intelligent animals that need the stimulation of grazing, rooting, and foraging for food.

HELPFUL HINTS

Chose "trash" cuts: To stretch your budget, don't buy pork loins or pork chops; cuts like the shoulder or butt are more economical, since fewer chefs and home cooks know how to use them. They will be most tender and delicious when slow cooked.

Additive free: Ham, bacon, and other pre-made pork products will often have added preservatives and other artificial ingredients. **Look for meats free of nitrates, sodium benzonate, corn syrup, and artificial colors or flavors.** Avoid meats with "natural flavors" added; these are often highly processed additives.

BEST

Pigs should be raised on pasture where they can root, roam, and forage, not in cages or barns. When inside, they need deep hay for bedding. Some very admirable producers raise their pigs in Swedish-style large barns; this is an acceptable practice if, and only if, the barns are deeply bedded, so that sows can make nests when pregnant.

While pigs may eat some grain, organic feed is best. Their feed should contain small grains like barley, oats, rye, triticale, and wheat, which all have higher amounts of protein than corn. They may also receive pre-consumer food scraps. They should not receive antibiotics or growth stimulants. Pregnant or nursing sows should not be kept in cages, and piglets should be cage free, or in deeply bedded pens, from birth.

Make sure that 100% of the hogs raised by your suppliers meet your standards. Some factory producers will raise most of their pigs in factory conditions but a few in humane and sustainable conditions, then use the economies of scale from factory operations to undercut the prices of smaller producers who raise all of their hogs humanely.

AVOID

Avoid pigs raised in confinement and fed on corn-based feed that may contain animal by-products and usually contains antibiotics. Industrially raised pigs are confined to cages or overcrowded barns, often with concrete floors rather than the hay they need for bedding. Pregnant and nursing sows are kept in tiny cages with no bedding or room to turn around.

QUESTIONS TO ASK

	Best	Good	Avoid
What do your pigs eat? Are they organic?	Pasture and certified organic feed Pre-consumer food scraps Pasture (grasses and legumes) Some small grains (barley, oats, rye, triticale, and wheat)	Organic grain	Conventional grain feed (contains antibiotics and animal waste products) Garbage Bakery waste
Are pigs given antibiotics?	No	Antibiotics only if an animal is sick	Antibiotics are mixed into their feed
Where do your pigs live?	Outside much of the day (weather permitting) and in barns with plenty of hay for deep bedding Pasture for roaming and rooting Pregnant sows have plenty of room to roam and rest		Industrial feed lot Crowded pens Gestation and farrowing pens Concrete floors
Do you practice nail clipping or nose ringing?	No	No	Yes
Where is your farm located?	Locally	Regional National	International
What size is your farm? Who owns and operates it?	Family farm Small/mid-sized farm Cooperative of small farms		Large corporate farm Monoculture/agribusiness
What are your labor practices/ policies?	Livable wages Proper washing facilities Proper safety conditions and training (OSHA) Employee benefits/perks		Below minimum wage pay Unsafe work conditions Lack of washing facilities

*See Glossary for details, and ask more questions to determine actual farming practices.

Fish

Sometimes the best fish is farm raised, sometimes it is wild caught—it all depends on the species, its environment, and (for farmed fish) the farm on which it was raised. Monterey Bay Aquarium's Seafood Watch program and the Marine Stewardship Council are the best sources for thinking about how to purchase sustainable fish: they provide questions to ask your suppliers and lists of fish that are sustainable, depending on your region.

The Monterey Bay Aquarium's Seafood Watch Program, www.mbayaq.org
Download or order free copies of comprehensive pocket-sized seafood buying guides that are tailored to your region, or refer to a national guide that can be used anywhere in the United States. The pocket guides are updated annually and recommend fish that are caught in a way that is good for the environment and that are safe for humans to eat.

Marine Stewardship Council, www.msc.org
A global nonprofit certification of sustainably caught fish; the Marine Stewardship Council does not address farmed fish.

BEST

From Seafood Watch:
"Farmed oysters, clams and mussels are a good choice."

"The best way to raise fish may be inland, far from coastal waters where wild fish feed and breed. Tilapia, a plant-eating fish, is easy to raise, and produces protein for people without using wild fish as feed. Catfish and trout are raised inland in the United States."

