

Penn State **Extension**

# The Joy of Farm Watching

A Roadside  
Guide to  
Pennsylvania  
Agriculture



PENNSTATE



Cooperative Extension  
*College of Agricultural Sciences*

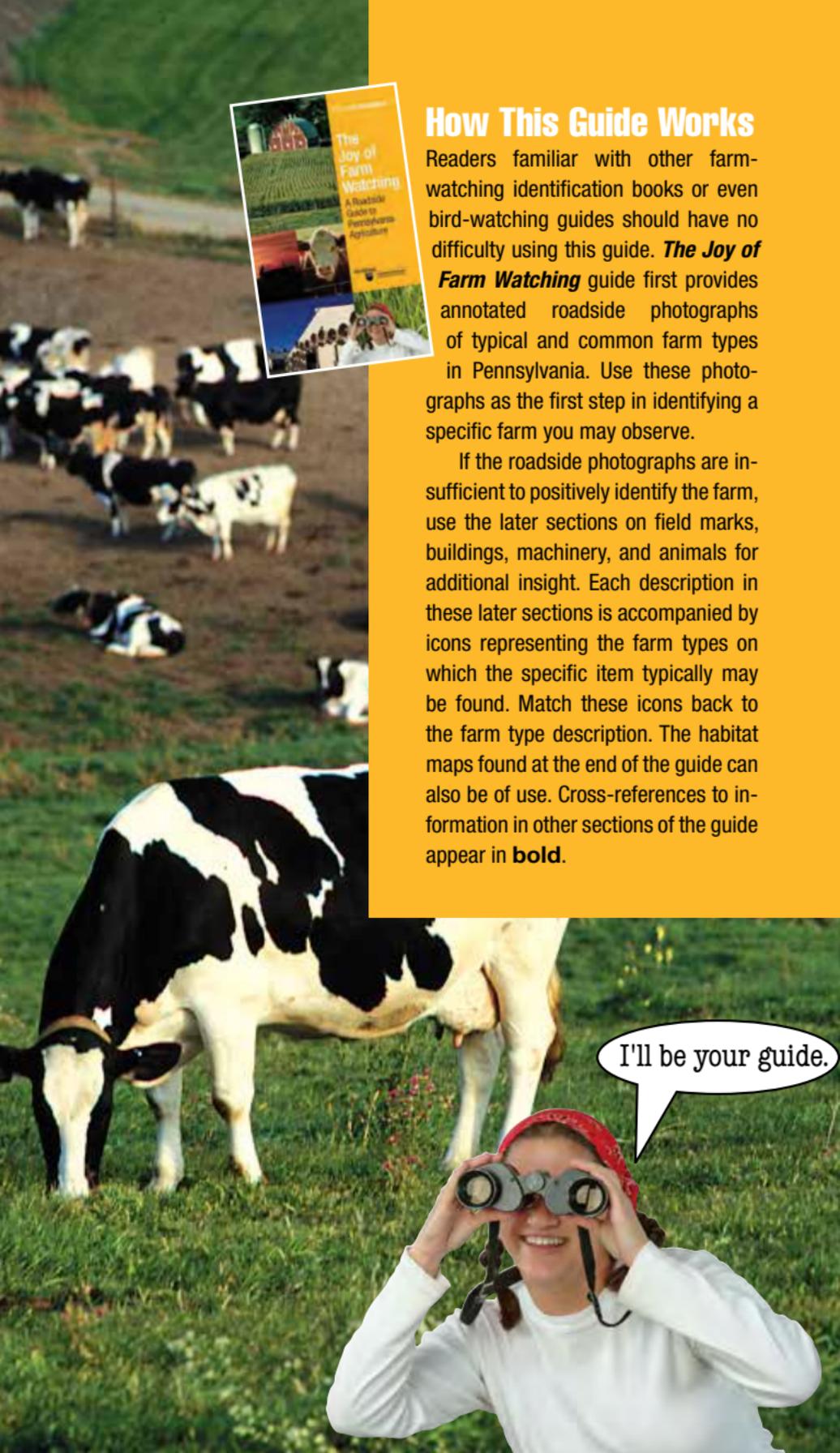




## How This Guide Works

Readers familiar with other farm-watching identification books or even bird-watching guides should have no difficulty using this guide. *The Joy of Farm Watching* guide first provides annotated roadside photographs of typical and common farm types in Pennsylvania. Use these photographs as the first step in identifying a specific farm you may observe.

If the roadside photographs are insufficient to positively identify the farm, use the later sections on field marks, buildings, machinery, and animals for additional insight. Each description in these later sections is accompanied by icons representing the farm types on which the specific item typically may be found. Match these icons back to the farm type description. The habitat maps found at the end of the guide can also be of use. Cross-references to information in other sections of the guide appear in **bold**.

A woman wearing a white long-sleeved shirt and a red bandana is smiling and looking through binoculars. She is in a grassy field with several black and white cows grazing in the background. A speech bubble next to her says "I'll be your guide."

I'll be your guide.

## Introduction

Thousands of people in the United States enjoy the hobby of farm watching. Identifying and observing farms and farm activity provide endless joy and are pastimes that can make living in or visiting the country even more pleasurable. This guide is intended as an amateur's introduction to farmology—the study of farms and farming. It will help you understand the farms and farm activities you may observe in your own community and gain a deeper appreciation for agriculture.

## Geographical and Economic Scope

Many farm-watching guides divide North America into several distinct geographical regions based on habitat, soils, length of growing season, political boundaries, and milk marketing orders. This guide focuses on common farm activities found within the Commonwealth of Pennsylvania, the largest agricultural state in the northeastern United States. A temperate climate, relatively long growing season, good soils, and easy access to markets make Pennsylvania prime habitat for agriculture. Farms are relatively abundant in Pennsylvania and commonly can be found by watchful observers in both rural and suburbanizing parts of the Commonwealth.

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The types of farm activities occurring in Pennsylvania generally are not exclusive to this state, but the range and type of such activities are especially important in the Commonwealth. Pennsylvania is the fifth largest milk-producing state in the United States, the fourth largest producer of eggs, the fourth largest producer of nursery and greenhouse products, and the largest producer of mushrooms. Many of its farms sell directly to consumers.

More than 59,000 farms currently operate in Pennsylvania, using 7.7 million acres of land and providing direct livelihood to 65,487 people. Pennsylvania farms produced over \$7.4 billion worth of commodities and products in 2012. Agriculturally related support activities, such as custom planting and harvesting, employ an additional 7,516 people, and food processing firms directly employ another 66,957 people.

## How to Identify Farms

Careful attention to detail is necessary for correct identification of farm type; the number and size of fields, shape and size of buildings, type of machinery, and activities being done, as well as the species of plants and animals present, are all helpful clues. Technology has led to farms' ability to increase or maintain production on less acreage and often with fewer structures and equipment needs. Depending on the type of farm, acreage can range from a few acres to several hundred acres. If all else fails, any signs at the end of the farm lane with the farm and farmer's name can provide valuable information.

Even with an excellent guidebook, accurately identifying farms can be a difficult process, particularly for the amateur. Farm size varies dramatically in Pennsylvania. Just over half (52 percent) of the farms have less than \$10,000 in annual sales—a level that some people consider “hobby” or part-time farms, in part, because they generally do not provide enough income by themselves for the farm family to survive. In fact, the majority of such farms actually lose money each year.

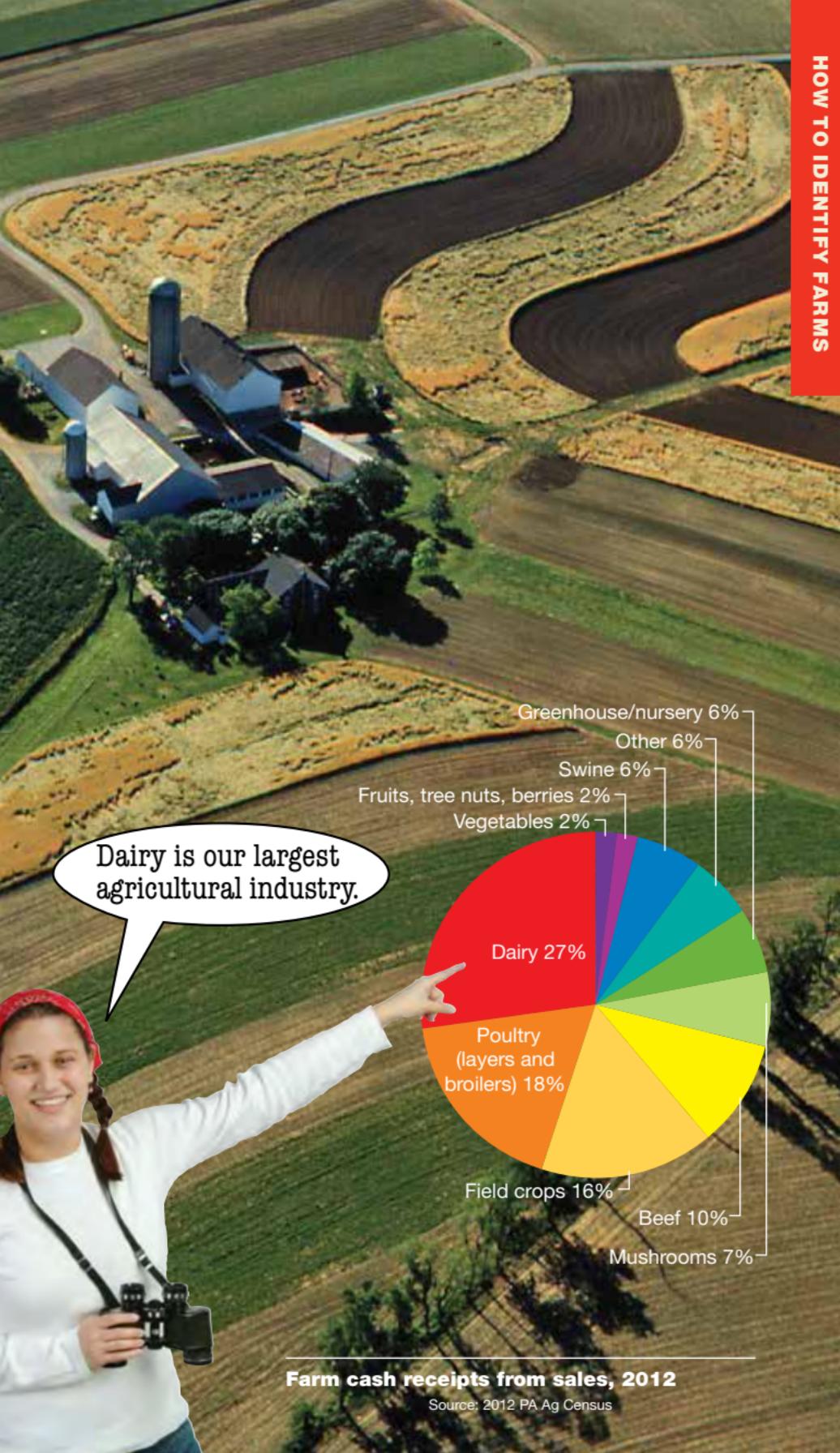
About 20 percent of Pennsylvania farms have more than \$100,000 in annual sales. These farms account for the vast majority (91 percent) of Pennsylvania's agricultural production. Generally, only these large farms are able to provide enough income for the farm family to survive. Off-farm jobs provide important and needed supplemental income on many of the medium-sized farms. These farms most often conform to popular images of “family farms.” The largest incorporated farms, in contrast, are nothing like the “corporate farms” often denigrated in popular culture—these farms are incorporated for tax or legal reasons, but most are entirely family owned and run.

