WELCOME TO THE AGRIHOOD

Housing, Shopping, and Gardening for a

Farm-to-Table Lifestyle

ANNA DESIMONE

Includes National Directory of Agrihoods

Plus 2,200 Farms Where You Can Buy Fresh, Locally Grown Food

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Introduction

Live close to the farm.

Agrihoods are healthy lifestyle communities centered around a professionally managed farm. Communities are often built on heritage farmland, where historic barns and silos dot the pastoral landscape. The daily routine for residents often begins with a walk to the farm store to buy food freshly harvested from the farm, or to enjoy a cup of coffee at one of the gathering spaces at the community center.

With amenities such as clubhouses, swimming pools, boating, fishing, golf, horseback riding, and miles of groomed walking and biking trails, it's no surprise that agrihoods across the nation are winning many "best places to live" awards. Even the K-12 schools located within agrihood developments are winning awards for academic excellence.

Agrihoods are designed for people to connect with nature, and many communities are built on conservation land, where natural wetlands, forests, and mountains provide panoramic views. Because the agrihood concept is relatively new, homes are energy-efficient and sustainably built by select home builders.

The latest trends in multifamily housing are rooftop organic farms and on-site restaurants offering healthy meals prepared from the chef's garden. Apartment buildings are starting to include community gardens into the landscape or provide individual garden spaces for tenants.

There are opportunities to buy or rent in a farm-centric community for people of all ages and financial affordability. This book will take you on a virtual tour through dozens of communities, with photos of homes, descriptions of the endless amenities, and a directory of agrihoods throughout the U.S.

Shop at your local farm.

Learn the story behind your food. Your local farmer is your neighbor, and their harvest season is ***your*** harvest season. Healthy food requires a healthy ecosystem. The story behind your food begins from the ground up—how food is farmed. This book spells out the rules for sustainable agriculture, such as organic certification, food safety, traceability, and GMOs. You'll learn about how far food travels, and how buying locally sourced food can reduce your household's carbon footprint.

The *Know Your Farmer, Know Your Food* initiative from the U.S. Department of Agriculture has helped thousands of local farmers across the nation bring fresh, healthy food to local markets. Many new innovations in urban agriculture are bringing farms to our cities, and commercial food growers are utilizing techniques that use less land, less water, and less energy.

This book covers all your options for buying food from your local farmer, a food hub, or through a community-supported agriculture (CSA) program. The 50-state directory in this book lists over 2,200 farms that offer a wide variety of fruits, vegetables, and other sustainably sourced food products.

Grow your own organic food.

Porches are the new backyard. Occasionally people are described as "serious gardeners" due to their extensive level of gardening activities. It doesn't matter whether your garden is an acre, or you're just growing tomatoes on your porch—if you are growing food organically then you ***are*** a serious gardener.

This book spells out the steps for at-home soil testing, organic gardening, composting, food safety, farm animals, beekeeping, local laws, and more. You might be inspired to grow microgreens or try the latest indoor growing systems such as aeroponics, aquaponics, and hydroponics. With lots of helpful tips, planting guides, and resources, you're ready to farm!

Anna DeSimone

CHAPTER 1

The Local Food Sensation

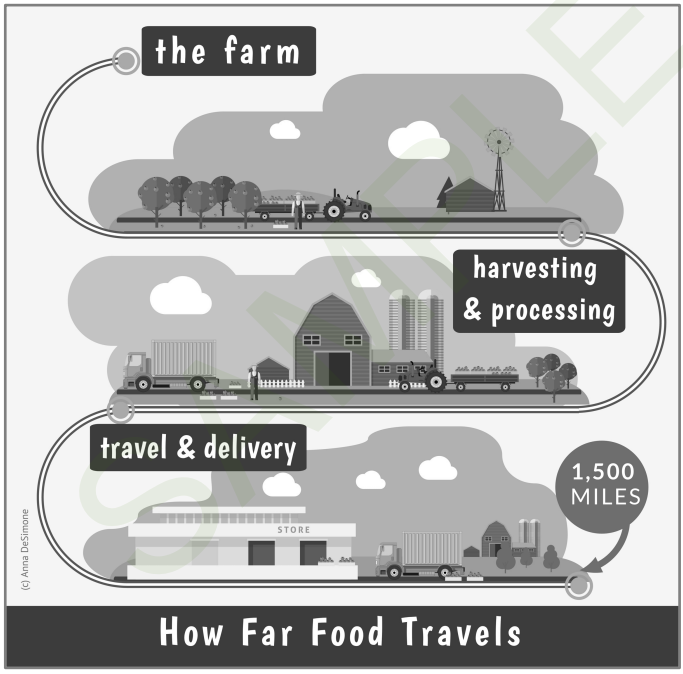
LOCALLY PRODUCED FOOD is the fastest-growing market sector of the United States Department of Agriculture (USDA). Sales from local farmers reached $20 billion in 2018, and across the nation there are now more than 160,000 farmers and ranchers selling to local markets. The number of farmers selling directly to consumers at local farmers' markets quadrupled over the past ten years. The nation's total organic food sales reached $50 billion in 2018, with over a third of the market attributed to fruits and vegetables.[1]

The USDA defines local food as product that is raised, produced, aggregated, stored, processed, and distributed in the locality or region in which the final product is marketed. Foods that the USDA considers local are comprised of product that is sold directly to consumers, as well as foods that are commercially sold by distributors.[2]

In accordance with the 2008 Farm Act,[3] food product can be marked as locally or regionally produced if it is purchased within the same state or not transported more than 400 miles from its origin. Definitions of "local food" differ by region due to varying climates and populations, and state agricultural organizations may establish specific boundaries, such as 100 miles. At local farmers' markets, shoppers are more likely to see product sourced from a specific farm, county, or region within the state.

How Far Food Travels

It is estimated that food in the United States travels about 1,500 miles, according to a number of studies completed by the Leopold Center for Sustainable Agriculture at Iowa State University.[4] According to ATTRA National Sustainable Agriculture Information Service, food miles refers to "the distance of travel from the location where the food is produced to the location where it will eventually be consumed." The farther food travels and the longer it takes to reach the consumer, the more its freshness declines, and its nutrients are lost. Taste and nutritional values will decline for fruits and vegetables that are engineered to preserve shelf life.[5]



In its study, *Food, Fuel, and Freeways*, the Leopold Center utilized a Weighted Average Source Distance (WASD) formula to evaluate the sustainability of global food systems in terms of energy use. The farther food travels, the more fossil fuels are required for transport. The burning of fossil fuels leads to the emission of greenhouse gases, contributing to global warming.[6]

Know Your Farmer, Know Your Food

In 2008, then Senator Barack Obama pledged to promote local and regional food systems to help farmers and ranchers get full retail price for their food, and also enable families to remain on their farms doing the important work that they love.[7] The following year, the USDA launched the *Know Your Farmer, Know Your Food* initiative to increase economic opportunities for local farmers and stakeholders. The USDA's 17 agencies and offices collaborate on projects, share information with the public, and fulfill mandates related to local and regional food.[8]

The *Know Your Farmer, Know Your Food Compass* is a centralized hub of resources for local and regional farmers. The *Compass* maps over 4,200 federal investments that have been made by the USDA and other agencies since 2009. As of January 2017, the USDA has invested $1 billion in over 40,000 local and regional businesses.[9] The *Compass* refers to the following quote:

