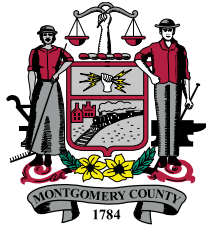




# SUBURBAN HOMESTEAD

A Primer on Best Practices and Management





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# 01 / INTRO







Photo 1.1

# INTRODUCTION

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This guide is intended to provide municipal officials and interested local residents with a primer on residential agricultural land uses and how best to manage them. *Residential agriculture*, as defined by this guide, is any non-commercial small-scale farming for personal consumption that takes place on private residential property. The Montgomery County Planning Commission (MCPC) has noticed a local trend toward more diverse private residential land uses such as keeping bee hives and chicken coops. These uses carry with them concerns for public health and general well-being. However, when properly managed they can be beneficial to both the resident and community as a whole. More robust gardens and composting can go toward reducing local stormwater burdens and diverting waste from landfills. Keeping chickens can provide food and companionship, while keeping bees provides a vital ecological service in the form of pollination. In a county with over one-third of land use being residential, it is important that we remain on the forefront of how to allow for sustainable practices at home. There are many myths surrounding these uses, and this guide will try to explain both the benefits and potential drawbacks of these practices.



home gardens did persist throughout these years in many areas where the space, time, and need were present.

## VICTORY GARDENING

The burgeoning food distribution systems created at the turn of the twentieth century were disrupted by the need to supply food to the front lines during World War I and World War II as well as in the form of aid for allies. In response to these wartime conditions, the United States government published guides and pushed for the creation of “war” or “victory” gardens in cities, towns,

# A BRIEF HISTORY OF RESIDENTIAL AGRICULTURE

## SUBSISTENCE

Before the advent of supermarkets and specialty food stores there was the home garden or “kitchen” garden, which could provide everything from fruits and vegetables to commodities such as beeswax, wool, and eggs. These home-based operations were necessary for the average American family to sustain itself throughout the year. Surplus vegetables and fruits would be preserved through various methods such as pickling, canning, drying, and salting. These preserved foods could then be eaten during the winter when cultivation was limited by the weather. Other commodities, such as herbs, beeswax, and wool, could be harvested and used in the production of household necessities such as remedies, candles, and fabric. This way of life was common for both urban and rural dwellers before widespread industrialization, when most household products needed to be fabricated by the householders themselves.

## BIRTH OF THE SUPERMARKET AND INDUSTRIALIZED FOOD PRODUCTION

Around the turn of the twentieth century, the needs of many Americans began to change. More complex work opportunities outside agriculture had emerged for those with limited education and skill. People began to move to urban centers in search of this new work and the need for complex food distribution systems to support these growing populations emerged. At the same time, scientific advances in food production, federal subsidies, and agriculture consortiums contributed to the growth of industrialized agriculture. As a result, ever larger supermarkets were built to consolidate all of these varied products a typical household would need into one location. The need for having a small garden in the city to subsist on was declining fast as a myriad of farmers’ markets, supermarkets, and specialty stores opened to provide convenience for the masses. Despite these changes,



Photo 1.3



and rural villages all over the country. These gardens could be communal but were often-times simple gardens kept in the backyard or flower box to provide staples that might be harder to come by during wartime. The gardens would include fruits, vegetables, and herbs needed to supplement a resident's rations and grocery store visits. Vegetables and chickens were most common as more farm-grown meat and produce went to the war effort. The popularity of these gardens would persist during the interstitial period between both wars and the Great Depression. By 1942, nearly 40 percent of all the produce in the country came from victory gardens.

Photo 1.4



## TODAY

Residential agriculture is less a necessity for subsistence than it was in years past but is still important for many Americans who value being self-reliant. While residential agriculture will not supply 100 percent of a household's food needs, it can allow a household to take greater control of what is consumed. It also has the potential to teach younger generations where their food comes from and how to provide for themselves. In contrast to the United States, many nations, such as Germany and Italy, have always had and continue to maintain a robust culture of producing one's

Photo 1.5



own food. Garden cultivation never declined in the same way for these societies as it did in America. However, residential agriculture has been making a comeback in the United States since the 1990s, and more American households are keeping small kitchen gardens, a coop of chickens, or a couple of bee hives in the backyard.

# WHY RESIDENTIAL AGRICULTURE IS STILL IMPORTANT...

Individual, small efforts can have a significant impact on local conditions experienced by an entire community. Some of those conditions can be international in scope: climate change and unpredictable weather are a good example. However, dealing with these issues and how they manifest at the local level falls to municipal officials and individual residents. Supplementing a diet with food grown at home can go a long way to reduce the impact of these issues on residents. Growing and producing food at home has the potential to supplement the diets of county residents with locally grown produce, soak up water from large rain events, and provide a robust ecosystem for insects and animals alike. Utilizing residential agriculture practices, such as composting, also works to remove artificial pesticides and chemicals from our environment. These contribute to efforts to correct environmental imbalances that have

been exacerbated by human development. It is important to realize that even various individual efforts, such as a home garden, apiary, or backyard compost bin, can have a positive cumulative effect on our local environment.

## THE LOCAL ECOSYSTEM

Residential agriculture has the potential to soften the impacts of the abovementioned macroenvironmental issues at the local level. One of the most significant environmental issues affecting all municipalities is stormwater management. Increasing development and growth create more runoff to be managed. Ecosystems provide natural services — vegetation absorbs rainfall, floodplains store excess runoff — but as impervious surfaces increase, these natural services can be lost. Incremental increases to impervious cover

have a cumulative impact on stormwater flows and flooding. One effective way to minimize stormwater on a site is to plant vegetation to soak it up. Lawns provide some water retention, but it is not nearly as significant as gardens planted with vegetables, berry bushes, and fruit trees. Residential agriculture has a significant impact on the amount of stormwater an area can retain and provides benefits to the local ecosystem.

Another significant issue facing both residential as well as agricultural communities is the declining number of pollinators, most specifically bees, which are responsible for pollinating most of the nutrient-rich and healthful plant species consumed by people. Bees, for a myriad of reasons, are declining across the globe. This has the potential to upset the ecosystem through decreased yields



**MontCo 2040 Goal: Support a modern, resilient, green, and energy-efficient infrastructure network.**

- This report encourages local residents and homeowners to take control of their kitchen and yard waste through the use of backyard composting, and to use the compost to improve soil quality and plant health.



**MontCo 2040 Goal: Improve stormwater management and reduce the impact of flooding.**

- This report puts forth the benefits of using home gardens and compost which provide greater retention of water, as a tool for stormwater management.





and less plant variation. It also affects individual homeowners who rely on these bees to pollinate their flowers and home gardens. Using apiaries in residential areas could add pollinators back into the ecosystem and contribute to a rise in bee populations and agricultural resiliency. Also, planting vegetable and flower gardens can go a long way toward attracting and restoring local bee populations.

*Photo 1.6: Since Thomas Jefferson, the White House has had some form of kitchen garden located on the grounds. This photo shows the White House Kitchen Garden on the South Lawn being tended in 2014 by then First Lady Michele Obama and some young guests. Michele Obama was a proponent of home gardening and healthful eating during her time in the White House.*



**MontCo 2040 Goal: Provide more opportunities for residents to exercise and have healthy lifestyles.**

- There are significant health and wellness benefits associated with maintaining a home garden and keeping chickens or bees. These residential property improvements get residents to engage with their environment. Being outdoors can increase mental well-being. Homeowners who grow their own vegetables and fruits may be encouraged to use them more regularly in their diet, promoting a healthy lifestyle.



**MontCo 2040 Goal: Enhance community character and protect neighborhoods.**

- A varied and well-tended home garden, whether produce or ornamental, can be a visual asset and enhance community character. This is true especially of front-yard gardens. The production of a significant portion of a household's food is also a financial asset as it has the potential to reduce overall expenses. This can help more vulnerable residents lower their costs and remain in their homes which can help stabilize a neighborhood. The planting of fruit trees could help grow our county's canopy as well as provide food.

## 02 / APIARIES

*Photo 2.1: The non-native *Apis mellifera* or “Western Honey Bee” is one of the most common domesticated insects with a reach stretching across six continents.*







# APIARIES

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Apiaries, or collections of manufactured beehives, are great sources of local honey, beeswax, and pollination for agriculture. Over 60 percent of commercially grown fruit and vegetables are heavily reliant on, or exclusively pollinated by, insects, including bees. While much of America's farms are focused on wind-pollinated crops (wheat, corn, potatoes), many of the fruits, vegetables, and nuts we consume to round out our diet come from insect-pollinated plants. Without pollinators, produce, such as apples, almonds, pumpkins, and carrots, would see their yields sharply decline or cease existing. It has been documented over the past three decades that pollinator populations are declining.

Both wild bees and honeybees are some of the primary insects that are disappearing, and there is no singular answer as to why. Whatever the reasons for this decline, more work can be done at the community level to potentially address this issue. Backyard apiaries and planting "pollinator gardens" can help bolster bee populations. Using natural fertilizers and reducing the use of chemical pesticides can also prevent bee die-off. Safe and proper care of bees in residential backyards can help local agriculture and gardens achieve sufficient pollination and good yields while reducing unwanted negative attention from neighbors.



# BEST PRACTICES

## CERTIFICATION AND PERMITTING

It is important for residents who want to keep bees at home to be properly trained. A hobbyist may or may not be well versed in techniques on how to keep bees from becoming a nuisance to surrounding property owners. Many programs exist in Pennsylvania to certify beekeepers. Some within Southeastern Pennsylvania include the Montgomery County Beekeepers Association of Pennsylvania (MCBAP), Worcester Honey Farms, Inc., and the Philadelphia Beekeepers Guild. These organizations provide training, information, and equipment rental to their members in order to support proper cultivation of honeybees within the region. All beekeeping must comply with the Beekeepers Compliance Agreement, as published by the Pennsylvania Department of Agriculture. There is no mandated inspection at the time of registration. However, there are apiary inspectors throughout the state, employed by the Department of Agriculture, who try to inspect at least half of the state's hives each year.

Also, municipalities may see fit to include an additional municipal-level permit to conduct noncommercial beekeeping on residentially zoned properties. Permits should be contingent on a yearly inspection done by the municipality to ensure safety and compliance with the beekeeping ordinance. It is important for a municipality to decide if beekeeping should be “by right” or with a special permit in residential zones and appropriate language should be included in the municipal ordinance.



Photo 2.2: A common hive type, the Langstroth Hive, has been used by hobbyists and commercial beekeepers alike for over 150 years.

## SAFETY

Bees, though they can sting, are not prone to be aggressive toward humans. When a bee is swatted or otherwise actively disturbed by a person they can become aggressive, but this is rarer than people perceive, and a very small percentage of people are prone to life-threatening reaction to a bee sting. Many stings come from more aggressive insects such as wasps. According to the *American College of Allergy, Asthma, and Immunology*, less than 1 percent of children and 3 percent of adults are likely to suffer from a severe allergic reaction to any insect sting. Some homeowners' insurance policies will include beekeeping accessory uses, and municipalities should encourage residents who take up the hobby to make sure their policies cover it.

## PLACEMENT OF HIVES

Placing apiaries appropriately is important to reduce the chances that the bees become a nuisance for neighbors. Front and side yards are not optimal as they are highly visible to neighbors and could cause greater unease than if they are placed out of sight in a backyard. In order to make the bees happy and nonaggressive, it is suggested that hives be placed in areas that receive partial to direct

sunlight most of the morning and afternoon. Generally, it is not advised to keep bees in either extreme, direct sunlight or total shade, but instead allow for the bees to receive direct sunlight early with an increasing amount of shade as the day gets hotter. In addition, placing them in areas with low exposure to cold winds and air pollution sources is also optimal. Hives need to be kept dry: openings

should be placed on the underside of hives and raised off the ground through the use of a hive stand. Depending on the residential density of an area, limiting the placement of an apiary to at least 10 feet from the property line is reasonable in most parts of the county. Other ordinances from around the country show varied ranges, and there is no scientific consensus on the best distance.