The largest farms—those with annual sales over \$1 million—account for only 2 percent of all Pennsylvania farms. But these 1,260 farms made up more than 46 percent of all Pennsylvania agricultural product sales in 2012.

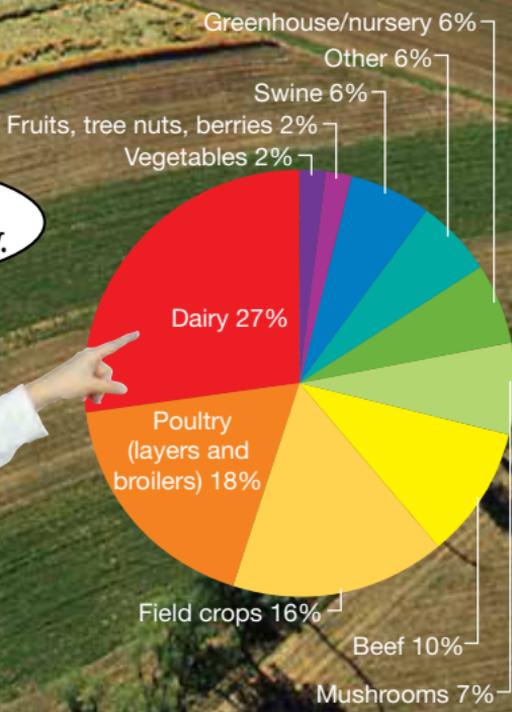
About 27 percent of cash receipts on farms come from dairy production (see pie chart). Poultry farms, including layers and broilers, account for about 18 percent of Pennsylvania farms, while field crops account for 16 percent. Other types of farm production are important, but none individually account for more than 10 percent of total cash receipts.

Many farming activities are dependent on season and weather conditions and can be very time sensitive. During planting or harvest time, for example, the delay of a day or two can affect the value of the crop, costing the farmer hundreds or even thousands of dollars. This means, as a farm watcher, you may find farmers doing field work very early in the morning or late at night.





Dairy is our largest agricultural industry.



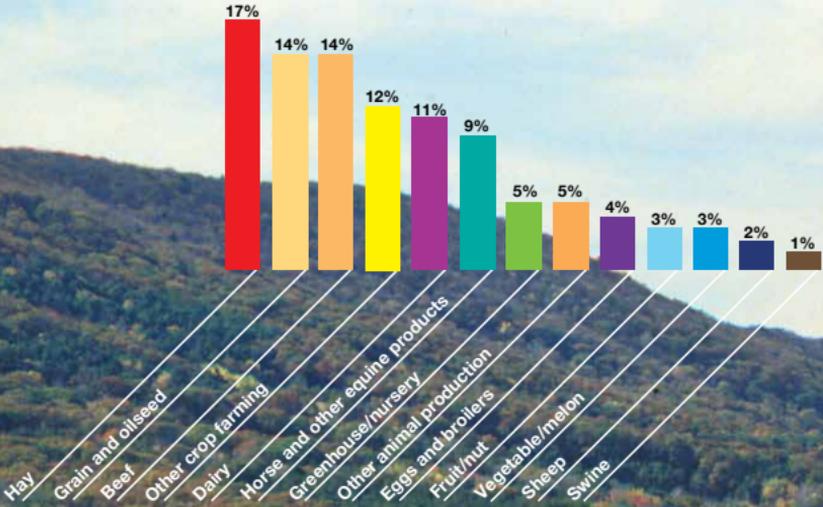
Farm cash receipts from sales, 2012

Source: 2012 PA Ag Census

# FARM TYPES

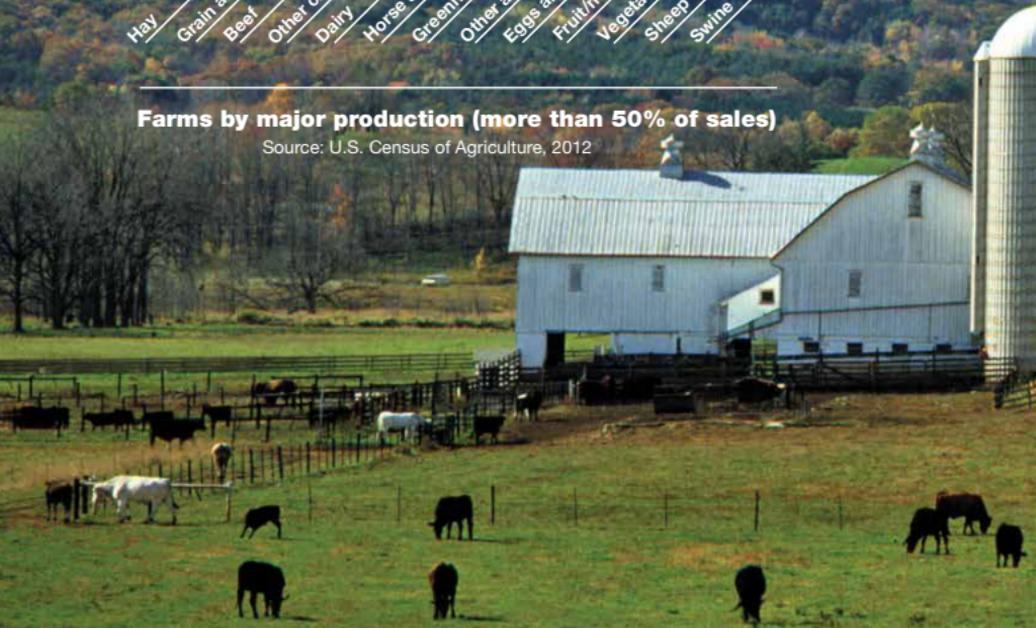
Across Pennsylvania, hay and grain farms are the most common type of farm, though beef and dairy farms are also frequently found (see bar chart below). The mix of farms found in any one Pennsylvania community, however, can vary dramatically from these state averages. The habitat maps provided near the end of this guide can help you determine which farm types you are most likely to encounter on your own farm-watching expeditions.

It also is important to note that many individual farms are involved in several different types of agricultural production. For example, a dairy farm typically will grow hay and corn to feed to their animals or may even have a swine or broiler house to help supplement their farm income. This can make identification even more difficult.



## Farms by major production (more than 50% of sales)

Source: U.S. Census of Agriculture, 2012





**Traditional bank barn**



**Modern barn**

You might see traditional or high-tech barns and buildings.





## Beef Cattle

See Habitat Map on page 65

There are several general types of **beef cattle** farms in Pennsylvania, with the major differences being how the animals are housed and fed. Farms that let their cattle graze in pastures to get much of their feed are called pastured beef farms. Farms that house their cattle inside a building or on a small acreage and intensively feed them grain are called confinement feed lots or finishing farms. A small percentage of finishing farms will graze their animals.

About 11,880 farms in Pennsylvania have at least one beef cow or calf; the vast majority (97 percent) have fewer than 50 beef cows or calves, while less than 1 percent have 100 or more. About 71 percent of farms with beef cattle receive more than half of their farm income from beef.

Typically, beef cattle that are grazing are on a cow-calf operation or a stocker/backgrounding operation. In a typical cow-calf operation, the farmer keeps 20 to 25 mature cows and allows the cows and their calves to graze together from March through October. In the fall, the calves are sold and the cows are overwintered until they have another calf the next spring. Cow-calf operations are often just



Many cattle farms grow their own crops for feed.



one part of the farm operation, which might include growing grains and other cash crops. Many cow-calf farms are hobby farms because these types of farm don't require much specialized equipment, investment, or labor.

Stocker/backgrounding farms are similar to cow-calf operations, except the farmer purchases weaned calves in the spring, pastures them through the summer, and then sells them in the fall. A

typical stocker farm has 10 to 80 calves.

Confinement beef farms rely more on intensively feeding grain to cattle than on pasturing them. Most of this feed will have been grown on the farm itself, either in the form of **corn silage** or **shelled corn**. A typical confinement operation has 50 to 300 cattle. Many purchase calves from cow-calf and stocker farmers in the fall and then feed them to market weight, which usually occurs at less than 2 years of age.





## Dairy

See Habitat Map on page 66



Grazing Holstein cow

Dairy farms produce milk, which is used for both fluid products (e.g., in cartons and bottles) and in cheese, dried milk, ice cream, and other processed products. Pennsylvania has about 7,829 dairy farms, with the majority (67 percent) having between 20 and 99 milk cows. About 15 percent have 100 cows or more. Eighty-four percent of farms with dairy cows received more than half of their farm income from dairy and milk production in 2012.

Milking must be done on a consistent and regular schedule, typically twice daily (in the early morning and evening, though some farms milk three times a day).

So, milking and other herd management is essentially a full-time job. Often one person on the farm focuses solely on milking, while someone else focuses solely on growing and harvesting the crops used for feeding the herd.

Like other mammals, cows only produce milk after giving birth. They generally will be milked for about 10 months. They are then given a 2-month resting period, during which they don't produce any milk and can prepare their bodies for calving and the next milk production cycle. Some Pennsylva-

Round bales of hay are typical on dairy farms that grow their own feed.



nia dairy farms keep bulls for breeding, but most rely on artificial insemination, which allows the farm to have access to a variety of high-quality genetic stock, giving farmers the opportunity to selectively breed individual cows.