> *"Over the last four years, I've seen a shift. People who have never been on a farm are becoming interested in where their food comes from. Towns and neighborhoods that didn't have regular access to fresh fruits and vegetables are getting them. Farmers and ranchers are tapping into new markets and keeping more money in their pockets by selling locally. And all across the country, innovative local food businesses are starting up and staffing up. Local food systems work for America: when we create opportunities for farmers and ranchers, our entire nation reaps the benefit."*
>
> —President Barack Obama

Under the leadership of former U.S. Secretary of Agriculture, Thomas Vilsack, the USDA helped local farmers expand their growing season, reduce costs, and conserve natural resources through the construction of 15,000 high tunnels, commonly known as "hoop houses." The number of certified organic operations grew to 21,700—a 300% increase since 2002, and the number of farmers participating in local farmers' markets skyrocketed to 8,500. The number of local food vendors that accept Supplemental Nutritional Assistance Program (SNAP) vouchers grew from 753 in 2008 to more than 6,400 in 2016. Two-thirds of rural counties demonstrated job growth and considerable reductions in unemployment.[10]

The Food Safety Modernization Act (FSMA)

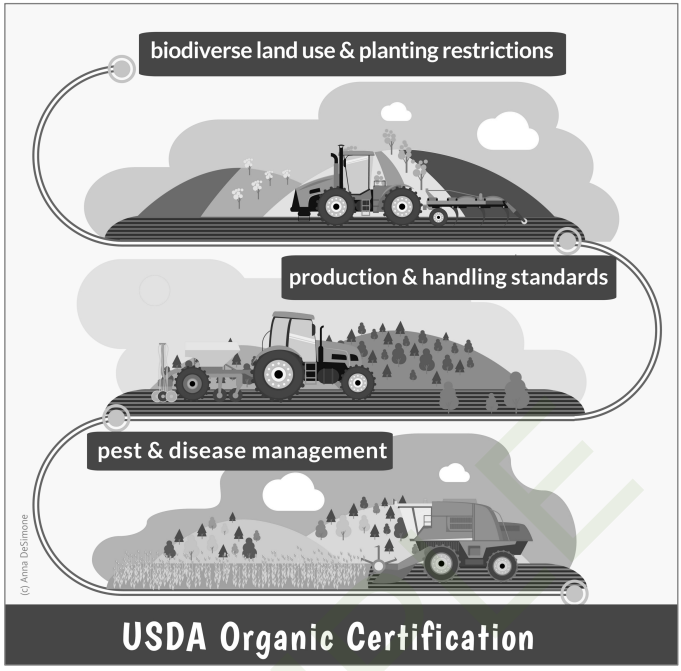
The FSMA was signed into law by President Barack Obama on January 4, 2011, giving the U.S. Food and Drug Administration (FDA) new authorities to regulate the way foods are grown, harvested, and processed. The law granted the FDA a number of new powers, including mandatory recall authority. The FDA finalized a number of foundation rules, including the establishment of accredited third-party certification that includes traceback mechanisms to allow commercial, institutional, and retail buyers to trace back produce to the originating farm. Preventive controls include steps that a food facility would take to prevent or significantly minimize the likelihood of problems occurring. The FSMA significantly enhances the FDA's ability to achieve greater oversight of the millions of food products coming into the United States from other countries each year.[11]

The FDA is responsible for regulating 80% of the U.S. food supply, while red meat, poultry, and processed egg products are regulated by the USDA. The FDA works closely with other federal, state, and local agencies in establishing regulatory guidelines.

Organic Certification

Organic is a labeling term found on products that have been produced using cultural, biological, and mechanical practices that support the cycling of on-farm resources, promote ecological balance, and conserve biodiversity. The USDA National Organic Program (NOP) enforces regulations and ensures the integrity of the USDA Organic Seal.

In order to make an organic claim or use the USDA Organic Seal, the final product must follow strict production, handling, and labeling standards, as well as go through the organic certification process. Organic certification allows a farm or processing facility to sell, label, and represent its products as organic. The organic brand provides consumers with more choices in the marketplace.[12] Labeling requirements apply to raw, fresh products and processed products that contain organic agricultural ingredients. Agricultural products that are sold, labeled, or represented as organic must be produced and processed in accordance with the NOP standards. There are exceptions for certain small farmers.



For multi-ingredient products in the "made with" organic category, at least 70% of the product must be certified organic ingredients. Up to three ingredients or ingredient categories can be represented as organic. Any remaining ingredients are not required to be organically produced, but must be produced without excluded methods, such as genetic engineering.

Biodiversity

Organic systems mirror nature by maintaining a balanced ecosystem on the farm and using methods that support conservation of natural resources. Farmers can protect habitats for birds and mammals, and protect waterways by controlling livestock access to sensitive areas along rivers, creeks, streams, and wetland areas. Organic producers often plant native vegetation throughout a certified organic farm. The vegetation provides food, cover, and corridors for beneficial organisms such as pollinators like bees and bats, slows wind and water down for erosion control, provides groundwater recharge, and filters pollution.[13]

Sustainable Agriculture

According to the USDA's National Institute of Food and Agriculture (NIFA), the term ''sustainable agriculture'' refers to an integrated system of plant and animal production practices. Sustainable agriculture seeks to provide more profitable farm income, promote environmental stewardship, and enhance the quality of life for farm families and communities.[14]

Farmers and ranchers can choose many ways to improve their sustainability, and these vary by region, state, or farm. New practices have emerged, many aimed at greater use of on-farm or local resources. Summarized below are practices that contribute to long-term farm profitability, environmental stewardship, and improved quality of life: [15]

- *Integrated Pest Management*
- *Rotational Grazing*
- *Soil Conservation*
- *Water Quality / Wetlands*
- *Cover Crops*
- *Crop / Landscape Diversity*
- *Nutrient Management*
- *Agroforestry*
- *Alternative Marketing*

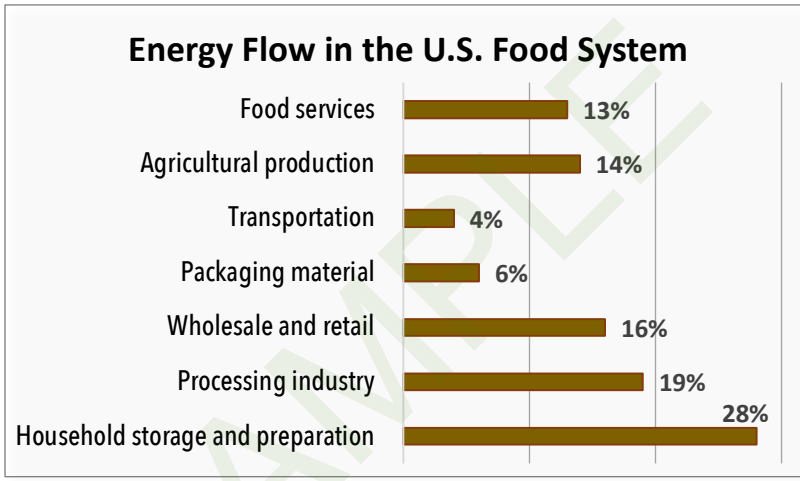
Genetically Modified Organisms (GMOs)

GMOs are living organisms whose genetic material is artificially manipulated in a laboratory. A genetic engineering process is used to create combinations of plant, animal, bacteria, and virus genes that do not occur in nature or through traditional crossbreeding methods. Most GMOs have been engineered to withstand the direct application of herbicide and/or to produce an insecticide.