*Photo 2.3: A small water garden is attractive to nearby bees. beekeepers are advised to provide a water source, such as the one demonstrated above, in the early spring.*



*Photo 2.4: The Halictid bee is common to the Eastern United States and one of many “wild bees” competing with non-native honey bees for pollen and nectar.*



*Photo 2.5: Pollinator gardens are an effective way to attract bees and other insects to your yard. It is wise to plant a diversity of flowers, such as the ones above, to provide food for honey bees and wild bees alike.*



## BEE HEALTH

Bee colonies need to be checked regularly for signs of ill health or aggressiveness. Occasionally, a queen may become ill-tempered or sick and need to be replaced with a new one. Regular checks on the colony, especially in the warmer months when the bees are most active, goes a long way to ensuring that the bees remain healthy and docile. In order for bees to remain healthy, they need to have ready access to food and water. A simple water garden, such as a shallow birdbath or planter with water or a dripping tap, is sufficient to prevent bees from going elsewhere to search for water. Water should be provided nearby and early in the spring when the bees start to fly. Residents concerned about mosquitoes' breeding in standing water can use commercially available larvicide, which is only harmful to mosquitoes' and no other wildlife, to treat the water. Another way to cultivate bees and incentivize them to stay in the immediate area is to plant a pollinator garden. Pollinator gardens incorporate different types of flowering plants and shrubs that bloom at different periods during the warmer months of the year. This ensures local bees have a steady source of pollen and nectar throughout that time period.

## BEHAVIOR MANAGEMENT

Consistent movement near the hive encourages bees to be docile and stray less distance from the hive. Shrubs, trees, and flags provide the best consistent sources of movement through wind. It is also possible to guide a colony's flight path when it does leave the immediate yard in search of plants to pollinate. A flyway barrier of at least 6 feet, composed of a fence or hedge surrounding the yard or at very least the apiary area, will prompt

## STATE REGISTRATION

Pennsylvania requires that every beekeeper in the Commonwealth be registered. The registration costs \$10.00 for a two-year period and covers all apiaries and hives owned by that person. The form may be completed online or mailed in and is available at - [www.pastatebeekeepers.org/pdf/registration.pdf](http://www.pastatebeekeepers.org/pdf/registration.pdf).

Photo 2.6



## WILD BEES VS. HONEYBEES

Wild bees are just as important to pollination, if not more so, than honeybees. Honeybees are domesticated and easiest to cultivate, but they represent a relatively small fraction of pollinators in our environment and are non-native to the United States. Wild bees are often more efficient pollinators than honeybees. Like honeybees, wild bees are also decreasing in numbers. Their decrease is due to a number of reasons, but one of the more important is the "crowding out" of local wild bees by honeybees being cultivated nearby. The easiest way to cultivate honeybees and not crowd out local wild bees is to make sure there is flora enough for both populations to pollinate. Growing fruits, vegetables, and pollinator gardens in addition to keeping bees will help wild bees remain viable and fed during their active months.



bees to fly higher and above the heads of any surrounding neighbors. Alternatively, hives can be placed on a flat roof, which will also influence them to fly higher when they go abroad.

Renewal of honeycombs every two years and regular replacement of queens every one to two years is advised to maintain healthy, docile colonies. Selection of queens should revolve around meeting specific criteria such as resistance to diseases, hygienic behavior, docility, low tendency to swarm, and high productivity. Keeping young, strong queens will likely reduce swarming as older queens tend to produce more swarms. “Swarming” can be an intimidating behavior to humans when first viewed, but this often means the bees are splitting the colony and reproducing to increase their number of hives. However, a properly trained beekeeper should work to prevent swarms in view of the public and retrieve them if they do go outside of the property. The Montgomery County Beekeepers Association of Pennsylvania maintains a list of local beekeepers available to collect swarms and can be called on to assist others.

It is important to remember that when bees swarm without provocation they are usually very docile. For every two hives kept, there should also be a “nucleus” colony which goes toward reducing swarming. A nucleus colony is a smaller hive that only consists of a queen and some support bees. These are used to attract a potential swarm that may emerge from an existing full-size hive. Lastly, the establishment of an apiary within a 50-foot direct path to any animal in the same yard permanently tethered, kenneled, or otherwise prevented from escaping a stinging insect is not advisable.

## OTHER BEE ORDINANCES ACROSS THE US

The trend of beekeeping has picked up over the last ten years and so have municipal responses to it. New York City enacted a beekeeping ordinance in 2010 that has since resulted in over 200 registered hives, many on rooftops across the city. There are some issues that NYC has had to deal with since the growth of beekeeping in the city, such as lack of enough flora for bees to pollinate. As apiaries have increased in number within the city, the amount of available greenery has proven to be insufficient. This is a unique issue for urban areas, but not so much for suburban or rural areas with sufficient flora. Another municipality that has enacted beekeeping regulations is Edina, MN. Edina sits just outside Minneapolis and is one of a number of communities in that region to enact a beekeeping ordinance over the last five years. Edina is similar in land use patterns and residential density to many Montgomery County municipalities. Since enactment, a number of Edina residents have stepped up to keep bees. Students have been particularly engaged in the process and a few of them keep hives at home. This had led to greater community comfort with the practice as well as understanding of its benefits. Other communities around Edina that have enacted beekeeping ordinances are Minneapolis, St. Paul, and Bloomington.



*Photo 2.7: Bees entering and exiting the hive.*

NOTE: This model provides a framework for regulating noncommercial “hobby” beekeeping and should only be adopted after a legal review by the municipality. Like any model ordinance, it should be reconciled with all existing ordinances that are affected by its adoption as well as tailored to an individual community’s needs and concerns.

## MODEL ORDINANCE LANGUAGE

### Section 1. Intent

- A. It is recognized that honeybees are beneficial to humankind and to Pennsylvania in particular by providing both home garden and agricultural pollination services as well as furnishing honey, beeswax, and other useful products.
- B. The purpose of this ordinance is to establish certain requirements for noncommercial beekeeping within residentially zoned areas in the municipality, to avoid issues which might otherwise be associated with beekeeping in populated areas.

### Section 2. Definitions

- A. As used in this article, the following words and terms shall have the meanings ascribed in this section unless the context of their usage clearly indicates another meaning:
  - 1. **APIARY** means the assembly of one or more colonies of bees at a single location.
  - 2. **BEEKEEPER** means a person who owns or has charge of one or more colonies of bees.
  - 3. **COLONY** or **HIVE** means a collection of bees consisting principally of workers but having, when perfect, one queen and at times many drones, including brood, combs, honey, and the receptacle inhabited by the bees.
  - 4. **NUCLEUS COLONY** means a small quantity of bees with a queen housed in a smaller-than-usual hive box designed for a particular purpose.
  - 5. **LOT** means a contiguous parcel of land under common ownership.
  - 6. **HONEYBEE** means all life stages of the common domestic honeybee, *Apis mellifera* species (“Western” or “European” honeybee).
  - 7. **FLYWAY BARRIER** means a solid wall, fence, dense vegetation or combina-

### Intent

Legislative Intent: The legislative intent should be tailored to reflect each municipality’s own specific goals and characteristics. Each separate municipality may find beekeeping to be beneficial in different ways. If a given municipality would like to allow commercial use of products derived from beekeeping or allow them on other types of zoned parcels, then the municipality’s statement of intent should reflect those allowances.

### Definitions

“Nucleus Colonies” can be an effective way to prevent swarming by removing the mature queen, some of her brood, and food from the hive and placing them in a smaller single-drawer nucleus colony. This will remove the impetus to find a new hive and swarm by the mature colony.

tion thereof that forces bees to fly at a higher elevation above ground level over the property lines in the vicinity of the apiary.

8. **SUPERS** mean the portion of a hive where honey is stored. Bees will work through these stores during times of no honeyflow.

## Section 3. Standards of Practice

Honeybee apiaries are permitted [by right, by conditional use, by special exception] as an accessory use in [list residential zones] when in compliance with the Pennsylvania Bee Law (3 Pa.C.S.A. § 2101-§ 2117) and subject to the following regulations:

### A. Permitting and Certification

1. The apiary must be properly registered with the Pennsylvania Department of Agriculture, Bureau of Plant Industry, pursuant to applicable Pennsylvania state laws.
2. No person shall keep or maintain honeybees on their lot before completing a beekeeping certification course.
3. If a tenant should endeavor to keep bees on rented property, then the tenant must secure written authorization from the owner as well as conform to all other requirements as enumerated in this ordinance.
4. No person shall keep or maintain honeybees on their lot before completing a permit application and submitting it to the [Insert Municipal Official Title or Office].
5. No person shall keep or maintain honeybees on their lot before notifying all surrounding neighbors within 150 feet of the property. A list of all notified neighbors and their addresses should be provided to the municipality along with the beekeeper's permit application.

### B. Hive Type and Maintenance

1. No person shall keep or maintain honeybees in any hive other than a modern movable frame hive which permits thorough examination of every comb to determine the presence of bee disease.
2. For every 2 colonies permitted to be maintained under this ordinance, there should also be maintained upon the same apiary lot, at least one nucleus colony in a hive structure not to exceed one standard 9 5/8-inch depth 10-frame hive body with no supers.

## Standards of Practice

### A. Permitting and Certification

If a municipality requires a permit, the following basic information should be provided by the property owner: Name, Address, Contact Information, an Apiary Plan showing relevant lot lines and placement of the hives, and Date Filed. In addition, a municipality may set its own time period for renewal and frequency of inspection by the relevant municipal department, such as code enforcement.

Some municipalities in the United States, such as the city of Minneapolis, have made approval contingent upon the go-ahead of nearby neighbors. If a neighbor is allergic to bees or uncomfortable living next to them, the neighbor can withhold their approval for the apiary. The language included in this model ensures that all residents in the immediate area are notified but does not require their approval. It is up to each municipality to determine whether or not to require neighbor approval for the practice.



3. The hives must be located within a secured area to protect the colony and prevent direct access by the public.
4. For all colonies located on a property, a flyway barrier at least 6 feet in height, consisting of a solid wall, fence, or dense hedge parallel to the property line and extending at least 10 feet beyond the apiary in each direction, is required.
5. A supply of fresh water shall be maintained in a location readily accessible to all bee colonies on the site throughout the day to prevent bees from congregating at neighboring swimming pools or other sources of water on nearby properties.
6. Hive maintenance materials or equipment should be stored in a sealed container and placed within a building or other bee-proof enclosure.

## Section 4. Colony Density

- A. It shall be unlawful to keep more than the following number of colonies on any tract within [municipality], based upon the size or configuration of the tract on which the apiary is situated:
  1. One-quarter acre or less tract size – two colonies.
  2. More than one-quarter acre but less than one-half acre tract size – four colonies.
  3. More than one-half acre but less than 1 acre tract size – six colonies.
  4. One acre or larger tract size – eight colonies.
  5. Regardless of tract size, where all hives are situated at least 200 feet in any direction from all property lines of the tract on which the apiary is situated, there shall be no limit to the number of colonies.

## Section 5. Location

- A. Placement of an apiary on a residential property should conform to the following regulations so as to reduce the possible nuisance to surrounding neighbors and the public at large:
  1. Apiaries are not permitted within 10 feet of any lot line.
  2. Apiaries are not permitted within 20 feet of any dwelling.

## Hive Type and Maintenance

4 – This part requires there be a flyway barrier, such as a fence or hedge, to surround the entire apiary area. The likely outcome, on most lots smaller than ½ acre, would be to place a 6-foot fence around the entire backyard — this could also be a requirement added to this ordinance on certain sized properties and reinforced in a Subdivision and Land Development Ordinance (SALDO). On large lots, individuals could satisfy this requirement by having the barrier be at least 10 feet away from the apiary in each direction.

6 – Tools used in the extraction of honey or maintenance of the hive can have residual wax or honey on them that can attract other bees and encourage “robbing”. Robbing occurs when wild bees seek to steal honey from another colony and in turn make a docile hive aggressive. Therefore, keeping materials secured in a bee-tight container goes towards reducing that possibility.

## Colony Density

The standards within this section are used across the country and have proven effective in mitigating risk and nuisance to neighbors. On lots that are especially big and where property lines are greater than 200 feet from a potential apiary, there need not be a limit on the number of hives. There is a lesser likelihood that an apiary would cause any issues in sparsely populated, low-density areas. However, a municipality may see fit to limit the number of hives based on local conditions or concerns.

3. The front of any apiary shall face away from the property line of the residential property/zone closest to the hive.
4. No apiary shall be kept in front or side yards.

## **Section 6. Inspection**

The [Insert Municipal Official – i.e., Health officer, Code Enforcement officer, Animal Control officer] shall have the right to inspect any apiary between 8 a.m. and 5 p.m. in response to any nuisance claim. Prior notice shall be given to the beekeeper whose property the apiary is placed upon, where practicable.

## **Section 7. Savings Clause**

In the event any part of this ordinance or its application to any person or property is held to be unenforceable for any reason, the unenforceability thereof will not affect the enforceability and application of the remainder of this ordinance, which will remain in full force and effect.