Most dairy farms keep several separate groups of animals to make feeding and management easier. Feed requirements vary significantly across dairy cows depending on their age and whether they are currently producing milk. Very young animals are often kept in separate **calf hutches or kennels** until they are big enough to join the “heifer” herd. Heifers are young cows that have never given birth, and they are generally kept separate from the cows old enough to be milked. It takes about 2 years from birth for a cow to begin producing milk.

Cows currently being milked are kept together in a herd near the **milking parlor** or **stanchion barn**. Dry cows (those currently pregnant and not being milked) are kept in a separate herd until they give birth (“freshen”), and then they are added back to the milking herd. A typical Pennsylvania cow will produce 7 to 10 gallons of milk a day when producing milk.

After milking, the milk is usually stored in a large, refrigerated, stainless steel tank—called a bulk tank—until it is picked up by the milk truck. All parts of the milking system that may come into contact with the milk are kept scrupulously clean and sanitized to ensure the quality and safety of the milk. The milking equipment and buildings must meet stringent state standards enforced by the Pennsylvania Department of Agriculture (PDA) and federal standards enforced by the United States Department of Agriculture (USDA).

Pennsylvania dairy farms typically grow most of the feed needed by their cows, such as **hay**, **corn**, and **corn silage**, though they may purchase grains, protein, or other supplemental feeds.





## Poultry—Layers

See Habitat Map on page 66

Layer farms produce eggs. Pennsylvania had 9,539 farms with layers in 2012, with 83 percent of them having fewer than 50 birds. Additionally, 13 percent of layer farms received more than half their income from chicken egg production in 2012. Young laying hens (called pullets) are brought onto the farm when they are about 17 or 18 weeks old, and they produce eggs until they are about 80 weeks old, at which point they are sold and a new flock of pullets is brought into the layer house. Some farms keep their laying hens until the hens are 110 weeks old, allowing them to molt (grow new feathers) when they are 65 to 70 weeks old. On average, on any one day about 71 percent of the hens in a hen house will lay an egg.



Layer farms are dependent on several other types of farms—breeder farms have flocks of roosters and hens that produce fertile eggs. These fertile eggs are sent to hatcheries, where the eggs are incubated until the chicks hatch. The day-old chicks are then sent to specialized pullet farms, which raise the young chickens until laying age and then send them to the layer farms.

Managing a layer house is a full-time occupation, so layer houses most often are the primary focus of the farm. The eggs are delivered to the packing room via an automatic belt system. The eggs may be washed and graded for size on the farm or moved to a processing plant for these steps. The feed is purchased from others, so any field crops on the farm are for other animals or for sale. Feed trucks will come to the farm several times a week, as will trucks to pick up the eggs. Because of automation, one person can manage 60,000 layers.





## Poultry—Broilers

See Habitat Map on page 66

Broiler farms raise chickens for meat. In 2012, Pennsylvania had 1,761 such farms. Twenty-seven percent of these farms received more than 50 percent of their income from broiler and other meat-type chicken production. They get day-old chicks from a hatchery and then feed the chicks to market weight, which generally is 4 to 5 pounds (at 43 to 45 days) or 6 pounds (at 53 days), depending on the desired market weight. The chicks are housed on the floor of a large broiler house, which is covered with pine wood shavings. Broilers are produced using an “all in, all out” approach to reduce the chance of disease. Chicks are brought in all at one time and raised to market weight, and then all the chickens in the house are moved out to the processing plant at the same time. The building is then washed, disinfected, and rested for a few days to one week to prevent the spread of disease to the next flock moved into the building.

Broilers are often a sideline for farmers involved in other types of agriculture. The labor requirements fit well with other types of farming, such as dairy or field crops, and the litter (manure and wood shavings) is useful for the field operations. In some parts of Pennsylvania, the litter is sent to **mushroom farms** as a major ingredient in mushroom compost. It's common to find farms that have added a **broiler house** to their dairy or other operation because the farmer's children wanted to stay on the farm, but the farm wasn't large enough to support two or more families. A broiler house helps supplement the overall farm income.

Most broilers in Pennsylvania are produced via contract by several companies that provide coordination among critical portions of broiler production. These companies generally own the broiler processing plant, hatchery, and feed mills and contract with farmers to raise the broilers. For every modern processing plant, the company needs a hatchery producing 1.365 million chicks a week, 4 to 7 feed mills, and 175 growers with broiler houses. The companies provide the contracted growers with birds, feed, veterinary care, management oversight, and transportation.



Typical modern layer houses



## Swine

See Habitat Map on page 66



There are about 3,097 farms with swine (hogs and pigs) in Pennsylvania. About 77 percent have fewer than 50 hogs, and about 13 percent have 1,000 or more hogs. Despite the relatively small number of these largest swine farms, they account

for 89 percent of Pennsylvania swine production.

Swine production in Pennsylvania is organized around several major stages in a hog's life and coordinated by companies that contract with individual farmers to care for hogs at each of these major stages. Some farmers concentrate on farrowing hogs, which includes the breeding of sows (adult female hogs), care during gestation, and birth and weaning of the babies (piglets). Other farmers in growing and finishing operations obtain these weaned piglets and focus on raising them to market weight. Sows usually have a little more than 2 litters of piglets a year, with about 10 piglets per litter. Baby pigs are weaned at 3 weeks of age (at about 12 pounds) and sold for meat at 25 weeks of age (about 250 pounds).

The buildings used on swine farms are designed solely for use with hogs and sized to fit the scale of the individual farm operation.





The type of buildings on the farm will vary by the type of production housed in them (see the “Swine House” section on page 39).

A farrowing operation typically includes a gestation barn, which houses the sows while they are pregnant, and a farrowing barn for use from birth through weaning. About a week before their due date, sows are moved into the farrowing barn, which is composed of individual rooms that each hold from 30 to 60 sows. The piglets are with their mothers until weaning (about 3 weeks of age). The babies are then moved to an offsite nursery, where they stay until they are 10 weeks old (50 pounds), and then they are moved either to a finishing operation or directly to an offsite weaning/finishing operation, where they stay until they are market weight.

Swine farms are organized and managed to minimize risk of disease to the hogs. Moving animals between buildings typically follows an “all in, all out” approach so hogs remain with a cohort of animals of their own age rather than constantly brought into contact with new animals. This keeps the pigs healthier and reduces transmission of disease from older animals to younger animals. It also reduces stress—swine will always develop a new pecking order when new animals are brought into a group.

Because of this “all in, all out” approach, Pennsylvania swine farms are generally of a standard size. Farrowing operations typically have either 1,400 or 2,800 sows, which will fill a growing-finishing building in 4 weeks (or 2 weeks for 2,800-sow operations). Farmers don’t want to take more than 4 weeks to fill a growing-finishing building, which holds 2,000 hogs, because pigs are much healthier

when age spread is minimized. A farrowing operation with 1,400 sows will produce about 500 piglets a week, which can fill a growing-finishing building within 4 weeks.

Farms with a sow and farrowing operation usually devote themselves solely to the swine operation because it is very time and management intensive. Growing-finishing operations, in contrast, are often used by farmers to supplement the income from their other farm activities. The work demands fit well with other types of farming, and the manure is useful for crops. A growing-finishing operation with one building may provide between \$10,000 and \$15,000 net income to the farmer—not enough to live on but enough to help cover other farm expenses.

Most hogs in Pennsylvania are contracted/managed by several large companies that provide coordination between the farrowing and growing-finishing operations. The companies typically contract with individual farmers for raising the hogs and provide the pigs, feed, management oversight, transportation, and veterinary care. Feed for the hogs is rarely grown on the swine farms. If you see field crops growing on a farm with swine housing, those crops most likely are being grown for other animals or for sale.



Sows usually have a little more than 2 litters of piglets a year, with about 10 piglets per litter.



## Horse and Other Equine

See Habitat Map on page 67

Horses and other equine are commonly found in Pennsylvania both on farms and at rural residences, and they consist of both working and pleasure species. There are 15,768 farms with horses and ponies in Pennsylvania that house a combined 119,990 horses and ponies. These types of farms are involved in a range of commercial activities, such as breeding, training, boarding, therapeutic purposes, retirement, and racing. The majority of horse farms are for recreational use or as hobby farms.

Additionally, another 2,668 farms in the state have mules, burros, and donkeys.

Horse and other equid operations play an important role in many Pennsylvania communities because they help preserve open space and maintain the public's connection to agriculture. Many of the owners are major purchasers of local **hay**, straw, and oats, providing a ready and steady source of sales to local farmers.



Horse farm



## Field Crop

See Habitat Map on page 67

About 8,445 Pennsylvania farms receive more than half of their farm income from the sale of corn, wheat, oats, soybeans, or other grains and oilseeds. An additional 10,372 farms rely on hay for the majority of their sales. These field crop farms generally sell grains and oilseeds to local feed mills and hay to other farmers. Note that many other farm types raise these crops as feed for their own animals.

The most common field crops in 2012 included winter **wheat** (144,725 acres harvested), **oats** (65,158 acres harvested), **soybeans** (519,718 acres harvested), and **corn** for grain (998,376 acres harvested). About 1,651,917 acres of **hay** were harvested, including 400,984 acres of alfalfa hay and 710,021 acres of other hay (such as timothy grass).



Maturing corn field

Some field crop farms used to be dairy or other livestock farms, but the farmers sold the cows so they could concentrate just on growing crops without the relentless need to milk, feed, and care for animals. Field crop farms are busy from the spring through the fall when the crops are in the field. Unlike livestock farms, field crop farms have a lax period in the winter. Many field crop farms rent land from neighbors.