"Non-GMO" means a product was produced without genetic engineering and its ingredients are not derived from GMOs. "Non-GMO Product Verified" means that a product is compliant with the *Non-GMO Project Standard*, which includes stringent provisions for testing, traceability, and segregation. Third-party technical administrators evaluate products at accredited testing laboratories to assess compliance.[16]

Carbon Footprint

The greenhouse effect is a natural phenomenon that insulates the earth from the cold of space. In 2017, agriculture was responsible for 8.4% of the total U.S. greenhouse gas emissions. The Center for Sustainable Systems at the University of Michigan describes the effect of a household's carbon footprint as it relates to food: "A carbon footprint is the total greenhouse gas (GHG) emissions caused directly and indirectly by an individual, organization, event or product."[17]



Data source: Center for Sustainable Systems, University of Michigan, 2019

Food-related energy use accounts for 16% of the national energy budget. Consolidation of farms, food processing operations, and distribution warehouses often increases the distance between food sources and consumers. Local food reduces dependence on fossil fuel energy, and vulnerability to changes in oil prices. Food accounts for 10 to 30% of a household's carbon footprint, with the higher portion in lower-income households. A vegetarian diet greatly reduces an individual's carbon footprint, since meat-based diets use more energy to produce. A single serving of beef uses 20 times more energy to produce than a single serving of vegetables. Choosing less carbon-intensive meats can make a major difference. For example, switching from beef to chicken for one year reduces an individual's carbon footprint by 882 pounds of carbon dioxide.[18]

Ecolabels

Ecolabels are used to educate consumers about locally grown and sustainably produced foods. The seal or logo indicates the product has met certain ethical and environmental standards. Some ecolabels may include such disclosures as: "no pesticides used," or "CO_2 emissions are known to contribute to global warming." Ecolabels may also identify the type of produce and geographic location where the product was sourced, such as:

- *Farm-to-store distance in food miles*
- *Number of farm-to-store shipping days*
- *Mode of transportation (airplane, ship, truck)*
- *# pounds carbon dioxide emitted per pound of product*

Examples of Ecolabels	
FAIR TRADE	Guarantees fair wages to workers and sustainable land cultivation.
DIRECT TRADE	Shows that farmers and workers involved are offered a better deal; considered more trustworthy than fair trade label.
NON-GMO	Guarantees the product's ingredients and land where cultivated were not genetically modified.
USDA ORGANIC	Certifies the product was made using organic methods: no use of pesticides and synthetic fertilizers in the land, no use of antibiotics or hormones in animals, no GMO ingredients.
AMERICAN GRASS FED	Certifies that the animals have been fed only natural milk, fresh grass or hay, have not been treated with antibiotics or hormones, and were not raised in confinement.
ANIMAL WELFARE APPROVED	Certifies that the animals were raised outdoors, using sustainable high-welfare farming methods.
RAINFOREST ALLIANCE	Guarantees the product comes from a farm that follows environmentally friendly standards and offers fair treatment to workers and their families.
CARBON REDUCTION	Implies that the producer is committed to reducing its carbon footprint during all food production processes; measured every two years.

Information source: Food Packaging Labels Corp.

CHAPTER 2

Say Hello to Your Farmer

WHETHER YOU OWN OR RENT YOUR HOME, you can enjoy the farm-to-table lifestyle. Shopping at an "on-farm" market allows you to engage with the people who do the work. They are your neighbors, and *your* harvest season is *their* harvest season. This book gives readers a basic primer on organic farming. What your local farmer can tell you about how they manage the soil, plant, feed, and harvest food is *priceless*.

At the heart of every agrihood community is a working farm and store. Many agrihoods were built on land that was once a farm, and often members of the original farming family stay on board to manage agricultural activities. Whether your farmer is managing 30 acres or producing microgreens in the rooftop garden of your apartment building, you have the opportunity to learn something every time you stop by to say hello.

A study completed in 2015 by Dr. Ion Vasi at Tippie College of Business at the University of Iowa determined that local food markets were more likely to develop in areas where residents had a strong commitment to civic participation, health, and the environment. Dr. Vasi noted:[19]

> *"The local food market is about valuing the relationship with the farmers and the people who produce the food, and believing that how they produce the food aligns with your personal values."*

A New Generation of the Family Farm

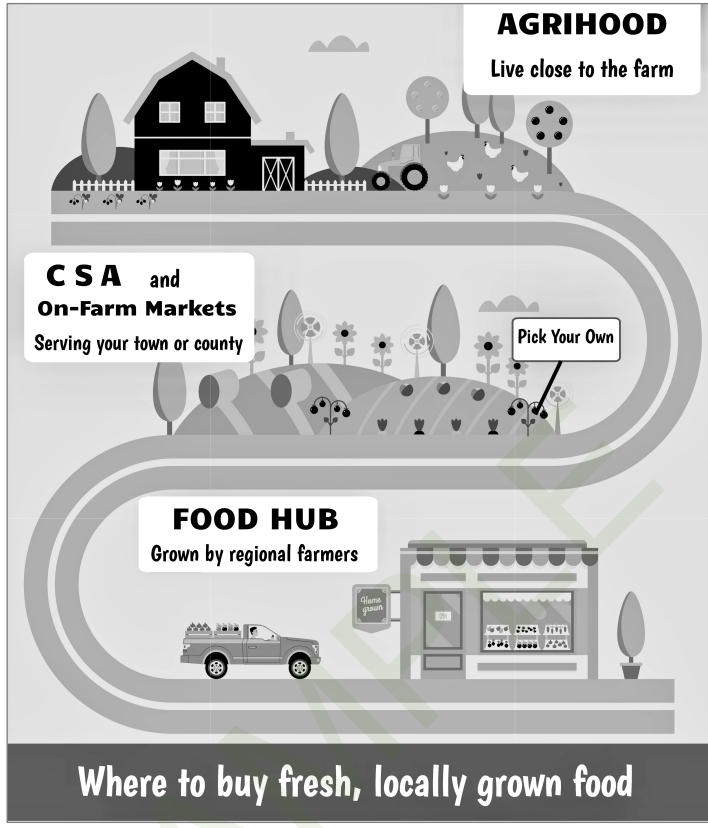
The American Farm Bureau reports in its *2018 Edition, America's Diverse Family Farms*,[20] two million farms dot America's rural landscape. About 98% of U.S. farms are operated by families, including individuals, family partnerships, or family corporations. Only 2.2% of U.S. farms are run by non-family members. The number of Hispanic and Latino farmers and African American farmers continues to increase, and women make up 36% of the total number of U.S. farm operators. At least one female decision maker works in 56% of America's farms. Just over 10% of farms are owned by retired farmers who continue to farm on a smaller scale.