## **Inspection**

Inspections should be conducted at least yearly, typically upon permit renewal, in order to ensure that proper care is being taken by beekeepers. Inspections should include making sure the hives are placed in an appropriate area of the backyard and all supporting aspects, such as water source and flyway barrier, are present. The PA Department of Agriculture has an inspector who handles Southeastern Pennsylvania and will periodically inspect all registered apiaries for any bee health-related concerns. It is the municipality's responsibility to make sure the physical placement and construction of hive areas are up to the standards set forth in this ordinance.

Depending on whether a given municipality already has a nuisance ordinance as it relates to "free roam" of livestock, animals, or wildlife, it may be prudent to consider attaching nuisance regulations to the end of this section.

# 03 / COMPOST

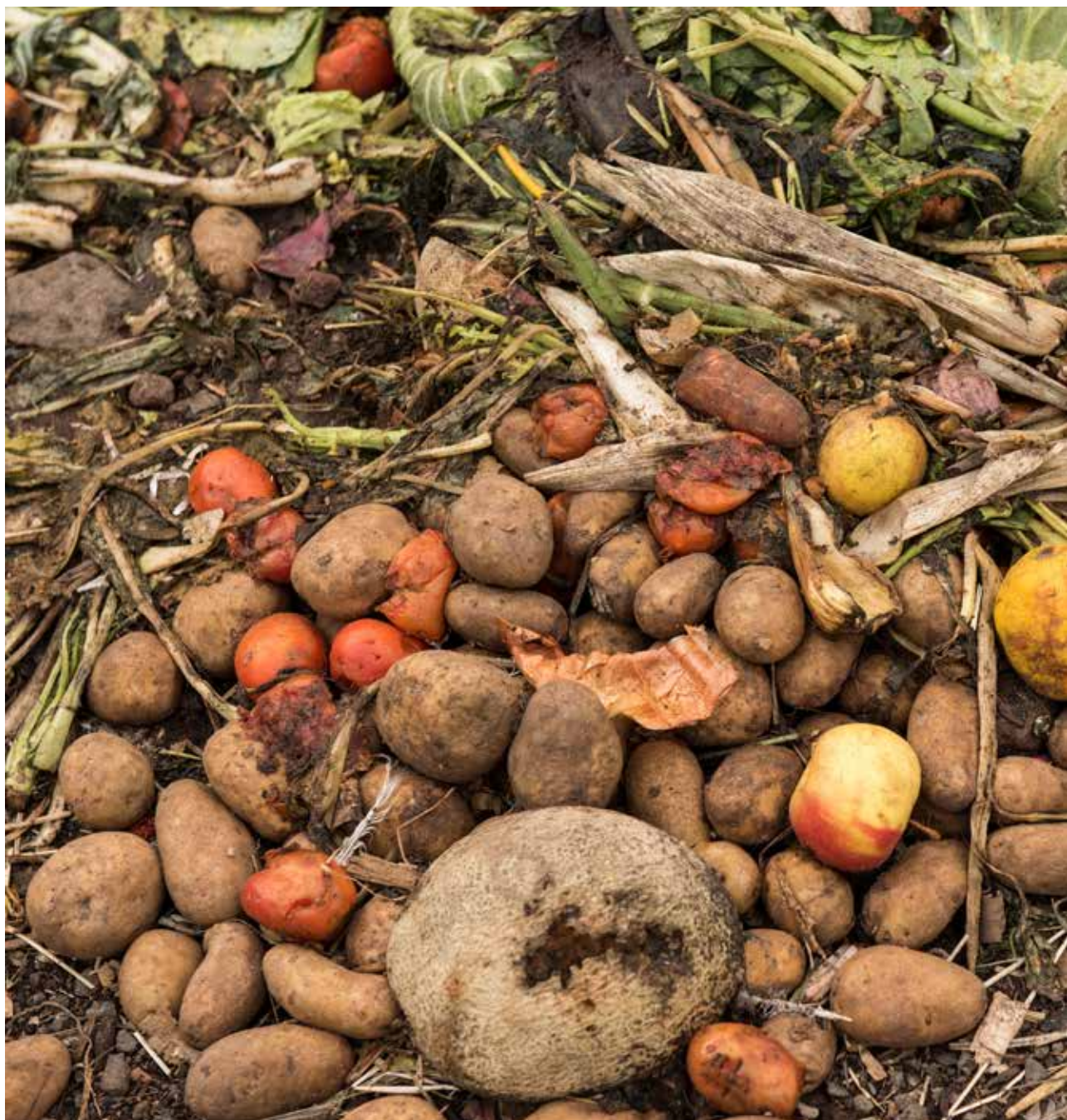






Photo 3.1

# BACKYARD COMPOSTING

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Backyard composting is an important practice when viewed through the lens of sustainability and waste diversion. The more waste residents divert, the less municipalities have to handle through trash collection and landfilling, incinerating, or recycling. Once composted, food and yard wastes can be potent fertilizer for all types of gardens. The rich source of nitrogen increases plant health and allows for greater yields. Compost used as a soil dressing aids in greater water retention. Many myths surround the use and nuisance of composting. When located properly with appropriate materials, a compost bin will not attract wildlife or emit noxious odors. Moreover, backyard composting helps a home gardener create a closed-loop production system.

# BEST PRACTICES

## PLACEMENT

Backyard composting can be done in residential areas at a noncommercial scale and, generally, for personal use of the compost. The placement of composting bins or piles can be contentious when noticed by nearby neighbors. If done correctly, a well-placed site would be out of view of neighbors and have contents that do not attract or house pests. Therefore, placement near the house but away from the property lines is most advisable. This allows the resident to easily access the compost site without going far from the house as well as keeping it out of view from nearby neighbors. However, others may wish to place it adjacent to their garden because that is where the compost is most utilized. Another possible way to obscure the view of the compost site is to utilize a hedge or short fence. In either case, there is no strong public health reason to restrict where a compost site should be unless it is near a riparian area.

When the backyard includes riparian areas, an area designated as 100-year floodplain, or protected wetlands, then the owner should place the bin at least 20 feet from the feature to eliminate any potential incident of seepage. While it is unlikely that composting would increase the nutrient load in the water so much as to cause a public health issue, it is prudent to control it in areas where there are other uses that could — such as agriculture. Ultimately, composting containers should be located and designed so that potential leachate

or sediment from the compost will not run off into public or private streets, storm sewers, drainage ditches, water retention basins, streams or lakes. In addition, the compost bin should be placed in partial sunlight to facilitate the heating process and away from areas with frequent harsh winds, especially if open-pile composting is allowed.

*Photo 3.2: The rotating compost bin, typically made of plastic, is one of the more affordable and convenient options for a resident interested in composting at home in the backyard. These are most appropriate in more dense urban and suburban neighborhoods as they are sealed to provide the best defense against animals.*



## ZONING SUGGESTIONS:

Many municipalities do not have regulations that directly address residential composting. Some will have restrictions regarding the open disposal of organic waste, which can include kitchen scraps, but these provide no guidelines for individuals who would like to compost in a more neighbor-friendly way. If a municipality would like to encourage composting, it should review its current residential waste disposal ordinance and see where any restrictions, unintentional or not, exist regarding the practice.

If a municipality restricts the open disposal of organic waste, it may add language that clarifies the accepted disposal of certain organic waste within a “closed container” or “vessel” such as a composting barrel or tumbler. Another aspect that a few municipalities regulate is the placement of the compost site. However, it is usually in reference to whether the site is located near a floodplain. Those codes will dictate a compost site be a specific distance away from local waterways, floodplains, and storm sewers to prevent against leachate or sediment infiltrating the local water system. Overall, simple language inserted into already existing residential waste disposal regulations should suffice in encouraging residents to compost responsibly.





Photo 3.3



Photo 3.4



Photo 3.5

## SITE TYPES

### Open Piles

This type of backyard composting site is common in rural residential areas and on agricultural properties. If a resident's lot is bigger than 2 acres, open-pile composting becomes less of a bother to surrounding neighbors. Large lots with open piles also mean more composting can be done in terms of volume. Some open piles have short walls, usually on three sides, which make it easier to work with and define the compost site. Others may be contained within a wire mesh bin with no lid. This type of pile may also require a windbreak to better manage the temperature of the pile. These require more active management due to being open to the elements and possibly attracting wildlife.

### Tumblers

Tumblers can be purchased at garden centers and home improvement stores or made by a resident. They can be expensive but offer an easy way for home gardeners to manage their compost. Tumblers are completely closed and raised off the ground which protects them from any foraging pests. A resident places "greens" and "browns" into the hatch at the top of the tumbler and rotates it as needed using the hand crank on the side. These are appropriate in any neighborhood but most common on small urban and suburban lots.

## MUNICIPAL-BASED COMPOSTING PROGRAMS

Both Media in Delaware County and Easton in Northampton County have begun the process of incorporating separated kitchen scraps in their weekly waste pickups. Media, starting in January of 2018, initiated a pilot municipal program to collect residential yard waste and kitchen scraps and take them to a local facility for processing compost. This facility will then make the compost available for sale at a low rate to any local gardeners wanting to use this organic fertilizer. Easton has employed a smaller pilot program that seeks to divert kitchen waste from commercial operators to a designated composting farm nearby. Their program so far collects kitchen waste from four of the largest commercial operators in the downtown Easton area. In Delaware County, Linvilla Orchards receives compost materials from organizations charged with picking up kitchen scraps and yard waste from across the county and processes the compost on site for use in its own operations as well as for sale to any interested gardeners.





Photo 3.6



Photo 3.7

### Store-bought Bins

These bins are often made of some type of plastic and are designed for easy loading of organic material and access to finished compost. They do not have bottoms but are completely closed and sealed at the top to protect against intrusion. There is a hatch at the bottom of the bin to access the finished compost. A tool called a “compost turner” can be utilized to turn and aerate the compost instead of traditional labor-intensive methods. This can make composting simpler for elderly residents as well as more casual gardeners with less spare time. Like tumblers, these are most common on smaller lots.

### Three Bin Systems

This type of system contains three bins of equal size arranged next to each other in a row. The bins will oftentimes be made of wood, wire mesh, or a combination thereof. They can have open tops or have secure lids that protect against any foraging wildlife. This setup can be used in a few ways, but the most common is to use it as a way to turn the compost. “Greens” and “Browns” are placed, along with any other starters, in the first bin. When it comes time to turn the pile, compost is moved into the next bin which mixes and aerates it in the process. This is repeated with the first and second bin until the compost is finished. The finished compost is transferred to the third bin for easy access and use. This system, like store-bought bins and tumblers, is appropriate nearly everywhere.

## ZONING SUGGESTIONS:

Depending on a municipality’s land use patterns and lot sizes, it may be prudent to include some regulations in the municipal code regarding the size and type of compost sites allowed. Most municipalities that are rural in character may be fine with all types of composting systems, including open piles. However, a borough with small lot sizes and higher population density may see fit to restrict residential composting to closed bins and a particular size measured in cubic feet. In Montgomery County, it should suffice to simply state that all residential composting be conducted “in-vessel” (container with lids). Also, depending on the type of materials used to construct the compost site as well as its size, it may be necessary to include it in accessory structure regulations.







Photo 3.8

## VERMICOMPOSTING

An alternative to backyard composting of kitchen waste is vermiculture, or composting with worms. It is a type of composting process that results in rich organic compost thanks to the worm casings (or worm poop). The compost material is too strong to be used alone or as a seed starter but makes for an excellent top dressing for plants or can be mixed in with regular potting and garden soil to improve nutrient loads. Vermiculture bins can be set up inside a home or outside during temperate weather. A well-maintained bin will not emit noxious odors but should smell pleasantly earthy. Many composters keep their bins in the kitchen for ease of access, but they also work well in basements, mud rooms, or other locations. When the compost is ready to harvest, filtering screens can be used to separate worms from the compost and any other materials that have not fully broken down.



## “GREENS” AND “BROWNS”

Certain materials are not appropriate to include in a compost bin because they can cause odors, impede proper decomposition, and may attract unwanted pests. These materials are included in the chart to the right. In order for municipal officials to properly enforce any potential ordinance or respond to nuisances related to composting, they must understand the basics of creating compost. One of the most important aspects of composting is what to include in the compost and in what amounts. This is important because it dictates how many necessary bacteria are present to decompose the organic material in the pile. Properly managed compost will incorporate certain amounts of nitrogen-rich materials or “greens,” as well as carbon-rich materials or “browns” (indicated by their colors in the chart to the right). The “recipe,” or ratio of greens to browns, varies depending on local conditions such as climate. The compost pile may also require a certain amount of moisture depending on the type of compost recipe. Issues can arise when the recipe is off, possibly resulting in compost that takes too long or is unable to break down the organic matter. Animal products are not included because they can attract pests and may also contain pathogens that cannot be broken down at the temperature the pile reaches.