**Soybeans****Alfalfa****Winter wheat**



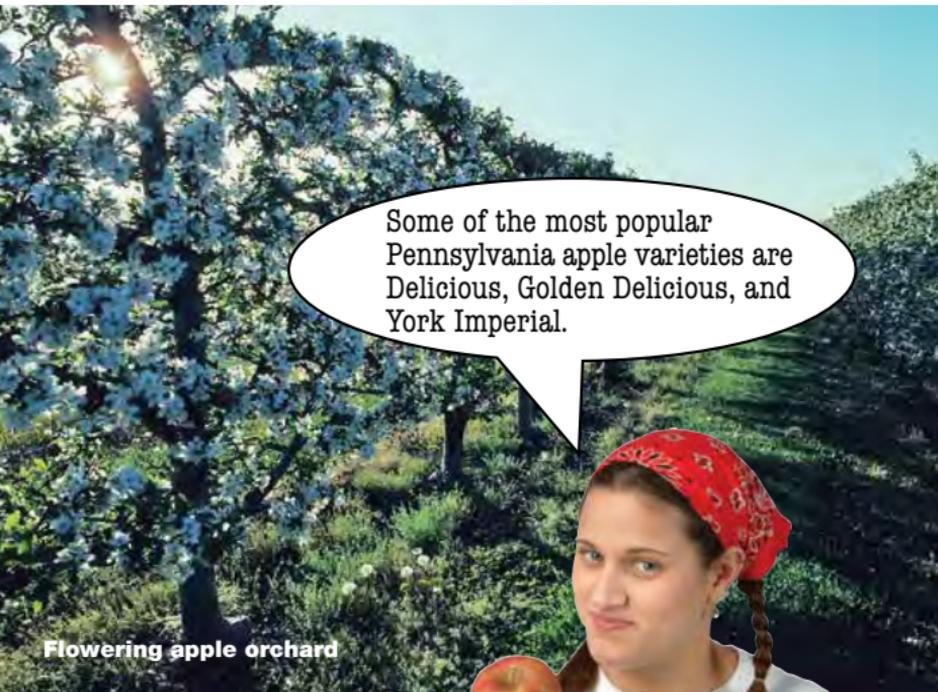
## Fruit and Berry

See Habitat Map on page 67

Pennsylvania had 3,147 farms producing fruit or berries in 2012, with 1,969 receiving more than half of their farm income from such sales. This included 1,029 farms that primarily focused on apples, 616 on grapes, 722 on berries, and 552 on peaches. Apples are Pennsylvania's most common fruit crop, with 21,556 acres of orchards in 2012. Grapes are the second most common, with 12,415 acres, and peaches are third, with 4,831 acres. Other common fruits include pears, tart cherries, and sweet cherries.

Most of the fruit harvest in Pennsylvania is done by migrant workers. Fruit farms generally raise several types and varieties of fruit to even out their labor needs over the season, making it easier to find and keep workers. Cherries ripen in late June or early July. Peaches are harvested from August through October depending on the variety, with the majority being harvested in August. Apples are harvested from July to October, again depending on the variety, with the main harvest in September and October. Apple growers may have 5 to 10 (or more) different varieties of apples, with some early and late ripening varieties selected, in part, to spread out the harvest season.

The workload on fruit farms varies tremendously through the year. During the winter, fruit farmers need to prune or trim their



Some of the most popular Pennsylvania apple varieties are Delicious, Golden Delicious, and York Imperial.

Flowering apple orchard

**Vineyard**

trees to keep them healthy. In the early spring when the flowers are blooming, they place rented bee hives in the orchards to increase pollination. Later in the spring, they spray the trees to help prevent diseases and insect infestations. During the summer and fall, fruit is harvested. Every 15 to 30 years they have to replace the trees, depending on the type of tree, growing systems, density, and other factors. When trees get too old, they become more prone to disease and their productivity drops.

Most (75 percent) of Pennsylvania's apple harvest is used to make juice and cider, apple sauce, and pie fillings or otherwise processed. This percentage is higher in Adams County (around Gettysburg), where most of the major fruit processors are located, and much lower in other parts of Pennsylvania. Many fruit farms in these other counties sell directly to consumers through roadside farm stands and farmers' markets. Some sell through local grocery stores.

**Roadside fruit stand**



## Vegetable

See Habitat Map on page 68

Pennsylvania's 3,968 farms growing vegetables planted 48,622 acres of vegetable crops in 2012. About 30 percent were vegetables for processing. About one-quarter (26 percent) of the vegetable acreage harvested was sweet corn, 22 percent were snap beans, 18 percent were potatoes, and 5 percent were tomatoes. About 1,693 of these farms received more than half of their total sales from vegetables.

Vegetable farms tend to be smaller than other farm types. They typically rely on migrant or family labor. Just under half of the vegetable farms are less than 50 acres in size. Most vegetable farms sell directly to consumers through roadside farm stands, farmers' markets, or other direct marketing.

Many Pennsylvania vegetable farms have begun using **hoop houses**, which are sometimes called high tunnel houses, to extend their growing season. The hoop house allows them to start vegetables earlier in the year, as well as extend harvest into the late fall or early winter.





## Greenhouse/Nursery

See Habitat Map on page 68

Greenhouse and nursery products are an important part of Pennsylvania's agriculture. Pennsylvania had 3,012 nurseries in 2012 and ranked third in the nation for number of farms and fourth for most sales of nursery crops. Nurseries produce a variety of trees, such as evergreens, deciduous shade trees, deciduous flowering trees, fruit and nut plants, and Christmas trees, and propagation materials (root stock, cuttings, and other small plants to be sold to other growers for further growing out). Pennsylvania is the Northeast's largest grower of ornamental trees and shrubs and perennial flowers. In 2012, Pennsylvania nursery and floriculture crops totaled over \$900 million.

Nurseries are very diverse. Some nurseries focus on a single plant species, such as Japanese maples, while others raise a broad variety of species. Some germinate the seeds and then raise the plants through various stages of growth, while other nurseries purchase young plants or seedlings and focus solely on growing these to market size. Some nurseries sell primarily to wholesalers or retailers, while others sell directly to homeowners and other consumers.

Many nurseries are small, with between 10 and 20 acres of land. Just over half (51 percent) of Pennsylvania nurseries have between \$10,000 and \$100,000 in annual sales. About 5 percent have more than \$1 million in annual sales.



Tree farm



## Mushroom

See Habitat Map on page 68



Pennsylvania farms grow over 40 percent of U.S. mushrooms, including 55 percent of conventional button mushrooms (*Agaricus*), 51 percent of fresh-market sales, and 74 percent of the mushrooms used in processing. In 2012, there were 87 mushroom-growing farms in the state.

Most mushrooms are grown in compost produced by the mushroom growers in large windrows or purchased from other growers. Mushroom spawn is mixed into the compost, and then the compost is placed in tiered beds inside light-, temperature-, and humidity-controlled **mushroom houses**. A top dressing of sphagnum peat moss (or similar material) and agricultural limestone is put on top of the compost. This is irrigated periodically during the stage necessary for the spawn to reach the surface. It takes about a month





**Making compost for mushroom farming**

to produce the first mushrooms. Mushrooms mature at differing rates, so they are harvested continuously for 6 to 10 weeks, at which point the substrate is removed from the beds and the room is steam pasteurized and prepared for another filling. Harvest has to be done by hand. This process of filling, growing, and harvesting takes 10 to 12 weeks for each batch, which means 4 to 5 crops can be grown in a room each year. Production occurs year-round, and the number of workers is fairly constant.

All mushroom farms (except for a few specialty mushrooms, such as shiitake) generally require compost, but not all farms produce it themselves. The compost is composed of a mixture of straw or hay, corn cobs, chicken litter, and bedded horse manure. The composting process itself closely resembles municipal composting operations and requires large, flat, open areas and heavy machinery to turn the windrows.

Most of Pennsylvania's mushroom farmers are located close to major urban areas, particularly Philadelphia, because in the late nineteenth century, before the invention of cars and trucks, urban areas had a lot of horse manure from horse-drawn trams and wagons. The mushroom farms were located close to these sources of cheap manure.

Many of the workers on Pennsylvania mushroom farms are migrant workers from Mexico. Farmers generally have long-term relationships with these workers, who live at the farm for an extended period of time before temporarily returning home to Mexico.

# FIELD MARKS

The following section on field marks offers additional insight into the various crops that you might see. Each crop is accompanied by icons representing the type of farm on which the specific crop typically may be found. Match these icons back to the farm type descriptions beginning on page 4.



Beef Cattle



Dairy



Poultry—Layers



Poultry—Broilers



Swine



Horse and  
Other Equine



Field Crop



Fruit



Vegetable



Greenhouse/  
Nursery



Mushroom

This corn, used for animal feed, is not the same as sweet corn, and the two taste very different.



Successfully growing crops generally involves several common field activities in the spring. The soil needs to be broken up to control weeds, integrate manure and other fertilizers into the soil, and make it loose enough so seeds can be planted. Traditionally, soil was initially broken up with a moldboard **plow** and then further broken up with a **harrow**. Increasingly, farmers use a chisel **plow** and then herbicides to control weeds. This latter method reduces soil runoff.

## Corn



Corn is one of Pennsylvania's most common crops, with more than 1.4 million acres harvested in 2012. Little of Pennsylvania's corn makes it directly to market—most is used for feeding animals. The entire plant can be chopped and immediately fed to **beef** and **dairy cattle**; the chopped plants can be placed in airtight **silos**, where it ferments and naturally turns into a feed called silage, which can be stored and fed throughout the year; and the grains (called shelled corn) can be fed directly. About 70 percent of Pennsylvania's corn



Young corn



Mid-season corn field



Mature corn

acreage is harvested for grain, while 30 percent is harvested for silage. It is important to note that this corn used for animal feed is *not* the same as sweet corn, and the two taste very different.

Corn is planted in rows with a **row planter** and then harvested for grain with a **combine harvester** (shelled corn—just the kernels) or **cornpicker** (ear corn—the entire ear, including cob and kernels) in late October or November. Because the kernels need to be dry so the corn doesn't rot in storage, farmers sometimes leave the corn plants unharvested until late fall or winter, allowing the kernels to dry in the field. Corn used for silage is harvested with a **forage chopper** and placed in silos during August and September. Silage can be made in **upright silos, bunker silos, or ag bags**.

## Wheat



About 144,725 acres of wheat were harvested in Pennsylvania in 2012. Most of the wheat produced in Pennsylvania is red winter wheat and sold for cake flour used in pastry and snack food (pretzel) manufacturing. The stems of the wheat plant, called wheat straw, are often used for animal bedding. After harvesting the wheat with a **combine harvester**, the straw is baled with a **baler** for easier storage. Horse farmers especially like to use wheat straw in their horse stalls because it is weed free and has flat, smooth stalks, which make cleaning stalls easier. Wheat is planted with a **grain drill**. It is usually harvested with a **combine harvester** in July and August.