For more information, go to Seafood Watch (www.seafoodwatch.org) or to the Marine Stewardship Council (www.msc.org).

BEST CHOICES	GOOD ALTERNATIVES	AVOID
Arctic Char (farmed) Barramundi (US farmed) Catfish (US farmed) Clams (farmed) Cod: Pacific (Alaska longline)+ Crab: Dungeness, Stone Halibut: Pacific+ Lobster: Spiny (US) Mussels (farmed) Oysters (farmed) Pollock (Alaska wild)+ Salmon (Alaska wild)+ Scallops: Bay (farmed) Striped Bass (farmed or wild*) Sturgeon, Caviar (farmed) Tilapia (US farmed) Trout: Rainbow (farmed) Tuna: Albacore (US+, British Columbia troll/pole) Tuna: Skipjack (troll/pole)	Basa, Swai (farmed) Clams (wild) Cod: Pacific (trawled) Crab: Blue*, King (US), Snow Crab: Imitation/Surimi Flounders, Soles (Pacific) Herring: Atlantic/Sardines Lobster: American/Maine Mahi mahi/Dolphinfish (US) Oysters (wild)* Scallops: Sea Shrimp (US farmed or wild) Squid Swordfish (US longline)* Tuna: Bigeye, Yellowfin (troll/pole) Tuna: canned light, canned white/Albacore*	Chilean Seabass/Toothfish* Cod: Atlantic Crab: King (imported) Flounders, Soles (Atlantic) Groupers* Halibut: Atlantic Lobster: Spiny (Caribbean imported) Mahi mahi/Dolphinfish (imported) Marlin: Blue*, Striped* Monkfish Orange Roughy* Rockfish (Pacific) Salmon (farmed, including Atlantic)* Sharks* Shrimp (imported farmed or wild) Snapper: Red Sturgeon*, Caviar (imported wild) Swordfish (imported)* Tuna: Albacore, Bigeye, Yellowfin (longline)* Tuna: Bluefin*

Support Ocean-Friendly Seafood

Best Choices are abundant, well-managed and caught or farmed in environmentally friendly ways.

Good Alternatives are an option, but there are concerns with how they're caught or farmed – or with the health of their habitat due to other human impacts.

Avoid for now as these items are caught or farmed in ways that harm other marine life or the environment.

Key
* Limit consumption due to concerns about mercury or other contaminants. Visit www.edf.org/seafood
+ Some or all of this fishery is certified as sustainable to the Marine Stewardship Council standard. Visit www.msc.org

Seafood may appear in more than one column

QUESTIONS TO ASK

Is the fish farm raised or wild caught?

Where is it from? (What country, state, and region?)

How was it farmed or caught?

Note: As mandated by the federal Farm Bill, large retailers are required to label most of their seafood with information about whether it was farmed or wild and what country it is from. Therefore, more and more suppliers have this information readily available.

BASIC ISSUES

Overfishing:
"Overfishing means catching fish faster than they can reproduce. Overfishing pushes the fish population lower and lower."[7]

Habitat Damage:
There are many different methods of catching fish. Some cause substantial damage to the sea floor, destroying fish habitat.

"Bottom trawlers catch fish by dragging nets across the seafloor. Some trawlers put rockhopper gear, including old tires, along the base of their nets to roll over rocky reefs so they can catch fish hiding between the rocks. Dredges drag nets with a chain mesh base through soft sand or mud to catch scallops and sea urchins. These types of fishing gear crush life on the seafloor and damage the places where fish feed and breed."

Bycatch:
"According to the United Nations Food and Agriculture Organization, one in four animals caught in fishing gear dies as bycatch—unwanted or unintentional catch. . . . Dolphins, sea turtles, seals and whales all get caught by accident in fishing gear and drown. Seabirds, including endangered albatrosses, drown when they snatch baited hooks and are pulled under water."

Unsustainable fish farms:
Net-pen farming can be a messy business:
"Many farmed fish, including most farmed salmon, are raised in net pens, like cattle in a feed lot. Thousands of fish concentrated in one area produce tons of feces, polluting the water. Diseases can spread from fish in the crowded pens to wild fish."