## ZONING SUGGESTIONS:

While it may be inappropriate to limit residents to a specific recipe, it can be fine for municipal officials to clearly define what should not be placed within backyard composting sites. This language, like most other residential composting language, should be placed within the municipality’s residential waste management ordinance.

*Photo 3.9: An open compost bin showing typical “green” additives like coffee grounds, eggshells, and produce.*







Vegetable and Fruit waste  
including stems, leaves, and skins



Eggshells



Coffee-grounds and  
paper filters



Grains such as cereal, bread, and  
pasta (without any animal-based  
products)



Grass clippings



Dead leaves and pruning



Shredded newspapers and other  
uncoated paper products



Chicken manure and bedding



Meat and meat by-products such  
as fats, oils, and grease



Fish and fish by-products



Whole eggs



Dairy products



Sanitary products such as diapers



Noxious weeds and diseased  
plants



Any materials tainted with  
herbicides or pesticides



# 04 / GARDENS





Photo 4.1

# HOME GARDENING

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Keeping a private garden in the front or back of a residential property is a good way to reduce stormwater runoff and provide healthful food to the residents. While expansive lawns and shrubbery have been the landscaping mainstay for much of America's suburbs over the last seventy years, these lawns have little utility in terms of absorbing stormwater and other services. A robust garden full of hearty vegetable plants, fruit trees, and native long grasses has the potential to soak up more rainwater. In an era of population growth, climate shift, and food insecurity, home gardens play a local role in reducing the impact of these conditions by creating sustainable residential properties.



## TYPES OF HOME GARDENS



Photo 4.2

### IN-GROUND BED

In-ground garden beds are the most recognizable form of home gardens in Montgomery County. Many residents maintain an in-ground garden bed whether it is for decorative flower plantings or vegetables. These types of gardens come with a few issues that residents should be cognizant about, such as soil contamination. In older boroughs or communities near defunct industrial sites, it could be beneficial to do a quick and inexpensive soil test to make sure there are no harmful amounts of lead and other pollutants in the soil. In fact, certain types of plants, such as lettuces, are great at removing metals and other pollutants from the soil—just don't eat the lettuce! Also, understanding the soil condition is imperative so that a gardener knows how to amend it and which plants will thrive. Incorporating compost into the soil can be a great way to enrich the soil and produce greater yields.

### RAISED BED

Raised bed gardens are becoming more common as they can be easier to maintain, amend soil composition, and control wildlife intrusion. A raised bed garden will necessitate the addition of between 10 and 12 inches of soil, above ground, contained within the raised bed. It is easy to incorporate compost and other soil conditioners when the soil is readily accessible above ground level. These types of gardens can be easier for less mobile or older individuals to maintain. They are often raised a foot above the ground but can be raised any number of feet to accommodate those with limited mobility. Raised beds also make it easier to incorporate a chicken wire barrier that protects plants from being foraged by local wildlife. In addition, many gardeners place a layer of chicken wire between the raised bed and ground itself to prevent against burrowing animals. Overall, these can be aesthetically pleasing and an easier-to-maintain alternative to traditional in-ground gardening.



Photo 4.3

### CONTAINER

Container gardens are ideal for residents with poor soil, difficult terrain, or not enough yard space to grow an in-ground garden. These types of gardens can also be good for those with limited mobility as containers can be placed at varying heights with the addition of a stand or base. Containers make it easier to reclaim negative space in a given area. You can hang planter baskets from a clothesline draped across a patio and be able to grow completely off the ground. Overall, container gardens offer more flexibility in where planting can be done—outside, inside, or above your head.



Photo 4.4



Photo 4.5

## WALL/VERTICAL

Vertical or “wall” gardens are common in areas with little to no outdoor space for traditional in-ground or raised bed gardening. They are also a great way to aesthetically cover blank walls with verdant growth and possibly food production. Vertical gardens can be as simple as a store bought, wall-mounted hanging planter or as complex as a constructed feature with irrigation systems. There are numerous ways to cultivate this kind of garden, but the most likely way will be to use a trellis against the side of a house or in the middle of a ground-based garden. Vertical gardens do not have to be attached to a wall to thrive. Trellises can be placed in the middle of a typical garden and still achieve significant vertical growth as seen in the picture.

Photo 4.6



## POLLINATOR GARDENS

These gardens contain certain types of plants most attractive to pollinators such as bees, butterflies, and birds. Many residents already plant flower or vegetable gardens, which attract pollinators, but could be providing more utility for them if they followed some key best practices. The most attractive gardens will contain native plants that provide nectar and pollen for a wide array of insects. These gardens should be placed in sunny areas and contain a small basin or birdbath that provides water for the pollinators. One of the most important features of a pollinator garden is that it is deliberately planted to have blooms throughout the growing season. Therefore, the garden is active for different insects in spring, summer, and fall. It is important to plant flowers and herbaceous plants of a wide variety of colors. Red and orange attract hummingbirds while blue, violet, and yellow attract bees. Lastly, it is important to limit the use of pesticides or herbicides as they can harm pollinators and deter them from visiting the garden. It is highly recommended that residents who wish to keep bees also maintain a pollinator garden to attract their colonies and other wild bees.





Photo 4.7

## GREENHOUSE

Greenhouse gardening can be ideal for residents who want the benefit of homegrown produce throughout the entire year. Since Montgomery County is a four-season region, many gardeners may require a greenhouse to extend the growing season into the winter months and start the growing process for young seedlings. A gardener can control temperature through the use of air vents, water vessels, electrical heaters, and even compost. Greenhouses can also be a good choice for those gardening in containers as they can be easily moved inside during the cold winter months. In most zoning codes, greenhouses are considered an accessory use and structure. Depending on a municipality's code, a greenhouse may require both a zoning and building permit, just one, or perhaps neither. Greenhouses are an outbuilding, like a shed, and should be regulated similarly. If a greenhouse is attached to a house, this could constitute an addition and may automatically require a building permit. A municipality should make sure its accessory structure regulations encourage the proper placement and construction of greenhouses and other

similar structures such as cold frames. Cold frames and hoop houses are often temporary, lower-lying structures that act as extensions of a typical greenhouse function. They can be used to shield delicate plants from the cold in winter, acclimate young plants to outside conditions, and extend the growing season past frost. Cold frames, due to their short period of use, may be classified as a temporary accessory use and have different guidelines for placement and construction. Unlike greenhouses, cold frames are not usually tall structures and could be appropriate in a front yard. Overall, it is important for a municipality to consider how its code enables residents to extend their growing season through the use of both temporary and permanent accessory structures.



Photo 4.8

## ROOFTOP

Rooftop gardens are most common in dense urban areas because there is less space for in-ground gardening, more flat roofs, and large buildings with strong roofs to hold the extra weight. Any resident without adequate ground space and a strong flat roof should still be able to garden. They can be a good

way for groups of residents in multifamily complexes to garden. Often they consist of a vegetative layer grown directly on top of the roof or in containers placed there. It is critical that the roof have the load capacity to handle the weight of the plants and residents tending them. Special soil is manufactured, which contains absorbent clays and nutrient-rich compost, resulting in a lighter soil appropriate for rooftop gardening. Residents intending to garden on the roof should seek the confirmation of an engineer or building inspector on whether the roof is designed to handle the extra weight. Unique benefits to gardening on the roof are temperature control, water retention, and aesthetics. Gardens planted on the roof soak up rainwater instead of it becoming runoff, which can help ease the burden on traditional stormwater sewers during heavy events. They can reduce the heat island effect by covering what is usually an absorber of heat, tar and gravel roofing, with a lush garden capable of evapotranspiration (which in turn reduces the temperature of the roof surface and surrounding air). In situations where the conditions are right to have a rooftop garden, they are beneficial in multiple ways to both the resident and local area.



# BEST PRACTICES

## PLACEMENT

Home gardens can be placed in the front, side, and backyards of a residential property without providing nuisance if they are properly managed. Across the United States, growing vegetables and fruits has become a more common occurrence in front and side yards. Typically, vegetable gardens can be found in backyards, but there is no major public health reason that gardens should not be located in front or side yards as well. For many municipalities, it is an aesthetic issue—the common wisdom being that trim lawns are more appealing. Some municipalities restrict the type of plants that residents are allowed to grow in the front yard through strict landscaping requirements or “weed” ordinances. These requirements often limit the height of grasses and other plants to less than one foot.

Suburban Montgomery County has unique environments and varied housing stock which can make it difficult for some to cultivate a robust home garden in the back of their property. Due to issues regarding tree cover, elevation, and stormwater management, it may be more appropriate for property owners to garden in the front. Even issues such as the direction the house faces can have a big impact on which sides get adequate sunlight for certain types of plants. Larger structures, such as greenhouses or sheds, should still be limited to side and rear yards and governed by existing accessory structure regulations. However, the use of cold frames could be allowed in front yard gardens because they are not so big and often temporary.



*Photo 4.9: A tiered garden is a unique solution to a sloped front yard. It is aesthetically pleasing as well as utilitarian if planted with herbs and vegetables.*

## ZONING SUGGESTIONS:

In areas where rooftop gardening is appropriate, it can be beneficial to provide incentives for residents to maintain rooftop gardens and green roofs. Residents maintaining a green roof have effectively reduced the amount of impervious surface on their property. Therefore, some municipalities will offer rebates to residents for the construction of green roofs while others provide credits that can reduce a property's stormwater management fee.

It should be noted that Homeowner's Associations (HOA) may have even more restrictions on top of the local ordinance. The guidelines and best practices noted within this chapter can also apply to an HOA looking to craft its own regulations.



## NATURAL OR “MEADOW” LAWNS

Traditional grass lawns usually represent a monoculture with little to no variety in plant life. These types of lawns also require weekly, if not daily, maintenance to keep them looking good. However, there are alternatives to this type of residential fixture and they are often easier to maintain. A naturalized lawn replaces trim grass with native wild grasses, shrubs, and perennials. The primary benefit of a naturalized lawn is that it requires less maintenance. It needs to be mowed only once per year and requires weekly weed checking. Noxious weeds and other non-native flora are excluded from the initial planting so as to prevent them from taking over the meadow and crowding out other plants. Local wildlife and insects, such as bees and butterflies, are much better served by this type of environment. Natural lawns have deeper and more extensive root systems, which can prevent erosion and stabilize soil. They also capture more rainwater than a traditional grass lawn and when in full bloom can be visually striking. Overall, naturalized lawns save homeowners time and money while improving the local ecology.