Young wheat



Mature wheat

## Soybeans



Soybeans are a very common crop in Pennsylvania, with 519,718 acres harvested in 2012. Soybeans are a major source of protein. Most of the soybeans grown in Pennsylvania are used for animal feed. Farmers grow soybeans for their own animals or for sale to local feed mills. Most soybeans are processed into soybean meal using extrusion or extraction of the oil, or roasted or cooked before being fed to animals. Farmers feeding their own soybeans either take them to a local feed mill for roasting or have someone (called a custom roaster) come directly to their farm with the roasting equipment to cook the soybeans. Soybeans are generally planted in May and harvested in October. Many farmers “double-crop” soybeans, which means that after harvesting small grains in the spring, they plant soybeans in the same field that year, getting two crops (the small grain and then the soybeans) in one growing season.



Mid-season soybean field



Young soybean



Mature soybean

## Hay



Hay is one of Pennsylvania's most common crops. It is composed of a variety of grasses and legumes (such as alfalfa). Grass hay resembles unkempt yard grass. Alfalfa hay has more protein than grass hay and is bushy and not as tall. Pennsylvania farmers harvested 1,339,923 acres of hay in 2012, with 30 percent being alfalfa hay and the other 70 percent being grass or other combinations.

Hay can be harvested and stored in a variety of ways. The most common method involves cutting it with a **mower** or **haybine**, putting it in rows with a **hay tedder** or **hay rake**, and letting it dry in the sun for several days before pressing it into hay bales with a **hay baler**. Rain can reduce drying hay's nutritional quality, so farmers try to cut, dry, and bale hay between summer rains. Hay can also be cut with a **forage chopper** and immediately put into a silo (similar to how corn silage is made) or **ag bag**. Such hay is called "haylage," and it is the only sure way to harvest hay when rain is threatening. 427,810 acres of haylage were harvested in Pennsylvania in 2012.

Many Pennsylvania farms can get 2 to 4 hay harvests a year from a field, depending on the weather conditions and their location in



Windrows of drying hay



Grass hay field



Pennsylvania (farms in southern Pennsylvania are more likely to have a higher number of harvests). The first cutting typically occurs in late May or early June, with later cuttings following as the grasses and legumes regrow. Hay fields are typically harvested for 3 to 5 years before being replanted. Often farmers will first replant a hay field in corn for a year or two and then small grains or soybeans for another year or so before replanting as hay to help replenish the soil. During other times of the year, farmers may adjust soil pH through the application of lime and fertilizer to increase productivity.

Field crops are an important food source for many farm animals.



## Hay Bales



Hay bales are one of the most common methods of storing hay. Small square bales are easy to transport and stack. But, if they get rained on, much of the hay can be ruined. So, the bales must be removed from the fields quickly and stored under cover. Large round or large square bales, in contrast, are more awkward to transport. But because rain only destroys the top few inches of a bale, they can be left in the field or outside until needed by the farmer.

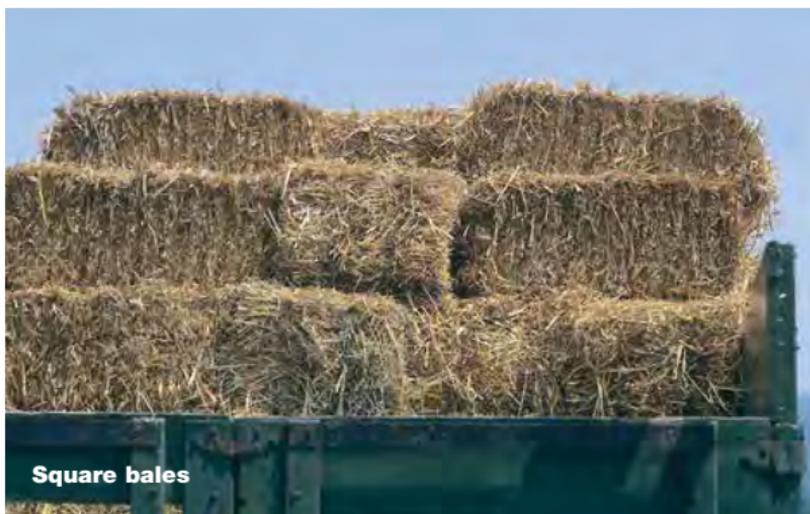
Some large round hay bales are wrapped in white plastic to help protect them from spoilage. These bales are called “balage” and allow the farmer to harvest hay at a much higher moisture level.



**Round bales**



**Balage (round bales wrapped in plastic)**



Square bales

## Ag Bags

Some farmers make **corn** silage or haylage in large, heavy-weight, white plastic bags (approximately 6 feet in diameter and up to 50 feet or so long) called “ag bags.” These allow farmers more flexibility than **upright silos** because they can be sized to fit production—the ag bag can be made longer or shorter depending on the abundance of that year’s harvest. Ag bags are filled by a special machine called an ag bagger, which slowly unrolls the bag as it is filled with chopped **corn** or **hay**.



Ag bags

# BUILDINGS AND STRUCTURES

The following section offers additional insight into the various buildings that you might see. Each building or structure is accompanied by icons representing the type of farm on which it typically may be found. Match these icons back to the farm type descriptions beginning on page 4.



Beef Cattle



Dairy



Poultry—Layers



Poultry—Broilers



Swine



Horse and Other Equine



Field Crop



Fruit



Vegetable

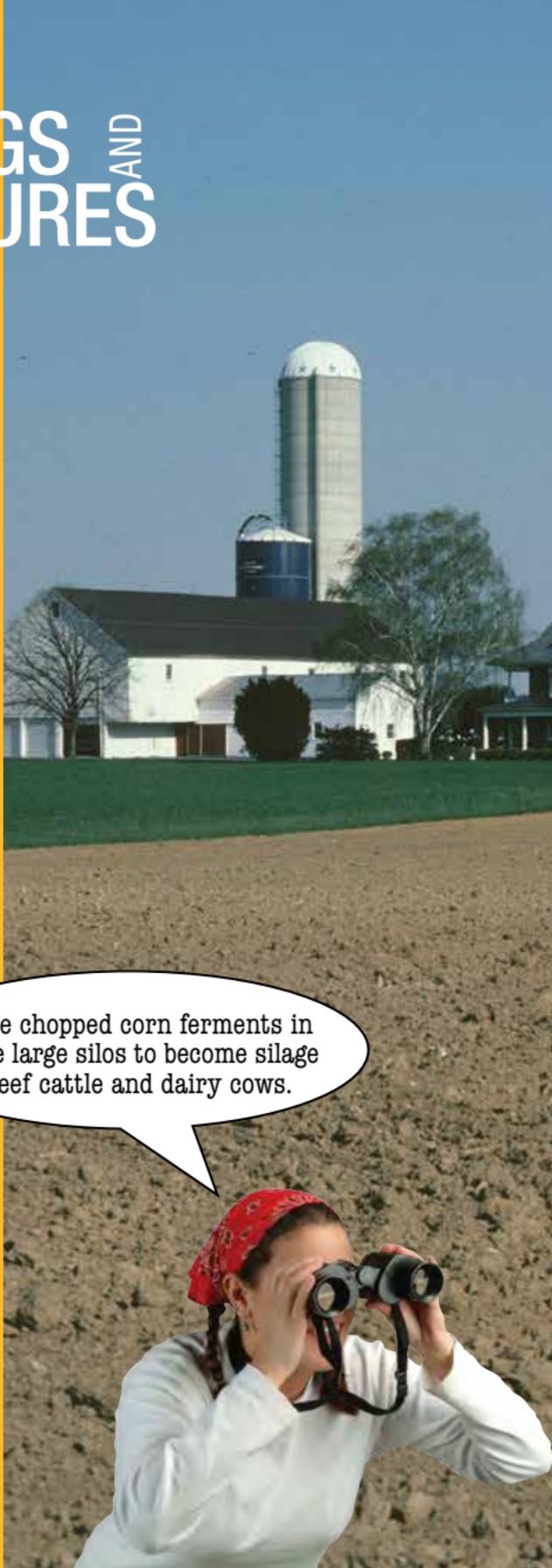


Greenhouse/  
Nursery



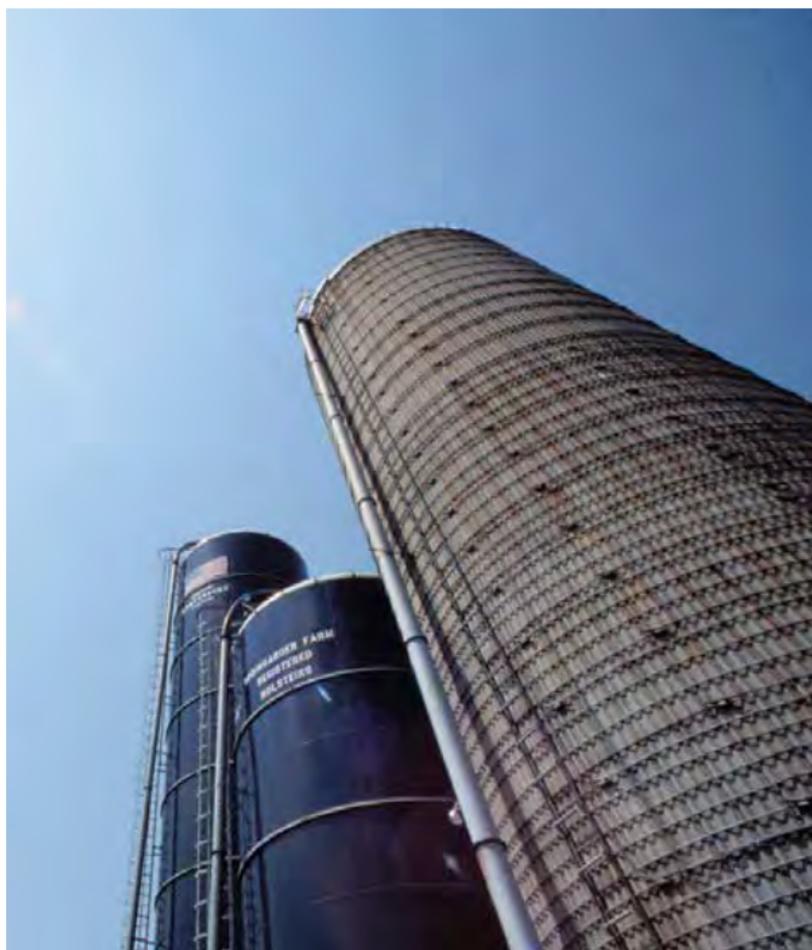
Mushroom

Whole chopped corn ferments in these large silos to become silage for beef cattle and dairy cows.