Shrimp farming can harm the coast:
"In Thailand, Ecuador, and many other tropical nations, coastal forests of mangroves once sheltered wild fish and shrimp, which local people caught to feed their families. Mangroves also filter water and protect the coast against storm waves. Many mangrove forests have been cut down and replaced with shrimp farms."

To learn more about these issues and to access more resources, go to www.seafoodwatch.org and access their "Tools for Retailers & Restaurants" Web page.

[7] The quotes in this section have been excerpted from Monterey Bay Aquarium's "Seafood Watch" guide; see www.seafoodwatch.org.

Dry Goods, Oils, Spices

FACT

Rats know the difference: a team of Swiss and Austrian scientists recently concluded a twenty-one-year study of organic wheat production. As an "integrative method" for assessing quality, they gave forty rats a choice of biscuits made from organic or conventional wheat. The rats ate significantly more of the organic wheat biscuits. The authors call this result remarkable, because they found the two wheats to be very similar in chemical composition and baking performance.[8]

HELPFUL HINTS

Find out what's already available, then work to expand your options.
Ask your distributors or check with local farmers' markets or local bottling facilities to find local products that are already available. Honey, jam, bread, grains, and bottled sauces are all good possibilities. Some businesses may be willing to make an organic version of a product they already produce if your institution can commit to buying a large enough volume.

Partner with others and buy in bulk
Some organic products are available in two ways on the market: by shipping container or in retail packs. Neither really works for an institution. You might be able to negotiate purchases of large quantities by partnering with other schools, institutions, and local businesses who are also looking for the same product and working with a local distributor. If you can aggregate adequate volume over time (either on your own or with partners), the distributor can hold a product in a warehouse and deliver to you and your partners as needed for a small fee.

[8] Harold McGee, "Organic, and Tastier: The Rat's Nose Knows," *The New York Times*, October 3, 2007.

BEST

Purchase organic and local bulk dry goods whenever possible. As a second-best option, use organic products from U.S. producers outside your region. If you can't get U.S. organic, get international organic.

Oils
Ideally, purchase an organic oil or an organic expeller-pressed oil, if your budget allows. As a second choice, buy oils that are less likely to be made from ingredients that are genetically modified. The vegetable oils used in most kitchens are usually made of corn, soy, or canola, all of which (if they're not organic) are likely to be genetically modified. Switching from a non-organic vegetable oil to a non-organic safflower or sunflower oil would be a good choice; these oils still have a high smoke point but are less likely to be genetically modified.

Try switching all cooking oil to organic non-olive oil (such as canola). For raw oils (such as for use in salads) go with 50% good organic olive oil and 50% organic non-olive oil.

Another important step is to remove trans fats from your kitchen: get rid of hydrogenated, partially hydrogenated, or interesterified oils. A number of cities are now outlawing trans fats in restaurant kitchens, and educated consumers often want to avoid them.

Sugar and spices
Organic sugars are now widely available. Start offering only organic sugar with coffee. In your baked goods, proceed more carefully: organic sugar is a great choice, but you'll need to test and refine recipes when you substitute organic for conventional sugar, as it will change the texture of whatever you're baking.

Organic spices are also available, but because there is limited production of organic spices, these items tend to be costly. Make the switch if you can afford to. If you need to use those dollars elsewhere, keep an eye on this market, as it will grow in the future. In the meantime, partner with local farmers to produce the fresh herbs you need.

Coffee, Tea, Chocolate

These items are usually impossible to source locally, but they're also not items an institution usually wants to give up. Making a universal change to fair trade and organic coffee, tea, and chocolate is an easy and labor-neutral change to implement and will send a clear message about your sustainability priorities.

At many universities, students have advocated for fair trade coffee, tea, and chocolate because these industries have been heavily based on exploitative working conditions. They have also been environmentally destructive, involving the clear cutting of rainforests to make way for plantations and extensive air and water pollution from chemical pesticide and fertilizer use.

Today, there are many good choices in the market: look for certified organic, certified fair trade, and sustainably grown brands.

BEST

Because you probably won't be able to visit or talk directly to a grower when purchasing coffee, tea, or chocolate, rely on third-party certification, particularly the certified fair trade and organic labels. The organic label certifies that the product is grown in an ecologically sound manner, and the fair trade label holds growers and distributors to an international standard of both environmental sustainability and fair labor practices. The best option is a fair-trade organic product. Coffee should be fair trade, organic, and shade grown, meaning that it was planted in the shade of trees rather than in land that was clear-cut for coffee production.