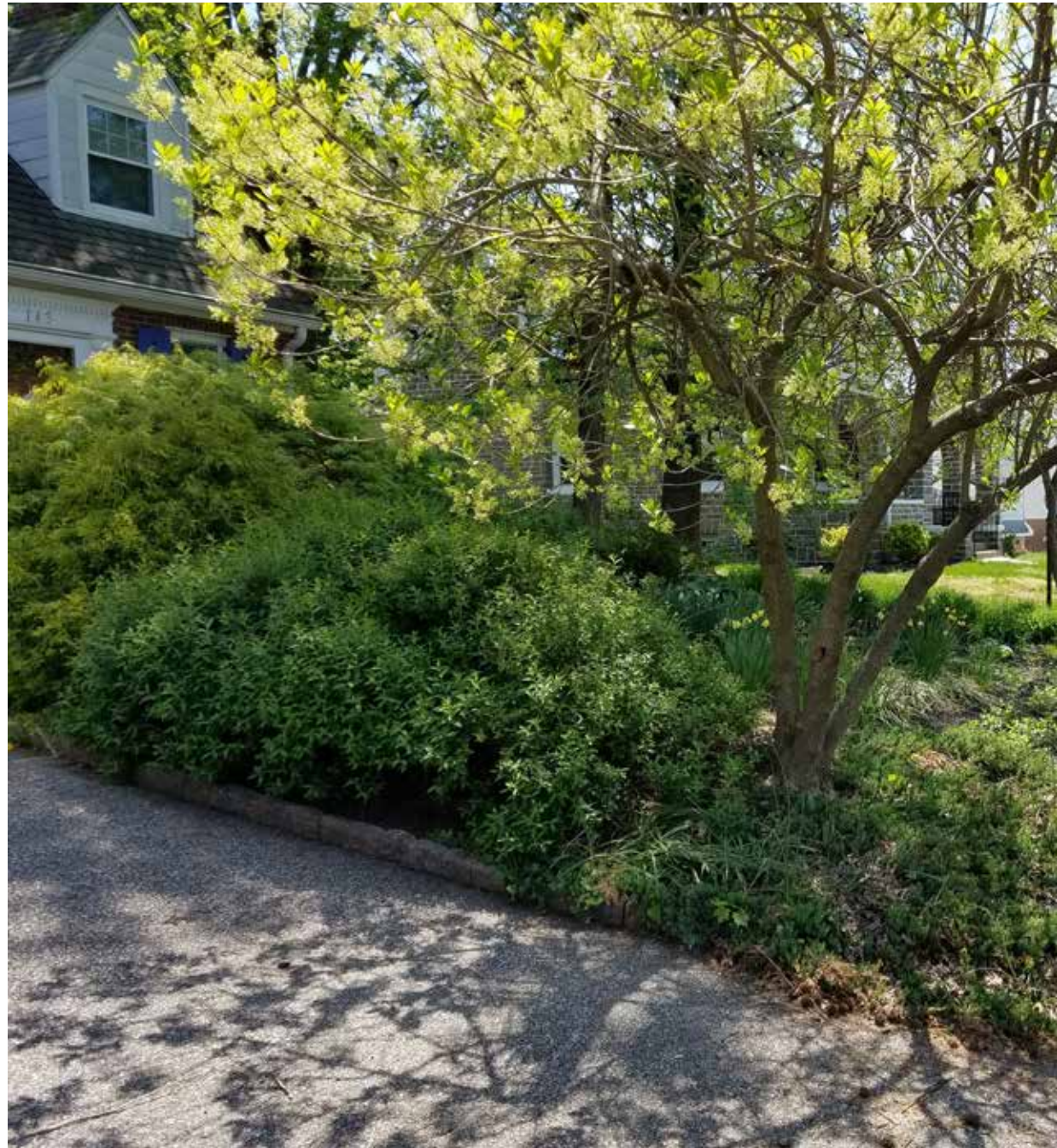






Photo 4.10

Photo 4.11



## RAIN BARRELS

Rain barrels are used to capture rainwater from the roof and use it later to water lawns and gardens. A connection is made along an existing downspout of the home's gutter system and channeled into the rain barrel instead of the ground surface. This water is then released at a later time. A resident can release it a day or two after a heavy rain event to avoid inundating the surrounding landscape with more water than it can efficiently handle. Also, the water can be used in normal day-to-day maintenance tasks regarding the lawn, garden, or home. Instead of using municipal water to water the lawn or garden, the resident uses excess water from the last rain event. Rain barrels save homeowners money on their water bill and alleviate the local stormwater burden. They can be obtained or purchased through local neighborhood organizations, some municipalities, the county (once a year program), and local garden centers. Some municipalities also encourage their use by providing local tax credits or other fiscal incentives.



## UPKEEP

Home gardens, if let untended, can become overgrown and a less than desirable sight. However, simple everyday tasks, such as weeding and pruning, will likely satisfy the concerns of nearby neighbors who worry about the character of their neighborhood. In addition to normal maintenance, there are other simple practices that can help formalize the look of a front yard garden and ensure it thrives. A gardener can use hedges, pollinator edges, and low walls made of durable materials to demarcate the line between the garden and other spaces like the lawn or sidewalk. Using any of these edging techniques can be aesthetically pleasing and have the added benefit of containing growth within the garden. This can be one of the most important features as it deals with the visual issues most neighbors have with gardens in the front yard.

Soil health is an important aspect of garden upkeep that has the potential to affect its visual appeal. In order for the soil to be its healthiest, the placement of mulch or household compost on top of the planting beds and around trees is recommended in the spring/fall seasons. This is done to keep roots moist as well as keep weeds out. Also, appropriate irrigation based on the types of plants grown and soil conditions is important to make sure the garden does not attract unwanted growth and noxious weeds. At the end of the growing season, all dead plants should be removed and the plot prepared for fallow periods. These best practices go for all gardens regardless of type or location.



Photo 4.12

## ZONING SUGGESTIONS:

Many municipalities have landscaping ordinances, or “weed” ordinances, that deal with the negative externalities of poorly maintained private land in view of the general public. They will often contain provisions that lawns and plantings be no higher than a certain height, usually 1 foot or less, and in turn restrict a home gardener’s ability to grow many types of vegetable plants in the front yard. This is a simple fix that can be accomplished in two ways: (1) either remove the height requirement while restricting the planting of noxious weeds and non-native species or (2) keep the height requirement and make exceptions for certain types of plants. A municipality may still wish to keep a height requirement in order to enforce grass lawn maintenance but make exceptions for vegetable plants like tomatoes, native tall grasses, and other beneficial flora. In addition, this could allow property owners to try out different types of lawn environments, such as a naturalized lawn or meadow.



Photo 4.13

## COMMERCIAL SALE AND ROADSIDE STANDS

Home gardens are first and foremost for the resident to benefit from in terms of food production, but surpluses may be produced that could also generate small amounts of income for the homeowner. This guide is mainly concerned with noncommercial home gardening, but the following information should provide a sufficient primer on the issues regarding roadside sales in Montgomery County. On-site garden stands in residential neighborhoods are allowed in a number of zoning ordinances across the country (Seattle, Kansas City, and Cleveland being the largest and most notable). In some communities they are allowed as an accessory use to the property; in others, they are not addressed and just tacitly approved of through municipal inaction. In Pennsylvania, there are no state laws restricting residents' ability to sell limited amounts of "raw agricultural products" on their property. The Montgomery County Public Health Code exempts small facilities that only sell raw agricultural commodities from registration and inspection. Therefore, a resident can maintain a small roadside stand selling spare amounts of raw produce without any intervention from the state and county. A municipality could require a zoning permit to operate this type of accessory use, but there are no public health permits or inspections required.



# 05 / CHICKENS





# CHICKENS

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Keeping chickens for noncommercial personal use can be beneficial in providing additional food and companionship for a household. Adult hens produce eggs regularly and are an important source of protein in many people's diets. Many residents keep chickens not just for eggs but also as pets that provide emotional comfort like a dog or cat. They provide companionship for their owners and can teach children more directly about agriculture and the food system. In addition, they can provide other services such as composted chicken manure being used as fertilizer or pest control by eating mosquitoes, ticks, and other garden pests. With regular maintenance and proper provisions, chickens can provide steady food sources and emotional comfort for their owners.

*Photo 5.1*



## BEST PRACTICES

Keeping chickens has become more commonplace in residential areas throughout the United States. In Southeastern Pennsylvania, a number of municipalities have passed ordinances that address common concerns of keeping chickens in urbanized areas, such as noise, odor, and free roaming. A few ordinances exist in Montgomery County to address the keeping of chickens as an accessory use in residential districts such as in Abington, Jenkintown, and North Wales. The best practices enumerated in this chapter come from a survey of local and national chicken ordinances that cover a range of neighborhood and lot types. This section is meant to be a primer on the best practices for regulating the noncommercial keeping of chickens in boroughs and townships within Montgomery County.

### FREE ROAM

One of the most common best practices that municipalities incorporate into their chicken ordinances is the prohibition of free roaming on public or private property. Most ordinances require that chickens be kept in at least a pen during the day and securely locked within a coop at night. Some municipalities may allow chickens to roam freely in a backyard that is secure and has at least 6-foot fencing, essentially ensuring the chickens cannot leave the backyard space and be seen by neighbors. This is the best provision to have if a municipality would like to encourage the use of chickens as a pest management alternative as chickens

*Photo 5.2: A typical coop will be raised off the ground for added protection from predators, access from below, and to prevent any wood rot.*



love to eat mosquitoes and ticks. However, most ordinances do not allow this and require chickens be kept in pens, especially in urban boroughs and townships.

### SLAUGHTER AND PUBLIC HEALTH

Public slaughter is often another big concern for municipalities as there are both public health and nuisance implications that often accompany the practice. Almost all ordinances restrict or prohibit public slaughter and, to a lesser degree, slaughter within a residential structure. Most municipalities would be well served by clearly stating that public slaughter is forbidden due to the health concerns of slaughtering chickens in public and require residents slaughter chickens inside their dwelling or have it done

off-site. It is up to the individual municipality to decide whether or not slaughtering at home is an acceptable practice within its jurisdiction.

Another issue that has public health implications is the keeping of feed and disposal of chicken waste such as bedding or manure. Some ordinances intuitively require that all feed and other implements used for keeping chickens be kept within a secure shed or the house to reduce the likelihood of attracting vermin. In addition, all manure and bedding should either be composted and reserved for personal use in the home garden or double-bagged and put out with the weekly trash pickup. The average chicken produces no more waste than the average cat per month, so disposing of it in the normal waste stream is reasonable.

## USE OF CHICKEN MANURE IN COMPOST

Chicken manure, when properly composted, can be a great fertilizer for vegetable and flower gardens. Residential agriculture setups that include chickens could use the manure in their compost piles and create a closed-loop in terms of reusing waste for the garden. However, care must be taken as it has a high nitrogen count and could throw off the balance of a composting mix. Roughly 45 pounds of manure and bedding is what is needed for 100 square feet of garden—an average hen provides as much in a given year. Chicken manure provides more nitrogen, phosphorous, and potassium than cow, steer, or horse manure. A gardener should apply only aged or composted manure to their soil as fresh manure may “burn” the plants. When a resident is keeping chickens, it is better to use the waste as much as possible instead of throwing it away in the normal waste stream to be collected by the municipality.

*Photo 5.3: Ads, like the one at right, were printed in agricultural and homemaking magazines during the war era to get residents to start keeping chickens on their property and become more self-reliant.*

# Uncle Sam Expects You To Keep Hens and Raise Chickens



**Two Hens in the Back Yard for Each Person  
in the House Will Keep a Family  
In Fresh Eggs**

**E**VEN the smallest back yard has room for a flock large enough to supply the house with eggs. The cost of maintaining such a flock is small. Table and kitchen waste provide much of the feed for the hens. They require little attention—only a few minutes a day.

An interested child, old enough to take a little responsibility, can care for a few fowls as well as a grown person.

Every back yard in the United States should contribute its share to a bumper crop of poultry and eggs in 1918.

**In Time of Peace a Profitable Recreation  
In Time of War a Patriotic Duty**

*For information about methods of Back-Yard Poultry Keeping suited to your location and conditions, write*

**Your State Agricultural College  
or  
The United States Department of Agriculture  
Washington, D. C.**

This Space Donated by the Publisher



## REDUCING NUISANCE

When trying to reduce nuisance to surrounding neighbors, it is important to promote the following best practices. Roosters should not be permitted in most places, at least in typical suburban or urban areas, as they produce too much noise and can be more aggressive than hens. It is necessary that fresh clean water be provided at all times to the chickens in their coop or chicken run. All food should be given to the chickens within their coop to prevent any attraction of pests. In addition, bedding and manure should be cleaned regularly, at least monthly,

with the frequency ultimately determined by the amount of birds and their sizes. The best bedding seems to be pine shavings, which are also compostable along with the chicken manure. If a garden or landscaping is maintained on property, it is perfectly reasonable to allow composting of the chicken manure and bedding and then use it on the property as a soil additive or mulch. This is a great way to reduce the amount of waste added to a resident's weekly trash pickup. Nuisance enforcement could be done by a code enforcement officer or animal control, similar to how any nuisance regarding the

care of household pets would be handled. Overall, it should be considered a nuisance for chickens to be kept and maintained in a way that produces odors, noises, attracts vermin, or is considered a threat to public health.

## PERMITTING

Permits are often required in chicken ordinances across the United States for a number of reasons. Due to the fact that chickens need to be kept in coops for their own safety and the general well-being of surrounding neighbors, a zoning or building permit is often required to make sure these coop and pen structures are being built to correct standards. If a municipality wants to make chicken keeping a “by right” accessory use to a residential property, then a permit may not be necessary. This could be a reasonable alternative for rural municipalities where the average lot sizes are in excess of 2 acres. However, some municipalities seem to make chicken keeping a special exception or conditional accessory use and require a permit as a way of making sure it is being done using best practices. Another alternative is requiring chickens to be registered like a pet in the same way a municipality may require a pet owner to register their cats or dogs. This is a preferred alternative for municipalities wanting to easily control the amount of animals in a given household.



Photo 5.4



Photo 5.5

## NUMBER OF CHICKENS

The amount of chickens deemed appropriate for keeping on residential lots varies greatly between municipalities and regions. The number of chickens allowed depends on the local culture toward keeping birds and other urban agricultural practices. There is no magic number for the amount of chickens that is appropriate, but most ordinances agree that no more than 10 birds is appropriate on any residential lot, regardless of size, due to public health and maintenance concerns. It would likely be difficult for the average resident to keep up with the building, cleaning, and maintenance of a site and flock bigger than ten birds.