According to the Pew Research Center, there were 14,000 certified organic farms in America in 2016, presenting a 56% increase from 2011, the earliest comparable year. California has the largest number of organic farms at 2,713, followed by Wisconsin at 1,276 and New York at 1,059. States with more than 500 organic farms are: Pennsylvania, Iowa, Washington, Ohio, Vermont, Minnesota, and Maine. New organic farming certifications have risen significantly in Arkansas, Alabama, South Carolina, and Missouri.[21]

Where to Buy Food from Local Farmers

This book explores all the places where you can *live* as well as where you can *shop* for fresh, locally grown food. The national directory includes a listing of agrihoods located throughout the country, urban agriculture initiatives, and over 2,200 resources of on-farm markets, food hubs, and Community-Supported Agriculture (CSA) programs.

If you are living in an agrihood community, most of your fruits and vegetables would be grown right around the corner. Food is purchased at a discount either at the farm store or through a CSA program. Many agrihoods, including those with a professionally managed farm, also set aside acreage for residents to freely grow food in a community garden. Some urban agrihoods have a site-managed farm, which can be located on a rooftop or adjacent to an apartment complex. Such farms sell produce at a discount to residents, as well as supply food to cafes located on the premises.



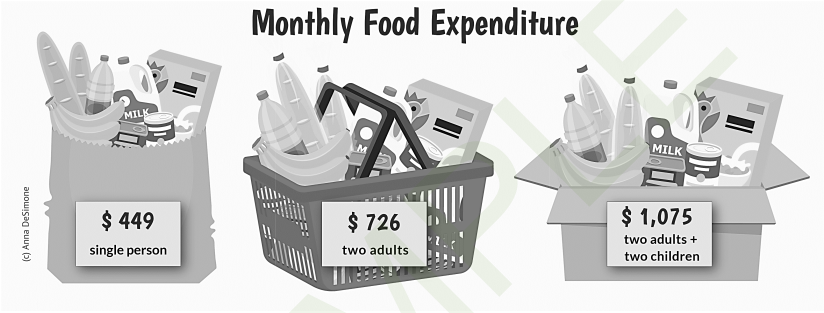
By enlisting in a CSA program, you'll be able to visit the farm each week to pick up your "box" or "co-op share." Some CSAs offer home delivery services, or pickups at designated places. *(See more in Chapter 6, Community-Supported Agriculture.)*

On-farm markets are generally larger farms, and often have "pick your own" opportunities. In addition to fruits and vegetables, these farms may sell their own poultry, eggs, and dairy, as well as food from local artisans, fisheries, and ranchers. *(See more in Chapter 7, On-Farm Markets.)*

Food hubs serve as a consolidated marketing point for regional farmers and artisans to sell their products to consumers, restaurants, and grocers. Many food hubs distribute food to schools, churches, and shelters. America's food waste reduction program works with food hubs throughout the country to bring excess or unsold food from local businesses to charitable organizations. *(See more in Chapter 8, Food Hubs.)*

Free food is in abundance for any type of food-centric neighborhood that sets aside acreage for a community garden. A popular trend in multifamily apartment buildings is incorporating edible landscapes, community gardening spaces, or small private garden plots for residents. Vegetables are easily grown in containers placed in sunny locations such as a porch, patio, or balcony. There are some innovative indoor gardening systems designed to grow microgreens and vegetables year-round inside your home. *(See more in Chapter 5, Backyard Farming.)*

The Cost of Food



The average household in America spends $644 per month on food, according to the Bureau of Labor Statistics (BLS) report released in April 2019, *Consumer Expenditures in 2017*.[22] Data is based on 130,000 households, of which 63% own their own home. Average household size is 2.5 persons, with a pretax annual income average of $73,573. The above illustration reflects $449 per month for a single person, $726 for two adults, and $1,075 for two adults and two children. Data for the family of four category includes children between the ages of 6 and 17.

The farm-to-table lifestyle has many benefits that help offset any additional costs associated with the purchase of organic and sustainably grown food. First, knowing where your food comes from, and how it was handled, gives you peace of mind. Second, you are supporting local farmers in your area. Third, you are helping the environment.

Trends in Grocery Shopping

In February 2018, the National Grocers Association announced survey results from households surveyed by Harris Poll and the Nielsen Company which analyzed shopper behaviors at independent grocers.[23] In response to the query, "what matters most in the presentation of fresh foods," 76% of respondents stated that they wanted products that are *fresh*. Other notable preferences reported by consumers included: locally grown, organic, sustainability, and source traceability. 54% of respondents stated they would like grocers to clearly indicate what products are fresh and in season.

A number of studies over the past five years by global consulting company A.T. Kearney have revealed trends in consumer perception of local foods. In its study, *Firmly Rooted, the Local Food Market Expands,*[24] almost all (96%) consumers describe local food as products grown or produced within 100 miles from its source. 65% of respondents consider food that is grown or manufactured in the same state as local. 78% expressed willingness to pay more money for fresh food, and 67% would make a special trip to the market because they knew the local produce was in season.

Health and wellness continue to be drivers for shoppers, as reported by the Food Marketing Institute's (FMI) 2019 Report on *Retailer Contributions to Health and Wellness.*[25] The institute's research continues to illustrate countless positive attributes of communal eating, such as family meals.

> *"Health is now a bigger umbrella; health is about overall well-being, life balance, a sense of community—that comes along with the addition of fun, new, and nutritious food to consumers' diets."*
>
> —Food Marketing Institute

Restaurant Trends

Consumers enjoy eating food outside their home, and that trend is not slowing down. Data from the aforementioned Bureau of Labor Statistics (BLS) consumer expenditures report[26] indicates that 43% of the average annual expenditure on food is spent outside the home. What is considered "off premises" by restaurant trade groups includes: carryout, delivery, drive-through, and mobile apps used by consumers for purchasing food.

In its *Restaurant Industry 2030, Actionable Insights for the Future* report by the National Restaurant Association,[27] America is at a crossroads in how people dine. Restaurants are swiftly adapting their floor plans to meet the needs of guests, serving them wherever they want to be served. Some restaurants will morph into a hybrid model, offering counter service, full service, takeout and delivery, and meal kits. New food halls will feature retail and restaurant pairings to make it easy for people to both eat and shop for food they can take home. With a greater number of consumers working from home, people are seeking dining experiences where they can engage socially and become "regulars" in an atmosphere such as the German Biergarten or European-inspired outdoor cafes. Interior designs will offer a greater variety of seating choices and gathering spaces.

Restaurants will continue to focus on healthy options, local foods, and a product's farm-to-table journey. Some restaurant chefs are growing their own herbs and produce in mini-farms on the restaurant's premises. Restaurants are becoming more innovative about creating healthy meals for children and people with dietary restrictions. With consumers expecting an increasing level of transparency, food-safety certification and management systems will be critical. By 2030, sustainability will be integrated into every aspect of a restaurant's operations.

> "*If your menu has the words 'sustainably sourced,' your ingredients are considered 'clean,' and you're prepared to tell the stories behind the food you're serving, then you're already living in the restaurant of the future."*
>
> —National Restaurant Association

Food Waste

In the United States, food waste is estimated at between 30 and 40% of the food supply.[28] This estimate, based on data from the USDA's Economic Research Service, projects that 31% of food loss is at the retail and consumer levels. Wholesome food that could have helped feed families in need is sent to landfills. Land, water, labor, energy, and other inputs are used in producing, processing, transporting, preparing, storing, and disposing of discarded food.

Food loss occurs for many reasons, with some types of loss—such as spoilage—occurring at every stage of the production and supply chain. Between the farm gate and retail stages, food loss can arise from problems during transporting or processing that expose food to damage. At the retail level, equipment malfunction, over-ordering, and culling of blemished produce can result in food loss. Consumers also contribute to food loss when they buy or cook more than they need.