QUESTIONS TO ASK

Where is the coffee, tea, or chocolate grown?

Is it organically grown?

Is it fair-trade certified?

Can you give me the brand names, so that I can check their Web site to learn more about the company's practices?

Is the coffee, tea, or chocolate available in bulk quantities?

SUCCESS STORIES

WILLIAMS COLLEGE: INDIVIDUALLY QUICK FREEZING

The dining services at Williams College, in Williamstown, Massachusetts, have been preserving the summer's bounty. Every summer the staff Individually Quick Freeze (IQF) summer produce. Director of Dining Services Bob Volpi comments that this is a powerful way to use twelve-month employees during the summer months.

YALE'S SALSA

In 2005 Yale University Dining Services and the Yale Sustainable Food Project collaborated with George Purtill at Old Maids Farm in South Glastonbury, Connecticut, to produce 26,000 pounds of salsa.

Yale University Dining Services found the processor, tested a recipe, and then worked with George and the processor D'Onofrio's to scale up production. The Sustainable Food Project helped George select a good tomato variety (one with low water content and high flavor that would ripen during a small window of time). George planted three acres in tomatoes, cilantro, onions, garlic, and peppers.

Yale got a great salsa to use in its dining halls and sell in retail locations. George had income he could count on: he had already sold three acres of produce before he even put seeds in the ground. Partnering with George in advance for a high volume of tomatoes reduced the price by 60% and also discounted the price of organic tomatoes served in salads and on sandwiches in Yale's dining halls last fall. The partnership also saved more than 1,000 gallons of diesel fuel and decreased Yale's contributions to greenhouse gases.

TELL US YOUR STORIES

We are looking for your input on the next edition of this guide. If you have a success story about your institution, please share it with us by e-mailing it to food.purchasing@yale.edu.

HOW: EASY FIRST STEPS

At the outset, making the switch to sustainable purchasing may seem overwhelming, but you don't need to do it all at once. Here are some preliminary steps to take.

Before you start
Lay out a clear plan for changes, with a timeline.

Talk to your purveyors and work with what is already there, then ask for more
Let your purveyors or distributor know that you are interested in making more local and/or organic purchasing choices. See what products they already have that meet your objectives. Find out what is available and when. If you work with a distributor who doesn't have specifics about farmers' growing practices, ask for farm names and start contacting farms yourself. See the "Purchasing Categories" section of this guide for what to look for and questions to ask.

Tweak existing recipes to fit what's locally and seasonally available
Start organizing your recipe database by season. See what local or seasonal ingredients you can swap into recipes you already have. As you are doing this, make sure to focus on the recipes that taste great: select, test, and refine recipes to make sure the food you serve will be delicious; doing so will ensure its popularity with students.

Create menu flexibility
Create recipes that are similar but that allow you to change a key ingredient as the seasons change. This will allow you flexibility as the seasons change, or even within a season if you unexpectedly find yourself low on a key seasonal ingredient.

Switch from pizzas topped with fresh tomatoes and eggplant in September to ones topped with broccoli rabe or leeks and onions in the late fall. In winter months, the same pizza can be topped with roasted slices of delicata squash, sage, and Gruyère cheese, or with thinly sliced potatoes and rosemary.

Don't sweat the small stuff
If you want to make a quick impact, change high-volume products first. Start with the main ingredients and move forward from there.

Every single minute of every day, America loses two acres of farmland. — American Farmland Trust

HOW: GETTING THE FOOD TO YOU

The Institutional Advantage
Often, farmers can get higher margins by selling to high-end restaurants or at farmers' markets, and not every farmer will want to give those up. Other farmers see clear advantages in partnering with institutions. Advantages include:

- Low marketing costs
- High volume
- Steady population over many years
- Predictable usage regardless of economic fluctuation
- Ability to use irregular crops (odd sizes, slight imperfections)

Talk to your distributor about finding farmers in your area who might be willing to partner with an institution. For more resources as you seek out farmers, go to the Resources section of this guide.

Institutions and distributors can use their purchasing power to help build the market for sustainably grown foods. Through their connections with farmers they can spread information about agricultural training resources to help farmers transition from conventional farming to sustainable organic farming practices. See Resources section on farmer training.