In most boroughs and townships with denser lot configurations, the keeping of more than 5 chickens is seen as a potential threat to local public health and community character. Many boroughs analyzed in this survey allowed no more than 5, sometimes 3, birds per lot within the jurisdiction. This is mainly due to their smaller lot size and more urban neighborhoods. In municipalities with larger average lot sizes, keeping between 5 and 10 chickens can be appropriate, especially if a lot is over 1 acre. Some municipalities will allow more than the maximum number of chickens on a case-by-case basis, controlled by an additional permit application. Overall, this aspect of chicken ordinances tends to be most diverse in its requirements and reasoning across different jurisdictions.



## LOCATION, SIZE, AND CONSTRUCTION OF CHICKEN AREA

Most municipalities regulate where and how a chicken shelter, consisting of coop/henhouse and chicken run, should be constructed. Size requirements vary by municipality and are different for the coop and chicken run. A typical chicken coop should have between 3 to 5 square feet of space per bird to roost and lay eggs. The chicken run should contain at least 10 square feet of space per bird for the purpose of recreation. This basic amount of space will ensure the chickens have an appropriate amount of area to produce eggs and enjoy recreation. In addition, many ordinances require anywhere from 5 to 50 feet between the chicken area and the property line. In Montgomery County, most municipalities should require at least 5 to 15 feet of space between the property line and chicken area in order to shield neighboring residents from the sights and issues related to keeping chickens in urban areas.

Also, many municipalities have requirements for the distance between the chicken area and residential structures, both on the concerned property and the adjacent neighbors. This distance ranges anywhere from 10 to 100 feet within numerous existing ordinances. How much space to place between chicken areas and residential structures is not standard and is up to each individual municipality to decide. Many municipalities with diverse lot configurations will likely see 25 feet between these two structures as being



*Photo 5.6*

sufficient to shield both the resident and surrounding neighbors from any nuisance.

Chicken coops or henhouses should be constructed of durable materials, such as wood, and be made to securely contain the chickens when it's time to sleep at night. This will make sure that no predators can access them easily. Some ordinances do not require a four-sided dwelling that is closed, but due to the amount of wildlife with potential to harm the chickens, it may be best to require closed coops. In addition, the chickens will

likely need a closed coop to make it easier to keep warm in the winter. The chicken run's fencing should be at least 4 feet in height and be driven at least 1 foot underground in order to protect against burrowing animals. The fencing should be constructed of posts and chicken wire to allow for easy viewing by the resident but provide no access to predators. It may be appropriate to require that the coop have a closed top, constructed of the same material as the fence or with aviary netting.

NOTE: *This model provides a framework for regulating noncommercial “hobby” chicken keeping and should only be adopted after a legal review by the municipality. Like any model ordinance, it should be reconciled with all existing ordinances that are affected by its adoption as well as tailored to an individual community’s needs and concerns.*

## MODEL ORDINANCE LANGUAGE

### Section 1. Intent

- A. The purpose of this ordinance is to establish certain requirements for noncommercial keeping of chickens within residentially zoned areas in the municipality, to avoid issues which might otherwise be associated with chicken keeping in populated areas.
- B. It is recognized that keeping chickens can have positive benefits for local residents in the form of food production and companionship when done well using best practices.

### Section 2. Definitions

- A. As used in this article, the following words and terms shall have the meanings ascribed in this section unless the context of their usage clearly indicates another meaning:
  - 1. **CHICKEN** means a domesticated fowl kept for eggs, meat, or as a pet.
  - 2. **ROOSTER** means a domesticated male chicken.
  - 3. **CHICKEN COOP** or **HENHOUSE** means a secure and enclosed structure for chickens to sleep, lay eggs, and roost.
  - 4. **CHICKEN RUN** means a fenced-in enclosure, attached to the coop, where chickens can exercise during the day.
  - 5. **LOT** means a contiguous parcel of land under common ownership.

### Section 3. Standards of Practice

Keeping chickens for personal use is permitted [by right, by conditional use, by special exception] as an accessory use in [list residential zones] when in compliance with the following regulations and best practices:

- A. Permitting and Inspection

### Section 1. Intent

Legislative Intent: The legislative intent should be tailored to reflect each municipality’s own specific goals and characteristics. Each separate municipality may find keeping chickens to be beneficial in different ways. If a given municipality would like to allow commercial sale of hens and eggs or allow them on other types of zoned parcels, then the municipality’s statement of intent should reflect those allowances.

Depending on where this language is placed in the municipal code, it may not require the use of legislative intent, definitions, and savings clause. Some municipalities may only need to import “Section 3 – Standards of Practice” into an existing animal or pet ordinance.

### Section 3. Standards of Practice

- A. Permitting and Inspection

Every guideline enumerated in this section can be tailored to each individual municipality’s goals. Some municipalities may see fit to allow chickens in residential areas “by right” and therefore negate the need for permitting.



1. No person shall [keep or maintain chickens, construct a coop] on their residentially zoned lot before completing a permit application and submitting it to the [Insert Municipal Official Title or Office].
2. If a tenant should endeavor to keep chickens on rented property, then the tenant must secure written authorization from the owner as well as conform to all other requirements as enumerated in this ordinance.
3. The [Insert Municipal Official – ex. Health officer, Code Enforcement officer, Animal Control officer] shall have the right to inspect any chicken coop and run between 8 a.m. and 5 p.m. The inspector shall issue any order deemed necessary to comply with any and all federal, state, county, and municipal codes. Prior notice shall be given to the chicken keeper who resides at the property where practicable.

B. Chicken Shelter

1. All chickens shall be housed within a secure, fully enclosed, chicken coop which is contained within a fenced chicken run.
2. There shall be at least [three (3), four (4), five (5)] square feet of space for each chicken within the coop and an additional ten (10) square feet of space per chicken within the chicken run.
3. The chicken run fence shall be made of durable materials, such as wood and wire mesh, extending underground for at least one (1) foot and have an above ground height of at least four (4) feet. A roof made of wire mesh or aviary netting is also required to protect against predators.

C. No roosters may be kept on the property.

D. It shall be unlawful to let any chicken roam freely within municipal boundaries.

E. No more than [two (2), three (3), four (4), five (5)] chickens may be kept on properties less than one (1) acre.

F. No more than ten (10) chickens may be kept on properties in excess of one (1) acre.

G. Chicken shelters shall be no closer than ten (10) feet to any property line and no closer than twenty-five (25) feet to any residential structure.

H. All chickens shall be provided with sufficient feed throughout the day and fresh water at all times

A municipality could tailor this section to require a permit for the coop/chicken run construction, keeping chickens as a conditional use, as well as registering the individual chickens. It is matter of preference in regard to what aspect a municipality requires a permit.

Depending on whether a given municipality already has a nuisance ordinance as it relates to animals and sanitary conditions, it may be prudent to consider attaching nuisance regulations to the end of this section. Chickens are best handled like any other domestic animal control issue.

D. Many municipalities disallow the free roaming of any domesticated animal within their boundaries. Unless this language is being placed within an already existing animal ordinance, this requirement should be included.

- I. Public slaughter is prohibited.
- J. *[J. slaughter is allowed when conducted in the kitchen of the chicken keeper's private residence and all excess viscera disposed of in a sanitary way.]*
- K. All chicken related materials, feed, and waste must be kept in a sanitary way within a secure enclosed structure on the lot so as to prevent any nuisance to surrounding neighbors.
- L. It shall be unlawful and constitute a nuisance if any chicken is kept in unsanitary conditions that produce odors, excessive noise, attract vermin, and are otherwise a concern to public health.

## Section 4. Savings Clause

In the event any part of this ordinance or its application to any person or property is held to be unenforceable for any reason, the unenforceability thereof will not affect the enforceability and application of the remainder of this ordinance, which will remain in full force and effect.

- I. It is standard best practice to prohibit the public slaughter of chickens. However, it is up to each individual municipality to decide whether or not it would like to allow private slaughter. Private slaughter should be done in the kitchen of a private residence for the purpose of personal consumption. Many existing ordinances do not address private slaughter and therefore lack guidance for any resident wishing to slaughter a chicken for consumption or health reasons.
- K. This is a suggested requirement which ensures chicken waste and feed are not attracting any vermin to the property. The attraction of vermin and other wildlife is a key concern for most surrounding neighbors. Therefore, requiring best practices, such as proper maintenance of the chicken coop area and securing all materials, will go a long way toward eliminating the possibility of attracting vermin and ameliorating neighbor concerns



# 06 / PRACTICE





Photo 6.1

# PUTTING IT INTO PRACTICE

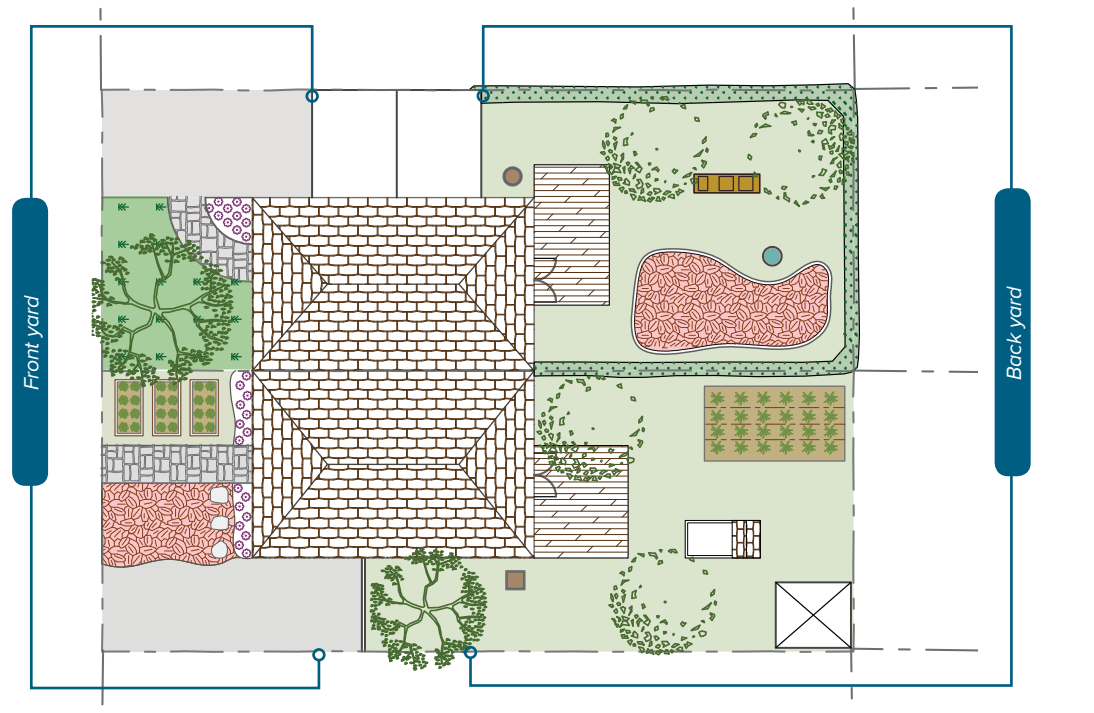
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The following demonstrations show how all of the previously discussed best practices could look on certain types of properties. The first example consists of two lots, each 2,500 square feet in size, with half of a set of twin homes on each. This type of lot is seen in many of the county's boroughs and older townships closer to Philadelphia. The second example will show a "typical" suburban subdivision lot of 15,000 square feet or roughly 1/3 acre.

This lot is similar in size to many lots in residential subdivisions throughout the county. This chapter is meant to illustrate how uses such as bee or chicken keeping can fit onto more urban sized lots within Montgomery County if utilizing the best practices discussed throughout this guide.