## Upright Silo

Whole **chopped corn** kept for feeding cattle is often stored in upright silos, where it naturally ferments and turns into silage—a feed that is great for cows and can be stored and fed throughout the year. Silos are typically filled in the fall by blowing the chopped corn with a **siloblower** up a long chute, and then they are sealed until ready to feed. Most concrete silos (which are usually concrete colored) have a machine inside that rests on top of the corn silage and, when turned on, revolves and skims silage off the top of the stack and blows it back down the chute. Through the year as it keeps skimming silage off the top, it works its way down through the silo until it's at the bottom and the silo is empty. Most steel silos, either blue or green (often called “Harvestor” silos after the name brand of one type), are completely air sealed and instead remove silage from the bottom of the silo. The silos can also store haylage and high-moisture corn.



## Bunker or Trench Silo



An alternative method of making and storing **corn** silage, haylage, or high-moisture corn is in bunkers partially buried under ground. Bunker silos are typically covered with plastic, which is often held in place with old tires, to make them as airtight as possible (too much air can cause silage to spoil). Bunker silos can be cheaper, easier, and quicker to fill than upright silos, but they are generally less efficient than uprights because restricting air infiltration is more difficult.



Bunker silo

## Layer House



Modern poultry houses for egg production are large two-story buildings, about 60 feet wide by about 600 feet long, and typically hold 125,000 birds. The birds are kept in six rows of cages on the upper floor that are open to the first floor below. Each cage has a nipple drinker and feed delivered automatically in a trough. A conveyor belt carries eggs to the room where they are packed. The cages are arranged so manure falls directly to the floor below. Over time the manure builds up into tall piles, where it dries. The manure is cleaned out in the spring and fall when it can be spread on farm fields.

Layer houses can be distinguished from swine houses and broiler houses because they are two stories tall and generally have fans equally spaced along the lower part of both sides of the building. These fans are usually covered or hooded and help ventilate the

building and dry out the manure. Layer houses also typically have a large door at the end of the second story or a second-story rear porch off the back of the building, which is used to bring in new birds and remove the old ones. There are also doors on the ground floor to remove the litter. The feed bins are located at the front end of the building, while in swine buildings the feed bins are often located in the middle of the building.



You might see someone in a protective suit, which helps to protect poultry from diseases.

**Layer house**

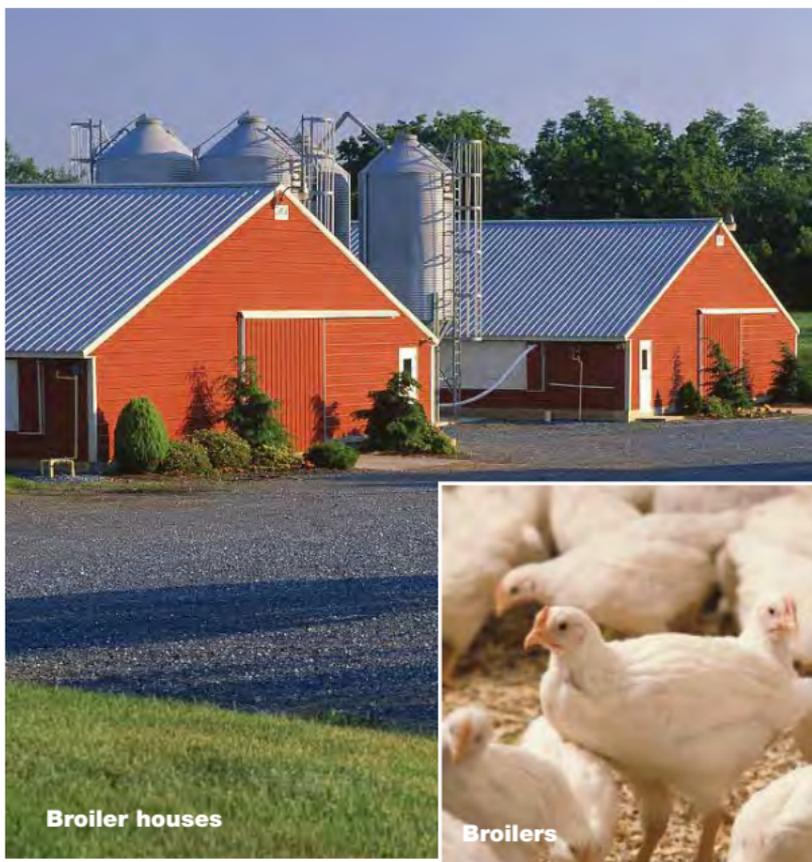


**Inside a typical layer house**

## Broiler House

Like layer houses, broiler houses are large buildings, but they are usually only one story tall (all new broiler houses are one story). The chickens are allowed to roam freely on the floor of the building, accessing water and feed as they need it. A typical broiler house can hold 25,000 to 30,000 chickens at a time.

Older broiler houses have curtains along the top half of their sidewalls that can be lowered in the summer for ventilation, and usually there are three fans along the sidewall for ventilation in the winter. New broiler houses have solid sidewalls and rely entirely on mechanical means for ventilation. A bank of tunnel fans at one end of the building draws air down the length of the building, while evaporative cooling cells at the other end help cool the air. The combination of cooling cells and tunnel fans can lower the temperature in the summer by 5 to 8 degrees. These newer broiler houses also typically have a few fans along the sides of the building for winter ventilation. As in layer houses, the feed bins are located at the front end of the building.



# Mushroom House



Mushroom house exterior

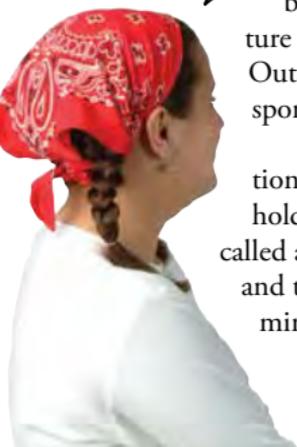


Mushroom beds

Pennsylvania produces over 40 percent of all the fresh mushrooms grown in the United States.

Mushroom houses provide the light, temperature, humidity, and carbon dioxide control necessary to grow mushrooms productively. The buildings are designed to keep an optimal temperature (57–62°F) and built to withstand high moisture. Outside air is filtered to help prevent insects and fungal spores from entering the building.

A typical mushroom house has many production rooms, and each typically has six tiers of beds that hold the mushroom substrate. A mushroom house is called a “double” since there are three tiers on the bottom and three on the top. Workers use miners’ lamps to minimize the amount of light during harvest.



## Greenhouse and Hoop House



Greenhouses provide temperature and humidity control for growing horticultural products and are commonly found on **greenhouse/nursery farms**. Traditionally they were made of glass, but now they are made of acrylic or plastic sheeting over a frame (called a hoop house). Greenhouses are heated and typically used for growing flowers, vegetables, bedding plants, vegetable starts, or holiday plants (such as poinsettias), and propagation.

Some hoop houses are unheated, have no fans, and used strictly for overwintering plants. These plants can be seedlings or container-grown plants. Since the containers are above ground, the plants' roots need some additional protection from winter. The plastic is removed from these unheated hoop houses in the spring when temperatures warm up.



Greenhouse interior

# Swine House



Swine farm

There are several different types of swine houses, each designed for a different life stage of the hog (see the Swine Farm section on page 12). Gestation barns have stalls for sows, with most of the fans at one end

of the building. They may also have curtain sidewalls that can be lowered in the summer for additional ventilation.

A farrowing barn is typically composed of separate rooms that house around 30 to 60 sows. Each room has its own ventilation system and is self-contained to help keep pigs healthy. Farrowing barns can be identified by the many banks of fans along the side of the building (usually 3 to 4 fans for each room).

A growing-finishing house typically has fans on the end of the building and may also have fans and curtains along the side. The curtains can be opened for additional ventilation in the summer and automatically open in case of power failure. Growing-finishing houses are typically designed to hold 2,000 pigs.

## Quick swine facts:

**Farrowing operations** include the breeding of sows (adult female hogs), care during gestation, and birth and weaning of the babies (piglets).

**Growing and finishing operations** obtain weaned piglets and focus on raising them to market weight.

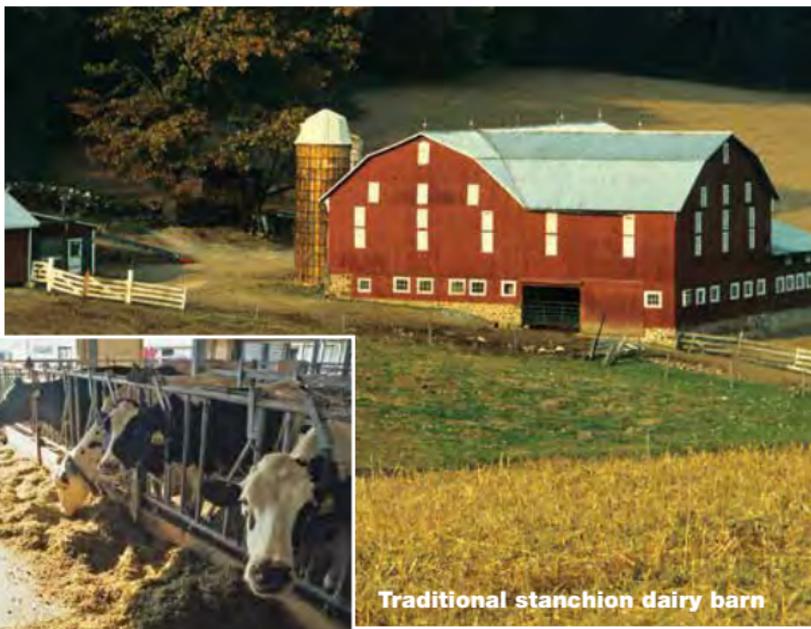
**Piglets** are weaned at 3 weeks of age (at about 12 pounds) and sold for meat at 25 weeks of age (at about 250 pounds).

The growing-finishing buildings are constructed with a manure pit (6 to 8 feet deep) under a slatted floor that allows manure to fall directly into the pit. Pit fans run year-round, providing ventilation and air circulation. The pits are emptied twice a year, and the manure is spread on crop fields. As discussed in the Swine Farm section, the buildings are sized to suit the size of the farm.

Like poultry housing, swine buildings are typically long and narrow to improve ventilation. When air is drawn in at one end of the building and blown out at the other end of the building, it creates a gentle breeze that cools the air for the animals during hot weather.