The Food Waste Reduction Alliance (FWRA) [29] is an industry-led initiative focused on reducing food waste by increasing food donations and sending unavoidable food waste to productive use (energy, composting) and away from landfills. The alliance is comprised of the Grocery Manufacturers Association, Food Marketing Institute, and the National Restaurant Association. Committed to improving the environment and communities, FWRA members have taken on the challenges of food waste to shrink America's environmental footprint, and simultaneously address hunger in America.

The Intersection of Food and Housing

Home builders and multi-family housing developers have recognized the growing trend of consumers being connected more closely with food. The incorporation of food elements in construction has demonstrated positive outcomes for both developers and consumers, as well as supported the environment. Real estate developers are increasingly collaborating with chefs, farmers, and artisans to bring their craft to the community. Apartment complexes are being designed with more community space for social gatherings, and include cafes, bars, and demonstration kitchens.

The Urban Land Institute (ULI) has developed comprehensive guidance and consults globally with developers, owners, property managers, designers, investors, and others involved in the real estate decision. ULI's best practice guide, *Cultivating Development: Trends and Opportunities at the Intersection of Food and Real Estate,*[30] explores the mutually beneficial relationship between food-based amenities—such as working farms, community gardens, food halls, restaurants, and grocery stores—and real estate. It highlights how the growing interest and awareness in fresh, local food is spurring innovation in development projects.

Housing Choices

The 2018 *Housing and Community Preference Survey* completed by real estate advisory firm RCLCO[31] shares insights on the types of amenities consumers are seeking in a home, and their depth of interest in a master-planned community. Survey results from 23,500 respondents revealed the majority of respondents view the following amenities to be somewhat important or a strong priority:

- *Trails*
- *Fitness centers*
- *Resort pool*
- *Pocket parks*
- *Arts and culture*
- *Sports courts*
- *Dog park*
- *Farmers' market*
- *Community garden*

Nearly every agrihood featured in the national directory in this book includes most, or all, of the amenities noted above. Chapter 4 in this book, *Agrihoods,* explains the master planned community concept and highlights certain amenities found in various agrihoods across the U.S. The scientific advances made in the area of urban agriculture significantly expand options for a farm-to-table lifestyle in the city, as explained in Chapter 3, *Urban Agriculture*.

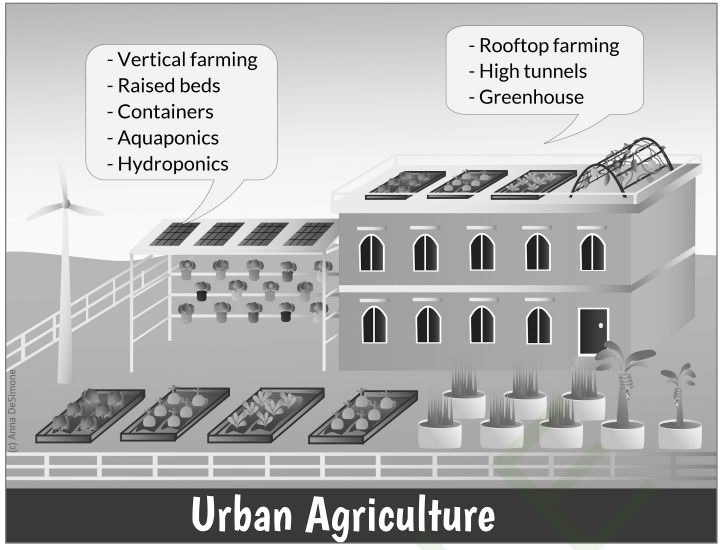
CHAPTER 3

Urban Agriculture

SUSTAINABLE DEVELOPMENT GOALS, known as SDGs, were established by the United Nations in 2015. Adopted by 193 UN member-countries, the goals are a blueprint for long-term planning toward social, economic, and environmental well-being. Of the 17 Sustainable Development Goals, SDG Number 11 is "Sustainable Cities and Communities." Today, 55% of the world's population live in an urban area or city, and over the next 20 years, two-thirds of the global population will live in cities.[32]

Farmers and members of the food industry across the U.S. have been developing innovative farming systems to help meet the challenges of urbanization. To maximize available space for farming, city-based industrial farming operations generally consist of three types: rooftop farms, located on the top of commercial buildings, generally the food packaging center; climate-controlled greenhouses, which may be located on rooftops, and often produce food year-round; and vertical farming. The vertical structures used by commercial farmers can be a system where flat trays are stacked in layers, or systems where food is grown in towers.

Commercial food growers are increasingly utilizing new farming techniques that use less land, less water, and less energy. Some systems enable year-round production and have reduced or totally eliminated the need for pesticides. Because crops are grown in controlled environments with precise nutrients, lighting, temperatures, and risk-monitoring, there is traceability from seed to packaging.



Products grown by urban farmers include fresh vegetables, fruits, herbs, meat, and poultry. These farmers sell their products at local farmers' markets, and to grocers, schools, restaurants, and food hubs. Many urban farms donate excess produce to churches, food shelters, and charitable organizations. Outdoor urban farms also use high tunnels, known as hoop houses, raised beds, and containers.

Indoor farming methods used by commercial growers in greenhouses, buildings, or on rooftops can include any of the following methods: crops in soil, soil-free crops, or watering through a closed-loop system. Such systems would utilize one of the following growing techniques:

- *Hydroponics—plants are grown in a soil-free nutrient solution; plants use 90% less water; the predominant growing system used in vertical farms.*
- *Aeroponics—developed by the National Aeronautics and Space Administration (NASA); plants are grown in an air/mist environment with no soil and using 95% less water than field farming.*
- *Aquaponics—a closed-cycle watering system that combines plants and fish in the same ecosystem. Generally used in smaller scale food production.*

Across the nation, colleges and universities are expanding educational programs for students to learn the latest technologies and eco-farming solutions in the areas of urban agriculture, vertical farming, plant science, soil science, and animal science. Universities are developing and testing innovative farming methods and integrating their work as part of the institution's goals for sustainability. Campus farms, managed by students, are feeding students as well as local food shelters from their farms.

The *Aggie Green Fund* grant through the Texas A&M University Office of Sustainability funded the launching of the vertical aeroponic tower garden initiative at Texas A&M's *Urban Farm United* (TUFU). Lisette Templin, faculty member in the Department of Health & Kinesiology, and Broch Saxton, a student from the Department of Soil and Crop Science, led TUFU's "grow to serve" mission to introduce a sustainable method of farming that promotes hyper-local food using 90% less land and 90% less water. The fresh food harvest serves the *12Th Can*, a campus food pantry.[33]

From seedlings to harvest, up to 150 varieties of vegetables are grown in the towers, fed by a closed-loop system. With growth from 24 tower gardens, TUFU supplies fresh food to 120 families twice monthly.