Planning ahead: track velocity
Keep track of your velocity and record what and how much you use each week. This way, you will know what you need from farmers throughout the year; as you develop relationships with them, your records can even help them plan their crop schedule for the next growing season.

WORKING DIRECTLY WITH FARMERS

You may want to work directly with a few farmers to buy your produce; if your institution is small, you could purchase the bulk of your produce this way. If you're at a large institution, you may be able to purchase directly for one particular recipe, or for produce you plan to process. This relationship can be immensely satisfying to culinary staff and to students and can lead to both lower prices for institutions and higher returns for farmers.

Talk to farmers to see what their farming practices are, what and how much they grow, and when they expect to have produce available.

Find out when farmers can deliver, what their minimum order is, and if they have product liability insurance.

If volume demands it, focus on growers who are geared toward wholesale production.

Partner and collaborate with the farmer: once you've built a relationship with him or her, you can create crop plans and delivery schedules together, and work with them to extend the growing season so that you'll have produce available to you for a longer period of time.

WORKING WITH DISTRIBUTORS

An effective distributor can do a lot of leg work for you: he or she will manage delivery, coordinate farms, manage crop availability through the season and crop substitution when an item runs out, back haul, and provide farmer training on everything from packaging to labeling to consistent case weights.

A bad distributor may try to gouge farmers with low prices or pass off conventionally grown food as organic or ecologically grown. Make certain your distributor is willing to have a transparent relationship with you, and check regularly with farmers to make certain they feel well served by that relationship. Maintain a dialogue with your distributor and write some of the sustainable food purchasing criteria into your contract with him or her.

- Tell your distributor what you are looking for. Let him or her know your institution's priorities and ask for information about the farms and their practices.
- Some distributors are already sourcing local and organic foods – see what and how much they have and when they have it.
- Connect farms that you want to work with the distributor you already use.
- If you want to work with a farmer, but he or she doesn't have the product liability insurance you need to protect your institution (and the farmer), distributors can often provide this insurance.

Managing the relationship between farmers and distributors

Once you decide to involve a distributor, you need to manage that relationship so that farmers are treated equitably. To make the relationship successful:

1. Create clear expectations
   Make sure both the distributor and the farmers know you want to pay farmers a fair price. At Yale, we ask farmers to build their pricing through covering their costs and allowing a reasonable profit. Usually this is close to the market price; sometimes it is above, sometimes it is below.
2. Communicate regularly
   Sit down and meet with farmers at least once a year. Check in with them periodically to see how they feel the relationship is going. Do the same with your distributor.
   Give the distributor and farmers your phone number, e-mail address and cell phone. They should feel free to call you when there is a problem. In particular, farmers should call you if they feel something is amiss (you are not using enough of the product you pledged to purchase, or if prices are below what was agreed upon, etc.).
3. Develop an evaluation system
   This system should measure the success of the relationship: is it working for the institution? For the farmer? For the distributor?

Working with a forager

Consider hiring a "forager" or "sourcing coordinator," as this position can more than pay for itself. Ideally, this person can work with farmers to extend their growing seasons, transition to better growing practices, and coordinate menu planning with crop availability. By maintaining a dialogue with farmers, distributors, and executive chefs, the person in this position can streamline the sustainable food purchasing system.

HOW: USING WHAT YOU GET

PRESERVE THE HARVEST

Think ahead: seasonal planning can allow you to freeze or bottle produce in season to use year round. Buying in bulk in season results in much lower pricing on local sustainably grown foods.

- Connect with farmers who might grow crops for bulk purchasing. Begin conversations about the volume and types of crops you hope to purchase.
  — **Tip:** farmers buy seed and plan their crops many months before the growing season begins. Start conversations about bulk purchases well in advance.
- Find existing food processors in your area, like a local company that makes tomato sauce, a local baker, or a local jam processor—can they make you a similar product using organic and local ingredients?
  — **Tip:** provide a recipe: this will make their job easier and ensure that the end product meets your standards.
- Connect the processor and the farmer directly to arrange harvest and delivery schedules.

LABOR — JUST-IN-TIME FOOD PROCESSING

If labor cost has a big impact on your menu planning, find an existing food processor in your area that will peel or chop vegetables for you. This way you'll be able to add more fresh produce to your menu without increasing your labor costs.