## Stanchion Dairy Barn

Traditional dairy barns in Pennsylvania are stanchion barns, so named because the dairy cows are held in stanchions (loose restraining bars) during milking and at rest. Each cow has its own assigned place and room to stand up, lie down, drink, and eat. The traditional stanchion barn has two stories—hay, grain, and equipment storage are on the top floor (which is often reached with a ramp or built into the side of a hill), and animals are on the bottom floor. Because these barns are usually built into the side of a hill to provide easy access to the top and bottom, they are often called “bank” barns. With the cows restrained in place, farmers have to move milking equipment from cow to cow. Many stanchion barns have 4 to 6 large fans at one end of the barn to help cool the cows during hot weather.



Traditional stanchion dairy barn

## Freestall Dairy Barn and Milking Parlor



Modern freestall barn (r) and milking parlor (l)



Inside a milking parlor

Freestall barns are a newer style of dairy housing in which cows are free to move around without restraint. Instead of bringing the milking equipment to each cow, during milking the cows are brought to a milking room (often called a “milking parlor”) to be milked. This makes handling the cows much easier and less labor intensive than in stanchion barns. Most freestall barns have curtained sidewalls, which give the farmer more control over the temperature inside the barn.

Identifying a milking parlor from the outside the building is difficult. They generally have an entrance for the cows to come into the parlor to be milked, and then a separate exit through which the cows leave once milked. Inside the parlor itself, the cows walk in and stop at fixed positions for milking. The size of a parlor is usually described in terms of how many cows can be milked at one time, such as a “sixteen-cow” parlor. Each position has its own milker, which is connected to a stainless steel pipeline that runs to the **milkhouse**.

## Milkhouse



Once milk is milked from the cows, it must be rapidly cooled to below 40°F to ensure quality, and then it must be stored under sanitary conditions. Dairy farms usually do this in their milkhouse, which is often attached to their stanchion barn or milking parlor. The

milkhouse contains a large stainless steel tank that can hold a few days' worth of milk production, as well as cooling and cleaning equipment. Dairy farmers must follow federal and state milk handling and storage regulations. In addition, the dairy processors who purchase the milk also inspect the dairy operation and milkhouse.

## Calf Hutch/Kennel



Farmers have discovered that calves kept inside barns and in direct contact with other calves are especially susceptible to diseases. Calf hutches are a way of giving calves fresh air and keeping them healthy. Each calf has its own hutch with water and food and is able to move around. Typically when the calves get to be 6 to 8 weeks old, they are moved out of the hutches and into a herd of young stock.

A calf kennel has 4 to 6 calves in individual pens. They have feed and water on a front gate. Most have a monosloped roof to allow the winter sun to warm the rear of the pen.

## Manure Tank and Pond

Manure management is an important task on farms with animals. Traditionally with some stanchion barns, farmers cleaned the barn and spread manure daily. Many newer barns and farm buildings are designed to reduce daily manure handling by including a place for manure storage, such as a manure tank or pond. Tanks are entirely enclosed, while ponds have an open top. Many of these tanks or ponds are part of an automatic cleaning system that washes the building floor several times a day. The manure is stored as a liquid mixed with water.

Manure tanks and ponds are emptied several times a year; the manure is spread on fields before crops are planted to help fertilize the soil. Because the manure starts decomposing in the tanks and ponds, the process of emptying the tank and spreading stored manure can temporarily release strong odors. These last only while the manure is being agitated and for a few days after manure is spread in a field. Liquid manure can be spread directly on top of the soil or injected several inches into the ground.



Liquid manure tank

## Roadside Farm Stand



Many Pennsylvania farms sell directly to customers through roadside stands and farmers' markets. Pennsylvania ranks number three nationally in direct marketing between farmers and consumers, which allows farmers to glean higher prices and sell special value-added products. This also helps keep food dollars within the community to purchase other goods and services.

Roadside stands are always fun places to visit because you can talk directly with the farmers who grew the food and buy locally grown produce. Some farmers sell specialty products they've developed with their crops, such as jams, salsas, pies, or even chocolate-covered apples. Some roadside farm stands have fun activities to do, such as corn mazes, petting zoos, hayrides, or pick-your-own pumpkin patches.





# MACHINERY

The following section offers additional insight into machinery that you might see. Each machine is accompanied by icons representing the type of farm on which it typically may be found. Match these icons back to the farm type descriptions beginning on page 4.



Beef Cattle



Dairy



Poultry—Layers



Poultry—Broilers



Swine



Horse and  
Other Equine



Field Crop



Fruit



Vegetable



Greenhouse/  
Nursery



Mushroom



# Tractor



Power take off (PTO)

Tractors are the primary mobile power source on most farms. They are used for towing equipment such as **plows**, **forage wagons**, and **corn choppers**. Tractors are also designed to power equipment through a rotating power shaft (called a “power take off,” or PTO for short). Many pieces of towed equipment, such as **corn choppers** or **hay balers**, receive

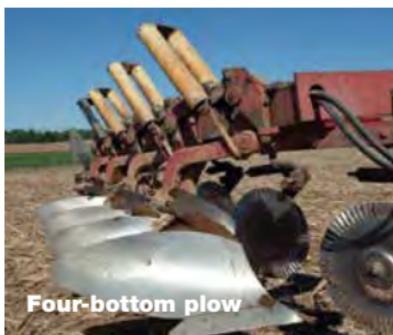
their power through the tractor’s PTO. Other pieces of stationary equipment, such as **silo blowers**, similarly are powered through the PTO. Larger tractors can pull larger equipment.

Most farms have several tractors (the state average is a little less than three tractors per farm) that typically include a range of ages. Newer tractors are most often used for major field work (such as **plowing** or **harrowing**) and can have air conditioning, radios, and relatively comfortable seats. Older tractors are often used just for transporting wagons between fields and barns. On some farms, an older tractor may be kept solely for its PTO (such as being dedicated to the silo blower).

When driving behind a tractor on a road, be aware that the visibility behind the tractor sometimes can be limited depending on the type of equipment being towed. Be careful when passing a tractor to make sure it is not preparing to turn left; if it is slowly crowding toward the centerline of the road, chances are good that it is going to turn, so do not pass.



# Plow



Plows are used to prepare soil for planting by breaking up the sod. The traditional style of plow is called a moldboard plow, which is designed to turn a strip of soil completely upside down. This buries any plants, crop residue, or fertilizer, killing the weeds and enriching the soil and making it easier to prepare a fine seed bed. Plows can include several individual plowshares, allowing the farmer to turn over a wider path with each pass. A “two-bottom” plow has two plowshares, for example, while a “four-bottom” plow has four plowshares. A larger tractor can pull a plow with more plowshares.

The most predominant method of plowing in Pennsylvania is what is sometimes called “minimum till.” It uses an alternative plow—called a chisel plow—to prepare soil without radically breaking up the soil surface. The chisel plow is sometimes followed by harrowing to level the remaining uneven surface. Following planting and before the crop emerges, herbicides can be applied to control emerging weed seedlings. Minimum till has become popular, in part, because it reduces the soil erosion possibilities inherent in completely turning over the soil (as is done with a moldboard plow).

## Harrow



Disk harrow

Harrows are becoming less common with the increased use of minimum-till plowing because they aren't needed with that type of soil preparation. After plowing with a moldboard plow, the soil is broken up, but it is still fairly rough. Harrows are used to further prepare the soil for planting by breaking up dirt clods and corn stalks and

evening the soil surface. Harrows generally consist of a series of parallel, round, metal disks (around 2 feet in diameter and called a disk harrow) or metal spring teeth (called a spring-tooth harrow) and are pulled through a plowed field until the soil surface is finely broken up and smooth.

## Row Planter



Row planters are used for planting corn and other crops grown in rows, such as soybeans. They typically hold the seed and fertilizer, place the seed at a designated depth and distance in rows, and are towed behind a **tractor**.



Row planter

## Grain Drill



A grain drill is used for planting small grains such as wheat or oats. Such grains are usually planted in very narrow rows (6 inches or so apart) and need to be planted at a very shallow depth. Grain drills are towed behind a **tractor**.



## Mower



Mowers are used to cut grass and alfalfa for **hay**. Some mowers are pulled behind tractors, while others are attached directly to the tractor. Some models—called mower conditioners—mildly crush the stalks after they are cut to speed drying time, thus reducing the risk of a hay crop being ruined by rain.



## Forage Chopper

If cut grass or alfalfa hay is harvested and stored without waiting for it to dry, it is called haylage. Forage choppers cut grass and alfalfa and immediately blow it into either a towed wagon or a storage container on its back.



Forage chopper and wagon

## Hay Tedder

Hay must be dried before it is baled so it will store well. If stored moist, its quality can deteriorate and it can even catch on fire spontaneously. After cutting, grass and alfalfa is allowed to dry in the sun to the proper moisture content before it is baled. During the time the grass and alfalfa is left sitting cut on the ground, rainfall can lower its quality or even destroy it. So, a fast drying time is important. A hay tedder is designed to turn drying hay, exposing shaded parts to the sun and speeding the drying process.



Hay tedder

## Hay Rake



Cut **hay** must be formed into long rows (called windrows) so the **hay baler** can pick it up for baling. A hay rake lifts the cut loose hay, turns it, and forms such rows. Some **mowers** or **hay tedders** create the windrows at the same time they cut or turn the hay so the farmer needn't use a rake.



Hay rake

## Hay Wagon



Hay wagons are used to carry bales of hay from the field after harvest. Hay wagons designed for use with **hay balers** that “kick” the bales into the wagon have strong, high sides to catch the bales and keep them inside.



Hay wagon

## Hay Baler



Hay balers pick up drying hay and tie it into **hay bales**. Some balers create square bales, while others create round bales. Some square balers drop bales directly onto the ground, while others have a “kicker” that tosses bales into a towed **hay wagon**. This reduces labor requirements because the wagons are loaded as the hay is baled. Often several people will work on baling hay at the same time—someone drives the tractor towing the hay baler and the wagon being filled, while other people drive filled wagons from the field and bring empty wagons back.



Square baler



Round baler

# Combine Harvester



Combine with a corn head



Combine with a grain head

Combines are used for harvesting grains, either shelled **corn** or small grains such as **wheat** or oats. The combine performs a variety of separate functions (hence its name). The combine cuts the plant, separates the grains from the stalk (called “threshing”), stores the separated grains, and drops the stalks back onto the field. The front of the combine, called the header, is changed to match the crop being harvested. These include a grain head or corn head.