## 2,500 SF LOTS (30' X 80')



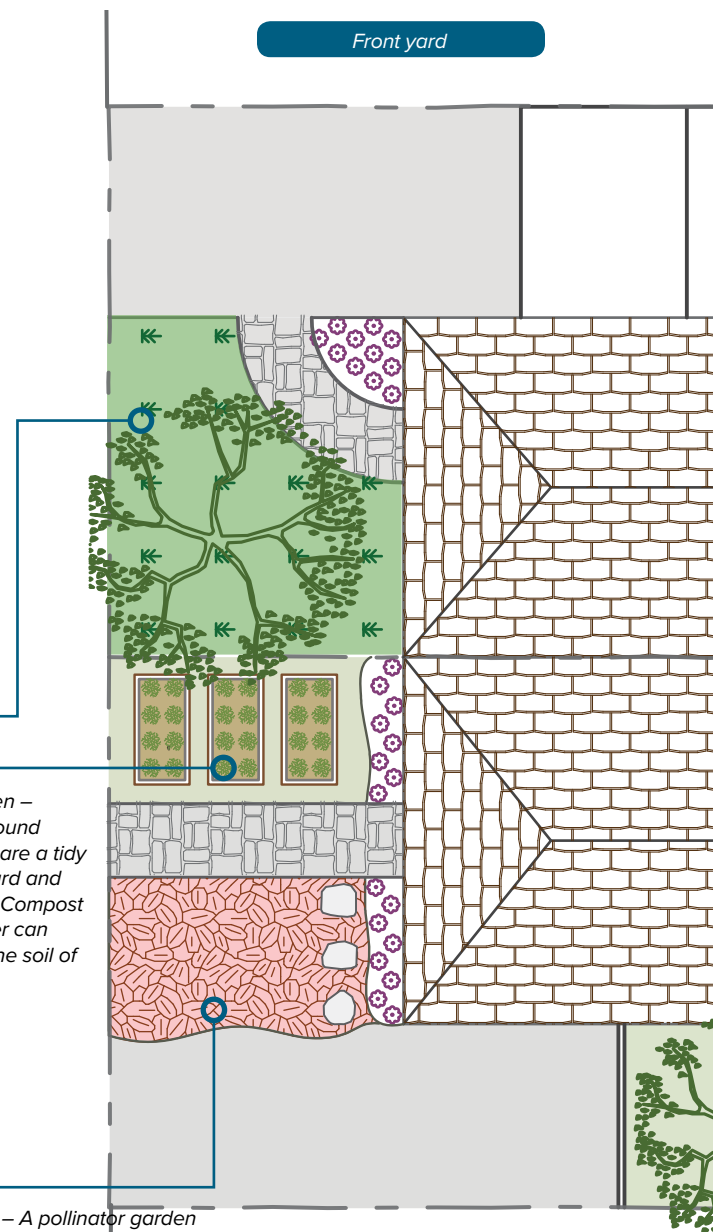
*Photo 6.2: Naturalized Lawn – A naturalized lawn in the front of this property allows for minimal upkeep on the part of the resident as well as providing a more natural habitat for local wildlife and pollinators.*

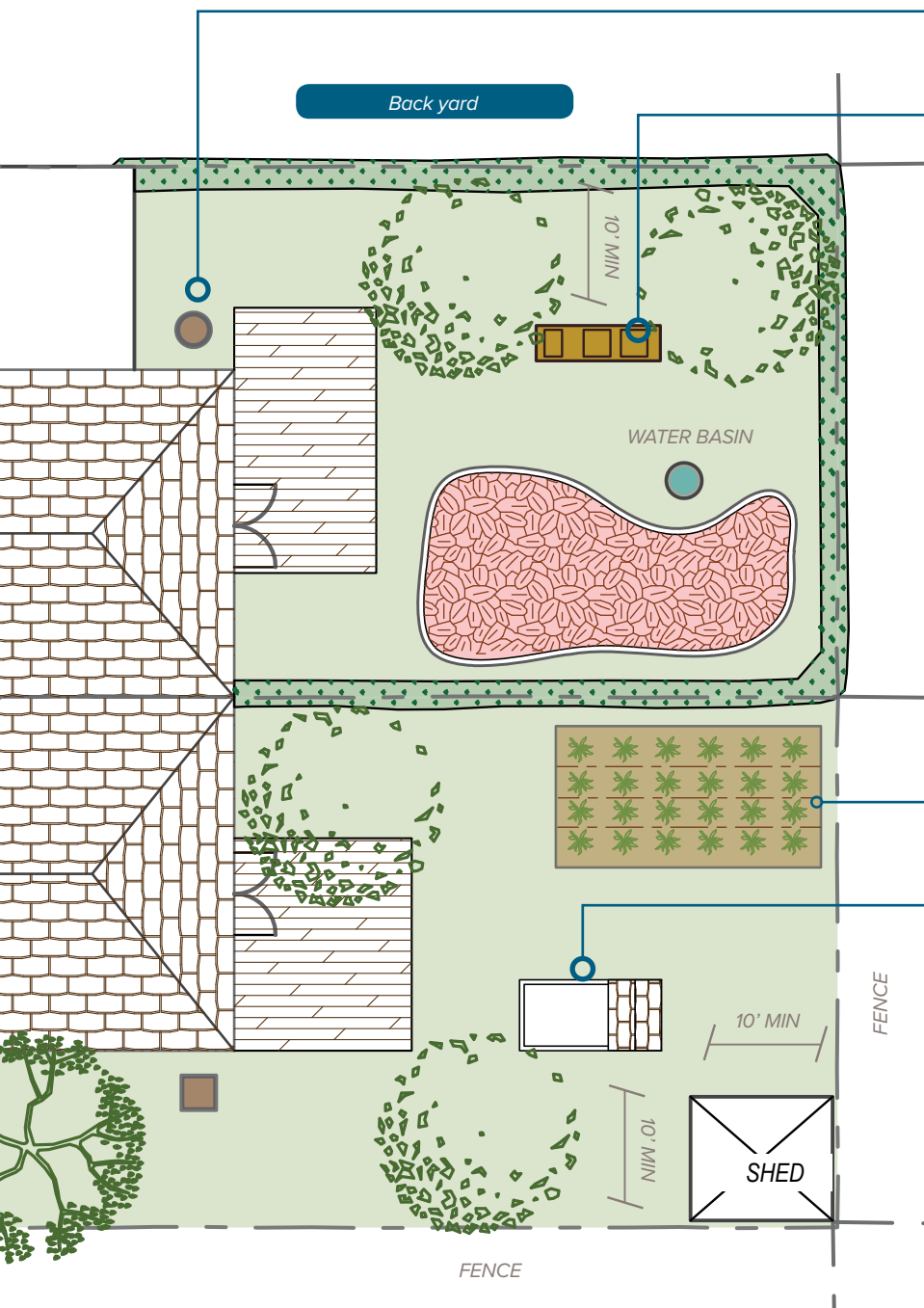


*Photo 6.3: Raised Bed Garden – Raised bed gardens or in-ground gardens with defined edges are a tidy way to garden in the front yard and fit well within tighter spaces. Compost from the backyard composter can easily be incorporated into the soil of raised beds.*



*Photo 6.4: Pollinator Garden – A pollinator garden is placed in the backyard of this lot to provide additional sources of pollen and nectar for the bees housed in the nearby apiary. It is advisable to do this in order to prevent existing wild bees from being crowded out and to encourage all the bees to stay nearer to the backyard.*





*Photo 6.5: Apiary – This apiary consists of two hives and a nucleus colony. They all sit 10 feet from the property line. Their entrances face away from the nearest property line and toward the nearby pollinator garden. A water vessel, such as a birdbath, is kept about 10 feet from the apiary to provide hydration for the bees. Trees nearby provide partial shade later in the day and movement that keeps the bees happy and docile. On properties this size, it is not recommended to have more than two hives (with the exception of an additional nucleus colony).*



*Photo 6.6: Compost Bins – The bins most appropriate for outdoor composting in small residential backyards are often the plastic store-bought bins. These bins are simple, closed containers that more easily prevent vermin from accessing the compost and contain any odors. Some municipalities directly offer or give incentives to purchase these types of bins. The compost from these bins is used within the gardens of these homes and diverts organic waste away from the landfill.*



*Photo 6.7: Chicken Coop – Even though the yard seems small, a chicken coop for two chickens (20 square foot coop/run) fits nicely within the backyard of this twin home. The 6-foot fence obscures the view of the chickens for neighbors, and the coop sits 10 feet from the property line and 25 feet from any residential structure. A shed sits nearby to hold all chicken coop materials and feed.*



*Photo 6.8: In-Ground Garden – This property includes a robust vegetable garden near the rear property line.*



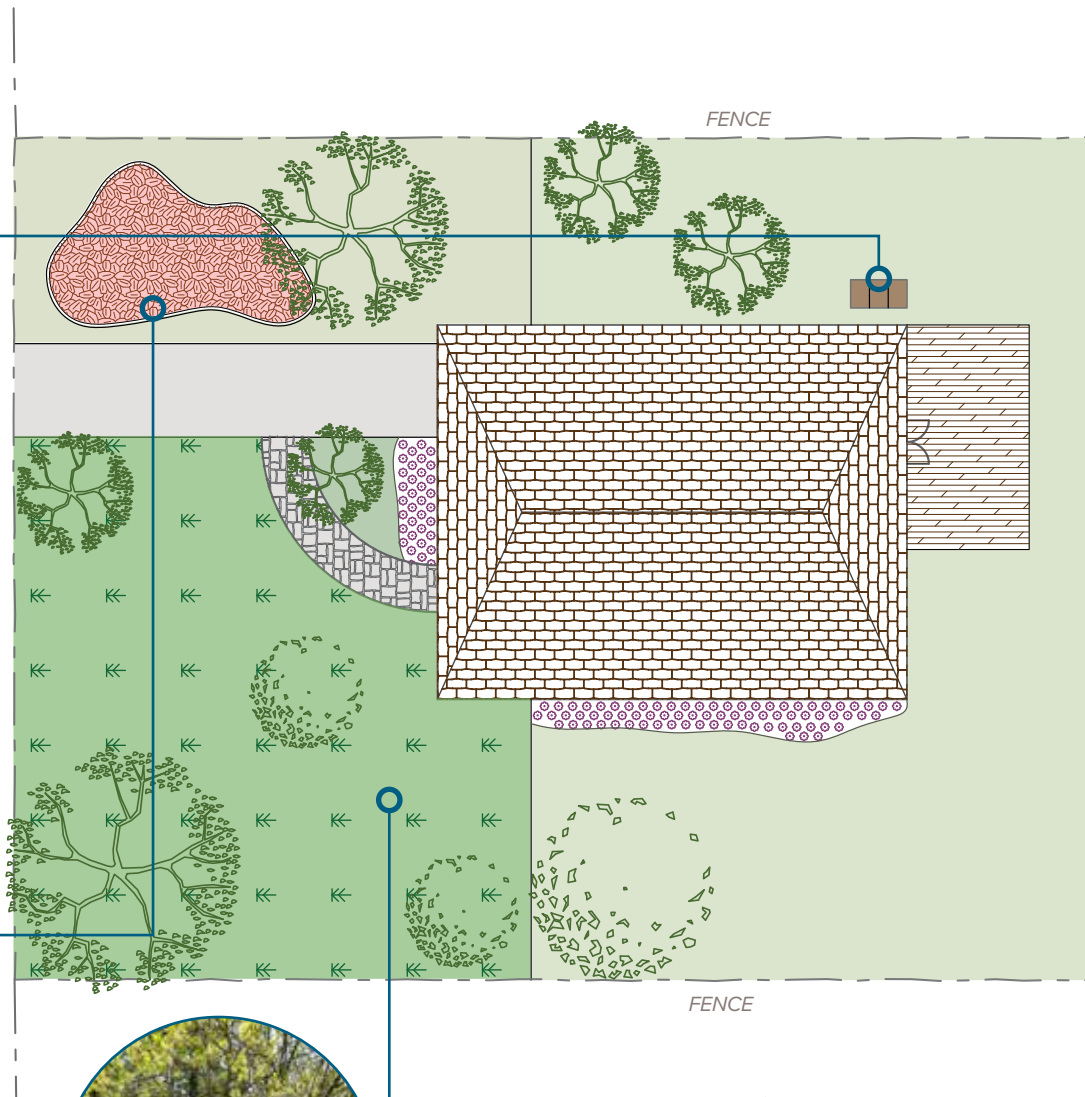
15,000 SF LOT (90' X 170')