- Test your labor cost and product yield on each type of produce to see if it is cost effective to have the processing outsourced.
  — Take a case of butternut squash, weigh it, then peel and seed it. What is your final yield? How long did it take to process? What are your labor costs? Decide if it is worth it to buy a pre-processed product..
- Find out how much lead time the processor needs to have on each item, and what quantities they can work with.
- Connect farmers directly with the food processor.
- Keep standards high:
  — Choose to process produce whose quality won't suffer. Garlic and onions lose their zing when they're cut more than a day before use, but butternut squash and carrots don't.
  — Don't let processed produce wilt in walk-ins at the processor or at your institution. Process, deliver, and use produce so that it is as fresh as it would be if it were processed in house. Set up systems with your processor and in your dining hall that will enforce this.

SOME STRATEGIES FOR IMPLEMENTING INSTITUTIONAL CHANGE

1. Develop a strategic plan (long-term and short-term goals)
- Define what sustainable food means to your institution.
- What are your long-term and short-term goals?
- What is your timeline for implementing these goals?
- What is the budget for making these changes?

2. Build a leadership team
- Build a team to define and implement your goals.
- Include staff at all levels so that everyone in the institution is aware of your goals and plans and will support them.

3. Develop an operational plan
- How are you going to implement your strategic plan?
- What is your process for finding local ingredients, planning menus, engaging staff, marketing your program, managing waste, and so on?

4. Document changes and successes
- Keep track of successes you have and changes you make. This will help you to gauge your progress and reevaluate purchasing decisions over time.

AN INSTITUTION-WIDE SUSTAINABILITY PLAN:

Find your allies, build bridges, and pool resources

Food is only a part of creating a sustainable institution. Do a little investigating and see if there are other people working on sustainability from a different angle. See if you can join forces to accomplish more.

Areas to consider:
- **Transportation**
- **Water usage and quality**
- **Energy: greenhouse gas reduction, lighting**
- **Buildings: design and construction**
- **Land care**
- **Procurement: supplies**
- **Facilities: cleaning supplies**
- **Waste management: recycling and compost**
- **Education**

See Resources section for more information.

GLOSSARY

ALL-NATURAL
No artifical ingredients were added in processing. Produce grown with chemical pesticides and meat raised with antibiotics or hormones can be labeled "all natural." The label applies only to what happens after the growing process; for example, if preservatives are added as fruit becomes juice or meat becomes deli cuts, these products cannot be labeled "all natural."

ANTIBIOTIC FREE
No antibiotics were given to the animal during its lifetime. If an animal becomes sick and is given antibiotics just to treat that illness, it can not be sold with this label.

CAGE FREE
Birds were not raised in cages. They may still have been kept in overcrowded barns with no access to the outdoors. Ask more questions to see if birds were "pasture raised" rather than just cage free.

CERTIFIED HUMANE
Official certification that indicates that egg, dairy, meat, and poultry products have been produced with the welfare of the farm animal in mind. Animals must be allowed to engage in their natural behaviors and must have sufficient space to live in, appropriate conditions, time outdoors, fresh water, gentle handling by farm workers, and a healthy natural diet free of antibiotics, hormones, or animal by-products. These animals must also be slaughtered using a higher standard than the Federal Humane Slaughter Act.

COOPERATIVE
An autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and democratically controlled enterprise.

DAIRY COOPERATIVE
A dairy producer jointly owned and operated by a group of small farmers. This allows small dairy farms to pool their resources and share in milk processing costs, and often allows farmers to maintain more sustainable farming practices.

CONVENTIONALLY GROWN
Food grown using chemical fertilizers, pesticides, and herbicides.

CROP ROTATION
The practice of alternating different crops in a field in planned cycles in order to improve soil health and reduce the need for fertilizers. This practice increases the long-term productivity of the soil and reduces the number of insects and diseases plants have to contend with.

DEBEAKING
The practice of cutting off one-half to two-thirds of a bird's beak to reduce birds' "cannibalistic" pecking (i.e., pecking one another to death), a behavior that is a result of the severe overcrowding of birds in factory farms. Debeaking is not the same as humane beak trimming.