Texas A&M AgriLife photo by Beth Ann Luedeker, Department of Soil and Crop Science

Vertical Farming

Vertical farming ensures year-round crop production in non-tropical regions, and production is much more efficient than land-based farming. A single indoor acre of a vertical farm can produce a yield equivalent to more than 30 acres of farmland. Vertical farms eliminate the need for tractors and other farm equipment, thereby increasing job safety. Crops are shipped to outlets that are very close to the production facility, reducing the farm-to-store transportation time as well as the carbon footprint. Organic certification can be awarded to vertical farmers who meet certain criteria, such as organic inputs to the hydroponic operations.[34]

Sometimes called "high-rise farms," vertical farming systems include multi-level systems where plants are grown in stacked layers. Larger warehouse systems can reach several stories tall. A popular method used in vertical farms are 40-foot shipping containers, refurbished as self-contained vertical farms.

New Jersey-based Aerofarms has developed eco-friendly aeroponic technology for indoor vertical farming where plants are grown in stacked trays, enabling productivity 390 times greater per square foot than commercial field farming. Aerofarms' patented reusable cloth medium is used for seeding, germinating, growing, and harvesting. Plants are grown using an aeroponics system to mist the roots of the greens with nutrients, water, and oxygen.

The closed loop system uses 95% less water than field farming. LED lights are used to create a specific light recipe for each plant, giving the greens exactly the spectrum, intensity, and frequency they need for photosynthesis. Data is collected from sensors that monitor plant biology and help increase plant health, growth, and yield. For every harvest, plant scientists monitor more than 130,000 data points. To date, the company has had success in growing over 500 million plants of more than 300 varieties.[35]

Greenhouses

Hydroponic greenhouses are used to grow plants without soil in environmentally controlled greenhouses for year-round growth and production. The nation's largest greenhouses were built by Gotham Greens, currently operating 500,000 square feet of urban indoor farms in five states across the country. Gotham Greens, which built its first facility in New York City, uses a hydroponic method known as nutrient film technique. Greenhouses are situated on rooftops, where plants can benefit from natural sunlight. Crops grow in trays where plants receive a constant stream of irrigation water that is enriched with a mineral nutrient solution. Greenhouses operate in a controlled growing environment, allowing plants to thrive in light levels, temperature, humidity, and air composition at exactly the right balance.[36]

Shenandoah Growers operates the nation's largest USDA-certified organic, soil-based indoor growing system. With 12 locations across the country, the company provides produce to over 18,000 stores. Shenandoah utilizes a bioponic growing method, a type of hydroponic system that involves the use of certified organic nutrients in a hydroponic solution and a soil-based substrate. The closed-loop micro-ecosystem eliminates the need for synthetic fertilizers and reduces the use of water and land resources.[37]

Rooftop Farming

New rooftop farms are emerging everywhere across the nation, in both the residential and commercial farming sectors. Brooklyn Grange is the leading rooftop farming business in the U.S. Three farms are spread across 5½ acres located on New York City roofs, growing over 80,000 pounds of organically cultivated produce per year. To date, the company has sold over 400,000 pounds of vegetables to CSA members, restaurants, and at weekly farm stands. Through its nonprofit partner, City Growers, the company has hosted 50,000 New York City youths on the farms for educational field trips, afterschool programs, and summer camps. Brooklyn Grange also provides urban farming and green roof consulting services, and designs, installs, and maintains green spaces for clients. The business also operates an apiary, keeping bees in dozens of naturally managed hives dispersed throughout NYC.[38]

Urban Ag Initiatives

Boston—Fenway Farms

Fenway Farms provides fresh, organically grown vegetables and fruit to Red Sox fans at Fenway Park's restaurants and concessions. The 5,000-square-foot rooftop farm utilizes a unique modular milk crate growing system, allowing easier, contained growing throughout the season. The 10,600-square-foot farm has a total growing space of 2,400 square feet, and grew 5,980 pounds of produce in 2018. The farm is located on the third base side of the Dell EMC Level, and can be viewed by the general public at the Gate A staircase. Designed and maintained by Green City Growers.

Detroit—Michigan Urban Farming Initiative

The Michigan Urban Farming Initiative (MUFI) is located in Detroit's North End community on nearly 3 acres and has been in operation since 2011. With the help of over 10,000 volunteers, MUFI has grown and distributed over 50,000 pounds of produce, grown using organic methods, to 2,000 local households at no cost to the recipients. Individual households subscribe to a pay-what-you-can model. MUFI also supplies to local markets, restaurants, vendors, food pantries, churches, and shelters.

Pittsburgh—Hilltop Urban Farm

Hilltop Urban Farm is located on 107 acres of land, with 23 acres dedicated to farming. The community is a multi-pronged initiative that produces locally grown crops, provides agriculture-based education, generates entrepreneurial opportunities, and strengthens communities. Hilltop Urban Farm is set to become the largest urban farm in the United States. The three core programs include youth-centered education, workforce training for new adult urban farmers, and an active, accessible farmers' market. The Farmer Incubation Program (FIP) is a 3-year workforce development program for new small-scale organic urban farm enterprises.

Urban Agrihoods—Rental Communities

Bronx, New York

Arbor House is an eco-friendly and health-promoting residential building in the South Bronx. The 120,000-square-foot building provides 124 units of affordable housing. Located on the roof is a 10,000-square-foot hydroponic farm that functions as a community-supported agriculture (CSA) arrangement where Arbor House residents can purchase shares of healthy food produced by the farm. About 40% of the produce is made available to local community schools, hospitals, and markets.

Seattle, Washington

Stack House Apartments is a mixed-use, green-living community that includes a 188-unit apartment building, a 96-unit apartment building, and a commercial building. Buildings are LEED-certified energy-efficient. The development includes a professionally managed rooftop farm, community gardens, and an on-site farm stand that offers free produce for residents.

Santa Clara, California

Win 6 Village consists of mixed-use, mixed-income, and multigenerational housing with a working organic farm. The site includes aquaponic rooftop gardens, and walkable space located in Santa Clara Valley's native oak woodland and grassland plant community. The Win 6 plan includes housing for 359 residents—165 low-income seniors, 16 moderate-income apartments, 144 market-rate apartments, and 34 market-rate townhouses. (Under development)

Note: See Part 2, Resource Directory, Agrihood listings for additional information for each urban ag initiative featured.

CHAPTER 4

Agrihoods

IT'S A BEAUTIFUL DAY IN THE AGRIHOOD. Stepping into an agrihood community, you just might find yourself singing the beloved *Mister Rogers* tune. You'll see children of all ages scampering in and out of pocket parks, owning the road as they confidently ride their bikes through pedestrian-friendly streets. You'll see teenagers carrying foraged scraps of lumber into the woods to build their own forts. The daily routine of pre-school children is petting rabbits and goats, gathering eggs from the chicken coop, and waving hello to Jack, the farm's resident donkey. This is the agrihood lifestyle at *Aberlin Springs* in Morrow, Ohio, a historic farm community that residents describe as a "neighborhood of free-range chickens and free-range kids."

The term agrihood, which combines the words *agriculture* and *neighborhood,* was coined by the nation's earliest developers of these farm-centric communities. An agrihood is a residential community centered around a working farm. Generally designed as "master planned communities," agrihoods include amenities similar to golf course developments, such as club houses and swimming pools.

The heart of an agrihood, however, is its working farm. "We've traded golf greens for salad greens," says Leslie Aberlin, who built an agrihood on the 141 acres of woods and tillable farmland where her Swiss parents put down roots to begin their American dream.