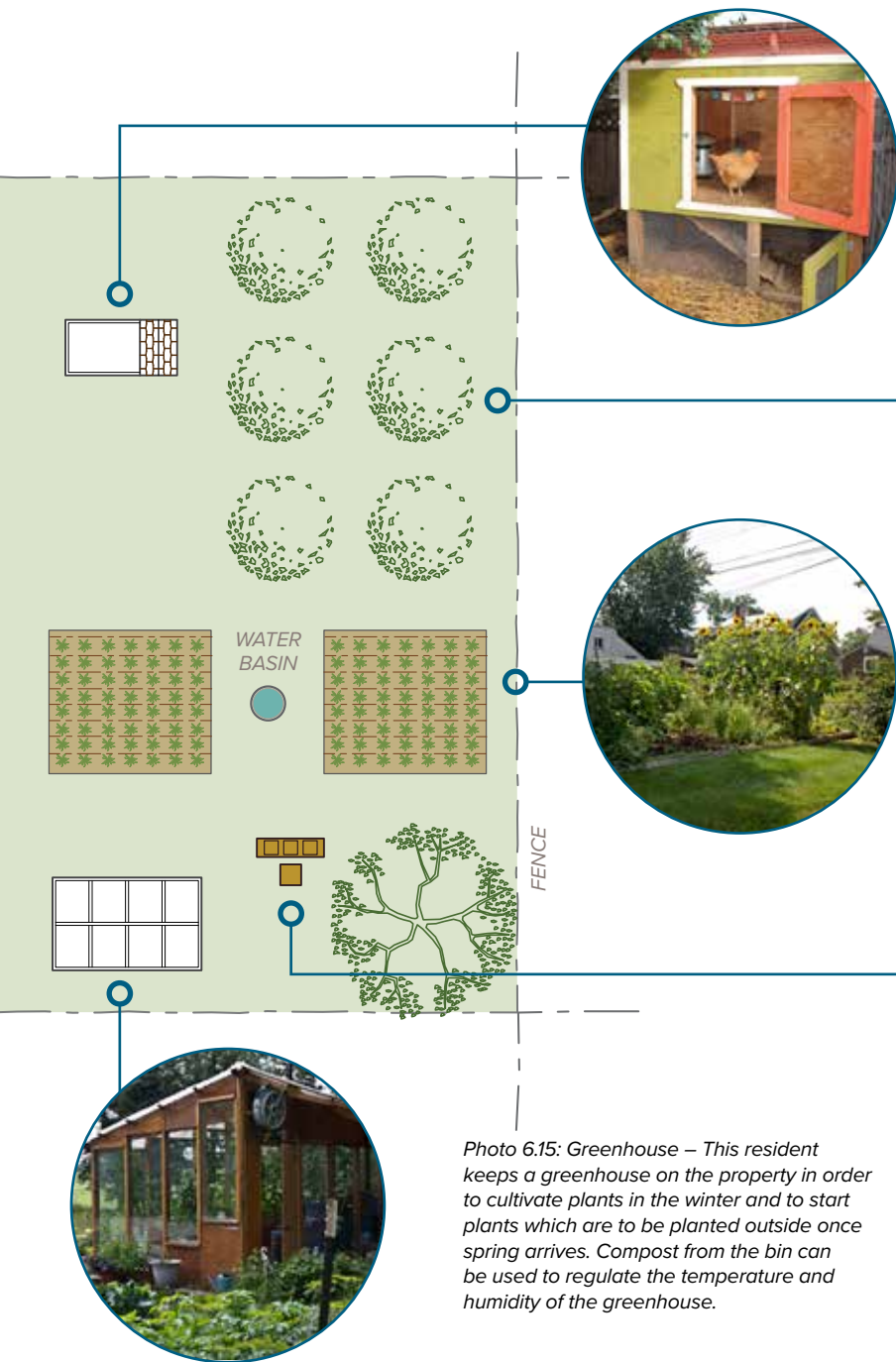
*Photo 6.9: Compost Bins – Since this property has numerous vegetable and pollinator gardens, it is appropriate to have a larger compost bin system. The system depicted here is a closed-lid three-bin system that allows the resident to create enough compost to service all of their needs. These systems can be constructed at various sizes unlike typical store-bought containers which tend to be smaller and are appropriate in most places.*



*Photo 6.10: Pollinator Garden – A pollinator garden is placed in the front yard of this property to provide a source of pollen and nectar for both honey and wild bees in the area. Bees from the backyard apiary may frequent this garden or the myriad other habitats provided on the property, such as the natural lawn in the front and vegetable gardens in the back.*



*Photo 6.11: Naturalized Lawn – A naturalized lawn, especially on larger properties, requires less maintenance and is a good way for a home to save some time and money on landscaping in the long term.*



*Photo 6.12: Chicken Coop – This yard is big enough to contain both a modest amount of chickens and an apiary. The chickens are placed on one side of the yard at least 50 feet from the apiary and out of the direct flight path from the hive. Up to five chickens housed within a 50-square-foot chicken coop would be appropriate on a lot this size.*



*Photo 6.13: Orchard – On properties of this size, a small orchard is attainable. Berry bushes and other types of fruiting shrubbery have a place in the garden or orchard as well.*



*Photo 6.14: In-Ground Garden – In-ground gardens are typical across the county. This property has two sizeable in-ground beds placed near the apiary so the bees have direct access to a local pollen and nectar source.*



*Photo 6.16: Apiary – This apiary consists of 3 hives and a nucleus colony. They all sit 10 feet from the property line and away from the house. Their entrances face away from the nearest property line and toward the nearby vegetable garden. A water vessel, such as a birdbath, is kept about 10 feet from the apiary to provide hydration for the bees. Trees nearby provide partial shade later in the day and movement that keeps the bees happy and docile. On properties this size it is fine to have up to four hives.*

*Photo 6.15: Greenhouse – This resident keeps a greenhouse on the property in order to cultivate plants in the winter and to start plants which are to be planted outside once spring arrives. Compost from the bin can be used to regulate the temperature and humidity of the greenhouse.*



# APPENDIX

## PHOTO ACKNOWLEDGEMENTS:

Photo 1.1 "Front Yard in Bloom" (2018) by MCPC.

Photo 1.2 "The Fruits of Victory" (1918) by Leonebel Jacobs, Public Domain.

Photo 1.3 "Sow the Seeds of Victory!" (1918) by James Montgomery Flagg, Public Domain.

Photo 1.4 "Your Victory Garden Counts More Than Ever!" (1945) by Hubert Morley, Public Domain.

Photo 1.5 "Plant a Victory Garden!" (1943) by US Office of War Information, Public Domain.

Photo 1.6 "April 2, 2014" by Lawrence Jackson, CC BY 3.0 US.

Photo 2.1 "Honey Bee on a Dandelion, Sandy, Bedfordshire U.K." (2012) by Orangeaurochs, Flickr, CC BY 2.0.

Photo 2.2 Photo (2016) by North Worrell, Flickr, CC BY 2.0.

Photo 2.3 "Drinking Bees" (2015) by Seachild, Flickr, CC0 1.0.

Photo 2.4 "Nectaring Bee, Halictus Confusus (male) – Montgomery County, PA" (2007) by © Beatriz Moisset, Used with Permission.

Photo 2.5 "US Department of Agriculture Demonstration Pollinator Garden" (2009) by USDA, Flickr, CC BY 2.0.

Photo 2.6 "Two Beekeepers" (2013) by Shaw Dubin, Flickr, CC BY-NC-ND 2.0.

Photo 2.7 Photo (2016) by North Worrell, Flickr, CC BY 2.0.

Photo 3.1 Photo (2018) by Edward H. Blake, Flickr, CC BY 2.0.

Photo 3.2 "Plastic Compost Bin" (2018) by MCPC.

Photo 3.3 "Community Garden: Good Shepherd Center – Composting in Place" (2017) by Garden Hotline, Flickr, CC BY-NC-ND 2.0.

Photo 3.4 "Tumbler" (2018) by MCPC.

Photo 3.5 "Chat with your neighbors round the compost bin" (2010) by Newtown Graffiti, Flickr, CC BY 2.0.

Photo 3.6 "Close-up Plastic Compost Bin" (2018) by MCPC.

Photo 3.7 "Compost Bin" (2010) by Merryweather Lewis Elementary School, Flickr, CC BY-NC-ND 2.0.

Photo 3.8 "Compost" (2011) by BrotherMagneto, Flickr, CC BY-NC 2.0.

Photo 3.9 "Open Compost Bin" (2018) by MCPC.

Photo 4.1 "Greenhouse Northeast" (2012) by Jeremy Austin, Flickr, CC BY-SA 2.0.

Photo 4.2 "Backyard In-Ground Garden" (2017) by MCPC.

Photo 4.3 "Side Yard Raised Bed Garden" (2017) by MCPC.

Photo 4.4 "Container Garden – Week 12" (2011) by Mark, Flickr, CC BY 2.0.

Photo 4.5 "Vertical Garden" (2017) by MCPC.

Photo 4.6 "August Flowers" (2013) by Mike Stokes, Flickr, CC BY-SA 2.0.

Photo 4.7 "Greenhouse Northeast" (2012) by Jeremy Austin, Flickr, CC BY-SA 2.0.

Photo 4.8 "Rooftop Garden, Greenpoint" (2009) by Elkin, Flickr, CC BY-NC-ND 2.0.

Photo 4.9 "Tiered Garden – Sloped Yard" (2017) by MCPC.

Photo 4.10 "Naturalized Lawn in Abington, PA" (2018) by MCPC.

Photo 4.11 "Rain Collection 2" (2008) by Krissy Slagle, Flickr, CC BY-NC 2.0.

Photo 4.12 "Alternative Lawnscape" (2017) by MCPC.

Photo 4.13 "Produce" (2011) by London Looks, Flickr, CC BY 2.0.

Photo 5.1 "Hen" (2013) by Tjarko Busink, Flickr, CC BY-NC 2.0.

Photo 5.2 "Our Chicken Coop" (2010) by Furtwangl, Flickr, CC BY 2.0.

Photo 5.3 "Two Hens in the Backyard" (1917) by USDA, Public Domain.

Photo 5.4 "Modern Coop" (2011) by Leslie Seaton, Flickr, CC BY 2.0.

Photo 5.5 "Trabuco Chickens" (2009) by Laura B, CC BY-NC-ND 2.0.

Photo 5.6 "Chicken" (2007) by tigerweet, Flickr, CC BY-NC-ND 2.0.

Photo 6.1 "Front yard garden with raised beds and pergola" (2018) by MCPC.

Photo 6.2 "Naturalized Lawn in Abington, PA (2)" (2018) by MCPC.

Photo 6.3 "Side Yard Raised Bed Garden" (2017) by MCPC.

Photo 6.4 "US Department of Agriculture Demonstration Pollinator Garden" (2009) by USDA, Flickr, CC BY 2.0.

Photo 6.5 Photo (2016) by North Worrell, Flickr, CC BY 2.0.

Photo 6.6 "Plastic Compost Bin" (2018) by MCPC.

Photo 6.7 "Modern Coop" (2011) by Leslie Seaton, Flickr, CC BY 2.0.

Photo 6.8 "Backyard In-Ground Garden" (2017) by MCPC.

Photo 6.9 "Compost Bin" (2010) by Merryweather Lewis Elementary School, Flickr, CC BY-NC-ND 2.0.

Photo 6.10 "US Department of Agriculture Demonstration Pollinator Garden" (2009) by USDA, Flickr, CC BY 2.0.

Photo 6.11 "Naturalized Lawn in Abington, PA" (2018) by MCPC.

Photo 6.12 "Our Chicken Coop" (2010) by Furtwangl, Flickr, CC BY 2.0.

Photo 6.13 "Peach Tree" (2018) by MCPC.

Photo 6.14 "Backyard In-Ground Garden" (2017) by MCPC.

Photo 6.15 "Greenhouse Northeast" (2012) by Jeremy Austin, Flickr, CC BY-SA 2.0.

Photo 6.16 Photo (2016) by North Worrell, Flickr, CC BY 2.0.

## ADDITIONAL INFORMATION:

### Apiary

- Penn State Extension: Beekeeping 101 Online Course  
<https://extension.psu.edu/beekeeping-101>
- Pennsylvania State Beekeepers' Association: List of Local Beekeeping Associations and Inspectors  
<http://www.pastatebeekeepers.org/map.htm#inspector>
- Montgomery County Beekeepers' Association: Swarm Control and Local Assistance Contacts  
<https://www.montcopabees.org/services-resources/swarm-control/>

### Composting

- Pennsylvania Department of Environmental Protection (PA DEP): Composting Site Search  
<https://recyclesearch.com/profile/padep-facility-directory>
- Cornell Waste Management Institute: Comprehensive Guide to Composting at Home  
<http://hdl.handle.net/1813/29111>

### Gardens

- Pennsylvania Department of Agriculture (PDA): Current Noxious Plants and Weeds List  
[https://www.agriculture.pa.gov/Plants\\_Land\\_Water/PlantIndustry/NIPPP/Pages/default.aspx](https://www.agriculture.pa.gov/Plants_Land_Water/PlantIndustry/NIPPP/Pages/default.aspx)
- Pennsylvania Department of Conservation and Natural Resources (PA DCNR): Invasive Plant Management for Land Managers  
[http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr\\_20033074.pdf](http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_20033074.pdf)
- United States Department of Agriculture (USDA): Plant, Gardening, and Maintenance Guides  
<https://www.nal.usda.gov/home-gardening>

### Chickens

- Centers for Disease Control (CDC): Chicken Handling Safety  
<https://www.cdc.gov/features/salmonellapoultry/index.html>
- United States Department of Agriculture (USDA): Biosecurity for Birds  
<https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian-influenza-disease/birdbiosecurity>
- Penn State Extension: Successfully Raising a Small Flock of Laying Chickens  
<https://extension.psu.edu/successfully-raising-a-small-flock-of-laying-chickens>











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