ECOLOGICALLY GROWN
An uncertified label that signifies that a crop is grown without the use of chemical herbicides or fertilizers. Products with this label can be grown using integrated pest management (IPM) practices, which minimize but don't rule out the use of chemical pesticides. When you see this label, ask more questions to find out what practices the farmer is actually using.

FAMILY FARM
A farm managed by a family or individual who owns the animals or land, gets a good portion of their livelihood from the farm, and participates in the daily labor to work and manage the farm. The USDA also defines a family farm as having less than $250,000 gross receipts annually.

FAIR TRADE
A certified label that guarantees that farmers and their workers got a living wage and a fair price for their labor and their product, and that the product was produced in an ecologically sound manner.

FREE RANGE
A USDA-certified label that guarantees that animals (usually poultry) had room to move around and "access to the outdoors." These standards apply to poultry bred for eating only, not to hens that produce eggs. It does not guarantee that the animals ever went outside or that the outdoor space provided was good pasture. When you see this label, ask more questions to find out what practices the farmer is actually using.

GMO CONTROVERSY
Certified organic products may not contain GMOs. The USDA states that genetically modified organisms (GMOs) are safe for human consumption, but since GMOs remain a fairly new development in agriculture, there is no long-term evidence to support this claim. The general consensus is that there are few reliable data available at this point to prove either the safety or the risks of GM foods. Labeling of any product containing GM ingredients is required in the European Union but not in the United States. Worldwide and in the United States, the four most commonly genetically modified crops are corn, canola, cotton, and soy.

GRAIN FINISHED
Livestock who are fed only grain before slaughter. Some farmers will raise their animals on grass, then feed them grain for a period of time before slaughter to make the meat fattier and give it the more marbleized look and taste Americans expect. Since Americans are used to conventionally raised (grain-fed) beef, they expect a fattier product, with the marbled appearance they are used to.

GRASS FED (AMERICAN GRASSFED ASSOCIATION (AGA) CERTIFIED)
A third-party certification that guarantees that livestock have been raised on pasture and eaten mostly grass rather than grain or corn feed. This is a much more strict and humane grass-fed certification than the USDA certification.

GRASS FED (USDA CERTIFIED)
A USDA certification that means that animals have been fed some grass. It carries no third-party verification, and loopholes allow animals to be raised in confinement and have grass or hay brought to them. There is no regulation on what portion of the diet may be food other than grass, and these animals can be given feed other than grasses as long as the farmer documents what and how much.

GREEN MANURE
A type of cover crop grown primarily to add nutrients and organic matter to the soil. Typically, a green manure crop is grown for a specific period and then plowed under and incorporated into the soil.

HORMONE FREE
Milk that comes from cows who have not been treated with rBST, also known as rBGH or bovine growth hormone.

INTEGRATED PEST MANAGEMENT (IPM)
IPM growers practice a variety of techniques: they apply natural substances like kelp, rock powders, and compost to keep crops disease resistant. They monitor trees and set traps to capture insects. Ideally, IPM growers use pesticides only as a last resort, when pest damage would keep them from bringing in a profitable crop.

LOCAL
The term "local" will vary depending on your location and what is available to you. Institutions often choose to define "local" as coming from within 200 miles, or a day's drive. Don't get hung up on state borders or mileage limits. Think about minimizing distance from the source of the food to you, to cut down on fuel emissions from transportation.

MULCH
A protective layer of material (leaves, compost, wood chips, paper, or plastic) that protects the soil from erosion, reduces plant stress, and builds soil fertility. Mulch reduces variation in soil temperature, cuts down erosion due to wind or rain, controls weeds by blocking sunlight, and decreases the need for watering by cutting down on evaporation.

NATURAL OR NATURALLY RAISED
Contains no artificial ingredients or added color and is minimally processed, meaning that it has not been processed in a way that fundamentally alters the raw product.

NITRATE FREE
Meat processed or cured without the used of sodium nitrite. Nearly all processed meats and most cured meats are made using sodium nitrite; "nitrite-free" or "nitrate-free" labels designate those that are not.

ORGANIC
Food grown without the use of chemical pesticides, herbicides, or fertilizers. Animals must be fed organic feed and cannot be given antibiotics or growth hormones. Organic foods may not be genetically modified or irradiated or contain artificial preservatives or additives. Organic meats must come from animals that are "free range."