Land Conservation

Agrihoods are designed with a purpose—*to connect people with the land*—not just for agricultural activities, but to also protect and support conservation of farmlands, forests, watersheds, and wildlife habitat. Many agrihoods are built on heritage farmland or conservation land.

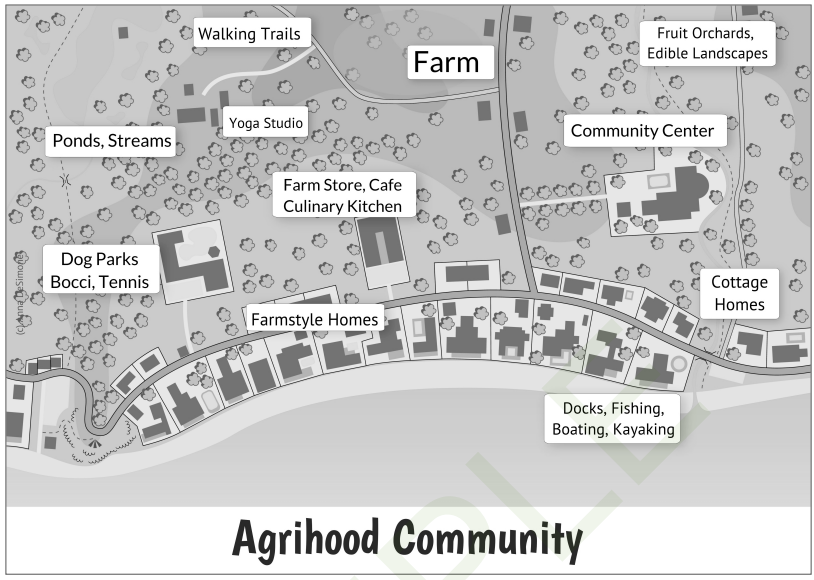
In his book, *Creating Value with Nature, Open Space, and Agriculture*, author Edward T. McMahon states: "Conservation development is a practice of land use planning and community design that strives to maintain a respectful relationship with nature. Through a broad range of techniques and strategies, conservation development is intended to achieve specific development objectives parallel to the protection of the landscape's essential natural and environmental values."[39]

Mr. McMahon, who serves as Sustainable Development Chair at the famed Urban Land Institute, helps provide support and educational guidance to planners and developers in the area of agrihood development. He further states in his book that "a *conservation subdivision* is a residential development that achieves the maximum number of permitted dwelling units through the use of smaller lots, setting aside the majority of the remaining land as permanently protected open space, natural areas, or working land."[40]

An agrihood community can be comprised of up to 70% open space, including land dedicated to agriculture activities and animal pastures. Residents not only benefit from access to fresh food, they enjoy the close connection to the farm and participating in agricultural activities. Neighbors connect with nature, and each other as they walk, hike, or bike alongside pastures, orchards and woodlands. Many agrihoods are built on heritage farmland, and, where possible, developers hire original farm family members to help plan and manage agricultural operations. Instead of displacing a farmland for housing development, agrihood developers help a community farm thrive by providing capital and infrastructure, and by supporting the local economy.

> *"As Citizen Farmers, residents learn how to give the land more than what they take from it, facilitating action that fosters healthier, more sustainable food systems."* [41]
>
> —Daron "Farmer D" Joffe, Farmer D Consulting

Features of an Agrihood Community



Listed are features generally found in agrihoods:

- Professionally managed farm
- Community gardens
- Farm store
- Restaurant, café, culinary kitchen
- Community center
- Clubhouse, fitness center, pool
- Children's play area, splash pool
- K-12 Schools, farming and environmental education
- Fruit and nut orchards
- Edible landscapes
- Trails for walking, hiking, biking, horseback riding
- Pocket parks, dog parks
- Sports courts, ballparks, yoga studios, meditation gardens
- Boating, fishing, kayaking, archery
- Single-family residences
- Condominiums, townhomes
- Rental apartments
- Age-restricted residences
- Income-restricted residences
- Multi-generational housing

Agrihood developers collaborate with municipal planners, conservationists, architects, and builders to help design a sustainable community that preserves farmland and supports responsible agriculture. Agrihoods are often referred to as "development supported agriculture." Developers also recognize the types of homes people want, their respect for sustainable construction, and their commitment to energy conservation. This chapter spotlights a number of agrihoods around the country in three categories: the amenities, the farms, and the homes.

The Amenities

Community Centers

Agrihoods can be considered "lifestyle communities," since they offer a diverse range of amenities. *Arden*, a healthy-living community in Palm Beach County, Florida, was named winner of the *2020 Gold Award* for "Best Amenity" by the National Association of Home Builders. *Arden* was recognized for its extraordinary community amenities, including the resort-style Lakehouse, and The Barn, where residents gather for seasonal themed events and workshops.

Gathering spaces are an important part of the agrihood lifestyle, and most agrihoods include a clubhouse or community center that serves as the agrihood's centerpiece. The center is a place to connect with neighbors and host events, club meetings, educational workshops, and activities for children and teens. Alternatively called a recreation center or clubhouse, centers typically include a café, gathering spaces, meeting rooms, and a culinary or demonstration kitchen. Some agrihoods have one or more restaurants.

Most agrihoods have at least one swimming pool, and in warmer climate areas, there may be several types of pools, including salt-water, toddler, and splash pools. Health and wellness features might include a fitness center, yoga studio, or meditation garden. Some facilities have guest suites for overnight visitors. Community centers are generally designed with architectural features compatible with the local area. They may be situated in the middle of a nostalgic town square, where streetscapes are reminiscent of landmark American villages, or they might be midwestern-style with sleek, modern features.

Photo courtesy: Aberlin Springs, Morrow, OH

Aberlin Springs in Morrow, Ohio, welcomes visitors with a striking Swiss chalet, a repurposed timber-framed building that formerly housed members of the original farm family. The chalet includes guest suites for overnight visitors, a health and wellness spa, and multiple gathering spaces.

Willowsford, located in Loudoun County, Virginia, spans over 4,000 acres and is comprised of four distinctive, interconnected villages. There are two community recreation centers, each with teaching and demonstration kitchens, a state-of-the art fitness center, and resort-style pools.

Hidden Springs in Boise, Idaho, offers a centrally located community clubhouse with gathering spaces, a pool, a fitness center, and a kitchen. Residents have access to a second pool, and a quaint red barn and surrounding lawn for private events.

Through a partnership with *Messina Hof Wine Cellars, Inc., Harvest Green*, an agrihood in Richmond, Texas, is adding a winery to its agrihood and a 130-seat restaurant and event-hosting venue. *Harvest Green* has been awarded a top selling community, and was voted *2018 Master Planned Community of the Year* by the Greater Houston Builders Association. The heart of *Harvest Green* is The Farmhouse, featuring an expansive clubhouse, resort-style pool, fitness center, lakeside amphitheater, event hall, and lawn.

A large-scale, master-planned community that focuses on wellness, *Serenbe* in Chattahoochee Hills, Georgia, encompasses four hamlets, each having complementary commercial centers focused on the elements of a well-lived life: arts for inspiration, agriculture for nourishment, health for well-being, and education for awareness. Year-round cultural events include outdoor theater productions from Serenbe Playhouse, culinary workshops, festivals, music events, films, lectures, boutique shopping, art galleries, a spa, and trail riding, plus a robust Artist in Residence program featuring dinners and talks.

Photo courtesy: Miralon, Palm Springs, CA

Miralon, in Palm Springs, California, offers residents its central amenity, The Club, which can be described as a "luxurious 5-star international resort." The above photo is a rendering by Robert Hidey Architects. The Club includes pools, a spa, outdoor recreation space, a state-of-the-art health club, a coffee bar, and a full-service bar and lounge. Inside and out, the design and furnishings reflect a chic desert esthetic including poolside cabanas, expansive mountain views, and an outdoor demonstration kitchen.

The Cannery at the Packing District in Orlando, Florida, a new mixed-use community, includes apartment complexes, townhomes, retail shops, and office space. Amenities include indoor and outdoor health and wellness facilities, pools, restaurants, a food hall, a micro-brewery, and the *4 Roots Farm and Agricultural Center*.

Photo courtesy: Fox Hill, Franktown, CO

Fox Hill in Franktown, Colorado, is anchored by a 1912 Charleston-style farmhouse, pictured above, along with the barn and silos from the original homestead. Fox Hill Farm includes an English-style greenhouse furnished with an aquaponic system to support a year-round growing season. Fox Hill creates a sustainable living environment that preserves history, conserves the land, and offers homebuyers eco-friendly energy options such as geo-thermal heating and cooling, and 1G fiberoptic technology.

Historic barns that were restored to community centers or gathering spaces can be found at *Elliott Farm* in Loveland, Ohio; *Creekside Farm at The Cliffs at Mountain Park*, South Carolina; the *Farmstead at Corley Ranch*, Gardnerville, Nevada; and *Prairie Crossing* in Grayslake, Illinois. The community center *at Tryon Farms* in Michigan City, Indiana, is an iconic dairy barn.

At *Orchard Gardens* in Missoula, Montana, you can rent a modern apartment right in the middle of a historic farm that is deeply rooted in agricultural traditions. *The Grow* in Orlando, Florida, is a new master planned community featuring vintage architectural features reminiscent of the homes and farmhouses of the 1940s. An authentic wood barn will include gathering spaces and a farm-to-table restaurant.

Photo courtesy: River Bluffs, Castle Hayne, N.C.

Boating and Fishing

Pictured above is the *Riverwalk,* the longest, privately funded overwater walk in the country, measuring 2,700 feet in length. The Riverwalk is an amenity at *River Bluffs*, located in Castle Hayne, North Carolina. This unique waterfront community sits on 313 acres with a working farm as well as a 10-acre community farm for residents. Situated along the scenic Cape Fear River, water is a large part of the community's lifestyle. The marina complex has an average water depth of 35 feet and includes 188 boat slips, state-of-the-art floating docks, and two gazebos on the Riverwalk.

Olivette, a 346-acre agrihood community located along the French Broad River in Asheville, North Carolina, provides residents with seven acres of riverfront beach. Residents can enjoy tubing, smallmouth bass fishing, kayaking, and canoeing. Winner of the *2019 Best in America Living Award for Best Green Community* by the National Association of Home Builders, *Olivette's* residents can enjoy parks, creeks, and views of the Blue Ridge Mountains.

Winner of numerous awards, *Prairie Crossing* in Grayslake, Illinois, offers residents the opportunity to swim, canoe, sail, and ice skate on its 20-acre *Lake Leopold*, named after the conservationist, Aldo Leopold.

At *Arden* in Palm Beach County, Florida, residents can enjoy walking or biking through 20 miles of trails that wind through the community and around Arden lake, or enjoy kayaking, bass fishing, and birdwatching on the 275 acres of lakes and 500 acres of greenspace at Arden.

Residents of *Pine Dove Farm* in Tallahassee, Florida, have exclusive access to two lakes designed for paddle-boarding, fishing, canoeing, and kayaking. *Bundoran Farm* in North Garden, Virginia, has two private lakes for fishing and kayaking. *Kukui'ula*, located in Kauai, Hawaii, includes a 20-acre lake for canoeing, fishing, and watersports. Boating and fishing opportunities are available in the many ponds through *Willowsford* in Loudoun County, Virginia; at *Serosun Farms* in Hampshire, Illinois; *Aberlin Springs*, Morrow, Ohio; *Tryon Farm*, Michigan City, Indiana; and *Chickahominy Falls*, Glen Allen, Virginia.

Pringle Creek in Salem, Oregon, is a 32-acre development located in the heart of the *Willamette Valley*. Running through the length of the community is *Pringle Creek*, which has been restored and certified as "Salmon Safe," with the watershed clean enough for native salmon to spawn and thrive.

Palmetto Bluff in Bluffton, South Carolina, is a 20,000-acre community offering residents low-country sporting activities on 32 miles of waterfront, including fishing, kayaking, canoeing, and paddle-boarding. The *May River* is stocked with largemouth bass and bream, and saltwater fishing for tarpon, cobia, redfish, and sea trout is available in spring and summer. *Palmetto Bluff* is also a vacation resort, and offers tours, cruises, and boat rentals.

Golf

The Cliffs at Mountain Park, Marietta, South Carolina, has seven nationally acclaimed golf courses, including a *Gary Player* signature course, where residents can play, take lessons, and compete in tournaments. *The Cliffs* is home to the University of North Carolina at Asheville Women's Golf Team, and hosts the annual LPGA-USGA Girls Golf Academy.

Creekside Farm, at *The Cliffs at Walnut Cove*, in Arden, North Carolina, includes a signature Jack Nicklaus golf course, with views of the Blue Ridge Mountains surrounding Walnut Cove. *Balsam Mountain Preserve* in Sylva, North Carolina, offers ownership or fractional ownership in its cabins, set on 3,000 acres of preservation land. In addition to a full range of outdoor amenities, Balsam Mountain Preserve includes an Arnold Palmer golf course and practice park at an elevation of 3,700 feet surrounded by mountain views and wildlife. Golfing is available at *Kukui'ula* in Kauai, Hawaii, and *Palmetto Bluff* in Bluffton, South Carolina.

Photo courtesy: Serosun Farms, Hampshire, IL

Horseback Riding

Serosun Farms, located in Hampshire, Illinois has built a state-of-the-art equestrian facility, shown in the above photo, which was designed to be a boarding and training facility for both competitive and recreational riders. Serosun offers world-class trainers a holistic approach to horse care, emphasizing the physical, nutritional, and social aspects of horse care. Residents of the 400-acre agrihood can enjoy 8 miles of trails along picturesque countryside.

Prairie Crossing in Grayslake, Illinois, has 10 miles of riding trails, and residents can enjoy a heated lounge and tack room inside the 13-stall stable. *Serenbe* in Chattahoochee Hills, Georgia, offers miles of riding trails, and residents can purchase lot sizes large enough to include a horse stable.

Dry Creek Ranch in Boise, Idaho, has horse stables and an equestrian facility where residents can enjoy dressage, western pleasure riding, lessons, and competitions. Groomed trails are located throughout the neighborhood. Dry Creek Ranch's larger home lots provide an option for residents to construct modest horse stables.

The Cliffs at Mountain Park, Marietta, South Carolina, includes an equestrian center *at Keowee Vineyards*, offering stables, riding rings, and training. Residents have access to more than 200 miles of riding trails throughout the Jocassee Gorges Wilderness Area. The Cliffs is located close to the renowned Tryon International Equestrian Center.