- Certified Organic: A USDA certification that means the farm or business producing the food has gone through a USDA government certification process. While some small farmers grow their food using organic methods, they choose not to go through the certification process for economic or ideological reasons, so they cannot label their food "certified organic."
- Transitional Organic: This label has in the past been used to mean that a farmer is using organic methods but has not reached the three-year pesticide-free requirement and cannot yet use the Certified Organic label. The USDA does not currently allow the use of this label.

ORGANIC PESTICIDES
Pesticides that are made from natural sources, including plants and minerals. While they are not chemical, organic pesticides can be as or more toxic than chemical pesticides. Common organic pesticides include Rotenone and pyrethrin.

VEGETARIAN FEED
Feed that contains no animal by-products. This label became important after outbreaks of "mad cow disease," or bovine spongiform encephalopathy (BSE), a fatal neurodegenerative disease in cattle that causes deterioration of the brain and spinal cord. It is believed the disease may be transmitted to humans who eat infected carcasses.

RESOURCES

GENERAL INFORMATION ON SUSTAINABLE FOOD

The Real Food Challenge, www.realfoodchallenge.org
Geared toward students and universities looking to change the way institutions engage with food. Their goal is to shift 20% of university food purchasing, or almost $1 billion, over to real food in the next ten years.

Sustainable Table, www.sustainabletable.com
Lists farms, farmers markets, educational information, and resources on all aspects of the sustainable food movement.

Sustainable Food Policy, www.SustainableFoodPolicy.org
Guide to creating sustainable food policies. Sample food policies and information on developing a sustainable food program.

RESOURCES FOR FINDING FARMERS

Cooperative State Research, Education & Extension Service, www.csrees.usda.gov
Click on "Local Extension Office" under "quick links" to find the Extension office at your state's land grant university. This is a general agriculture resource, so you must specify that you are looking for farms with sustainable practices

The Eat Well Guide, www.eatwellguide.org
Find local food and sustainable food resources here.

Food Alliance, www.foodalliance.org
Offers third-party certification for sustainable farmers in the Midwest and the Northwest. You can use this site to find sustainable farms and distributors; click on "find certified products."

Local Harvest, www.localharvest.org
Search this site by zip code or state for sustainable farms and markets.

National Sustainable Agriculture Information Service, www.attra.ncat.org/attra-pub/localfood_dir.php
A local food directory for each state with links to farms and organizations providing access to local food.

Northeast Organic Farming Association, www.nofa.org
Click on state chapters for Connecticut, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, or Vermont to find listings of organic farms.

Organic Consumers, www.organicconsumers.org
Search by state for information on organic farms and organizations.

State Department of Agriculture
Contact your state department of agriculture to find other listings of farms and agricultural networks in your area.

FEATURED INSTITUTIONS WITH SUSTAINABLE FOOD PROGRAMS

Berkeley Unified School District, www.lunchlessons.org

Stanford University, www.stanford.edu/dept/rde/sustain.htm

University of Santa Cruz, http://casfs.ucsc.edu/

University of Florida's Office of Sustainability, www.sustainable.ufl.edu

Yale Sustainable Food Project, www.yale.edu/sustainablefood/

FINDING OTHER SCHOOLS AND INSTITUTIONS WITH SUSTAINABLE FOOD POLICIES OR PROGRAMS

The Community Food Security Coalition's Farm-to-College Resource List, www.farmtocollege.org/resources.htm
Good for administrators, students, and dining services.

Farm to School, www.farmtoschool.org
Gives information on farm-to-school programs across the United States.

Food Alliance's Sustainable Food Policy page, www.foodalliance.org/sustainablefoodpolicy/policies.html
Lists numerous institutions and their sustainable food policies.

Real Food Challenge, www.realfoodchallenge.org
Lists universities with sustainable food movements.

Slow Food USA, www.slowfoodusa.org
Gives information on the slow food movement in schools.

FOOD SERVICE MANAGEMENT COMPANY RESOURCES

Bon Appetit, www.bamco.com, www.circleofresponsibility.com

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E-mail us a description of what you're doing at your institution if you'd like to be included in the next edition of our guide. Send your information to food.purchasing@yale.edu.

YALE SUSTAINABLE
FOOD PROJECT
www.yale.edu/sustainablefood
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