During harvest, the combine occasionally must be emptied of the grain it has harvested. Instead of driving the combine back to the barn, grain wagons pulled by tractors or trucks are pulled alongside the combine, where they are filled.

Small grain stalks dropped by the combine, such as from **wheat** or oats, are called straw, which is useful for animal litter or sold for landscaping. The straw is often baled later.

## Manure Spreader



Manure spreaders are used to carry manure and spread it on fields to help fertilize the soil. Side or rear discharge spreaders carry relatively solid manure and are used on farms where manure is spread daily or several times a week. Their name refers to whether they spread manure over their side (side discharge) or rear (rear discharge). The spreaders are open on top, making them easy to fill.

Liquid manure spreaders are used to spread manure from **manure storage tanks and ponds**. This type of manure is very wet and pumped into the spreader. Liquid manure spreaders are enclosed. The spreaders can either spread manure directly on top of the soil or inject it several inches under ground (which can help control odors).



Liquid manure spreader



Solid manure spreader

## Corn Chopper and Forage Wagon



The corn chopper is used to harvest the entire **corn** plant for feed. It chops the entire plant, including stalk, grain, and cob, and then throws the mix into a trailing **forage wagon**. The resulting corn can be fed immediately to cows or stored in **upright** or **bunker silos** or **ag bags**.

Harvesting corn with a corn chopper often involves several people on the farm—one person drives the tractor towing the corn chopper and the **forage wagon** being filled, another person tows full **forage wagons** back to the barns and empty wagons back to the field for reloading, and another person unloads the wagons with a **silo blower** or **ag bagger**, depending on how the chopped corn is to be stored.

Forage wagons are designed to carry chopped **corn** or **haylage** from the field back to the barns. They often are filled by being towed directly behind the **corn chopper** or **forage chopper**, which throws the chopped corn or haylage inside. Many forage wagons are self-unloading, with floors and beaters that move the chopped corn or haylage when hooked up to a **tractor's** PTO.



Corn chopper and forage wagon

## Silo Blower



A silo blower is a large fan that blows chopped **corn** or **haylage** into **upright silos**. The silo blower is powered by a **tractor's** PTO. Because silos are filled from the top, the silo blower has to blow the chopped corn or haylage the height of the silo.



Fall is one of the best times of the year for farm watching.

# ANIMALS

The following section offers additional insight into animals that you might see from the roadside. Each animal is accompanied by icons representing the type of farm on which it typically may be found. Match these icons back to the farm type descriptions beginning on page 4.



Beef Cattle



Dairy



Poultry—Layers



Poultry—Broilers



Swine



Horse and  
Other Equine



Field Crop



Fruit



Vegetable



Greenhouse/  
Nursery



Mushroom



## Beef Cows



There are a variety of different breeds of beef cattle. Black cattle likely are Angus but could be another breed. Red cattle with white faces are Herefords. Red and white or roan cattle are shorthorns, and solid white cattle are Charolais.

### Beef cows common in Pennsylvania



**Angus**



**Shorthorn**



**Charolais**



**Hereford**

You will often see beef cattle grazing in pastures.



## Dairy Cows

By far the most common breed of dairy cow in Pennsylvania is the Holstein. Holsteins are popular because they are highly efficient in using feed to produce milk and have high productivity. Most Holsteins are black and white, but some are red and white. Other common dairy breeds include the Jersey, which is dun colored and noted for its high milk fat production; the Brown Swiss, which is gray and beige and similarly produces milk with a high milk fat content; and the Ayrshire, which is red and white and produces moderate amounts of butterfat.

Dairy cows have four stomachs and need a variety of plants to thrive. Plants are predigested in the first stomach, the rumen. The cow “burps” up some of this predigesting material to chew and rechew for 30 seconds or so, swallows it, and then “burps” up another wad of this material (called a cud). Cows can survive solely on forage crops such as **hay**, but supplemental grain such as shelled **corn** provides concentrated protein and energy, which increase their milk production. **Corn** silage is useful because it provides both roughage and grain at the same time. A cow can eat 40 pounds of corn silage a day.

### Dairy cows common in Pennsylvania



**Holstein**



**Jersey**



**Brown Swiss**



**Ayrshire**



## Horses and Other Equine

Recognizing different types of horses and other equine species from a distance is difficult because there are so many different types of breeds and species. The most recognizable differences are between draft breeds and riding and driving breeds. Draft breeds, such as Belgian, Clydesdale, Percheron, Shire, and Haflinger, are bred to pull heavy loads. Thus, draft animals tend to be larger and very muscular (particularly around the neck). Riding and driving animals, in contrast, are bred to carry a rider or pull a light carriage or wagon with some speed. They are generally not as bulky or muscular as draft types. Some riding breeds, such as the American Quarter Horse, were bred for speed and agility and have an instinct for working with cattle. Other breeds, such as Saddlebred, were bred for plantation owners and others in the South, where riders often had to be in the saddle all day long and therefore needed an extremely comfortable horse to ride for long hours. Thoroughbreds have traditionally been recognized as racing and jumper mounts. In recent years, cross-breeding with draft and mule species is producing a more diverse animal utilized as hunters, for recreational riding, and as working horses. Gaining in popularity is the miniature horse/donkey and mule species for the pleasure of riding, driving, and having as companion pets.

### Horses common in Pennsylvania



**Appaloosa**



**Belgian**



**Quarter Horse**



**Arabian**



# HABITAT MAPS

The following section includes maps of Pennsylvania indicating concentrations of farm types by county as defined by main production (more than 50 percent of sales). Each map is accompanied by icons; match these icons back to the farm type descriptions beginning on page 4.



Beef Cattle



Dairy



Poultry—Layers



Poultry—Broilers



Swine



Horse and  
Other Equine



Field Crop



Fruit



Vegetable

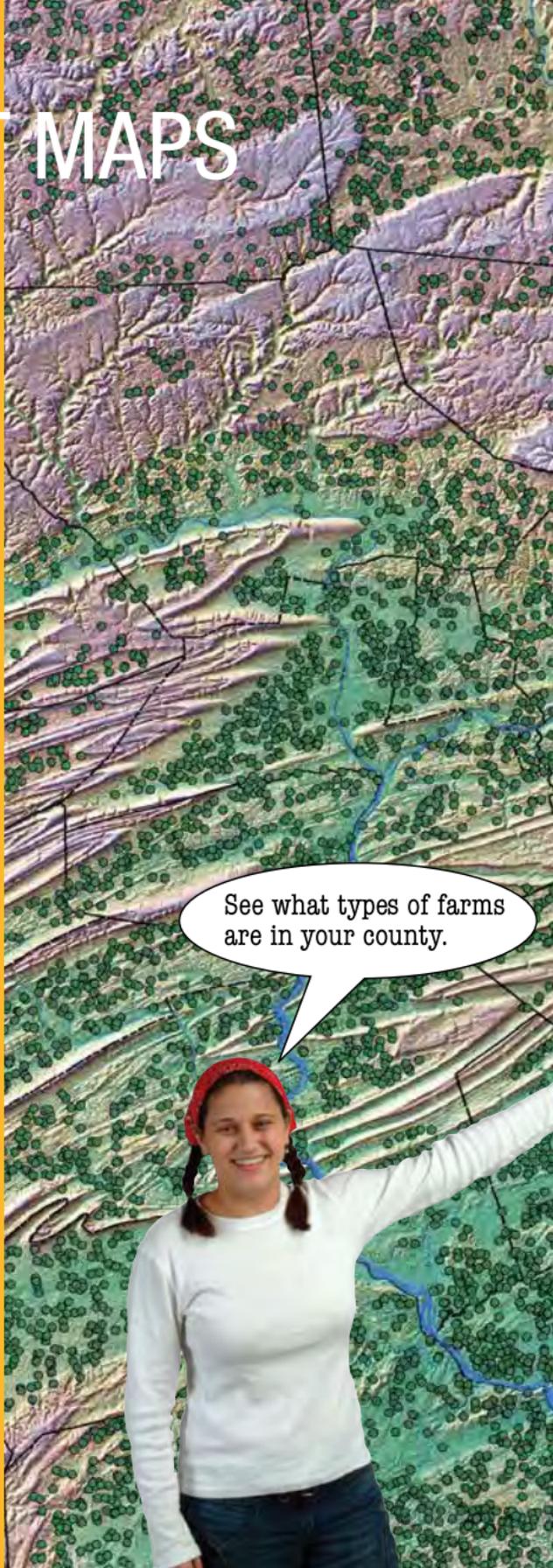


Greenhouse/  
Nursery



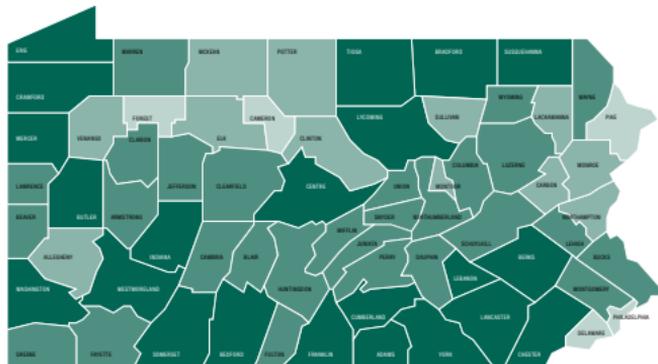
Mushroom

*The map behind our guide shows farm locations (green dots) along the Susquehanna River in central Pennsylvania.*



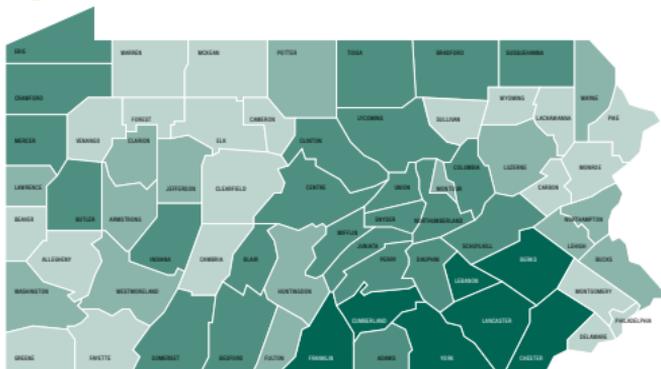
See what types of farms are in your county.

## All Farms in Pennsylvania



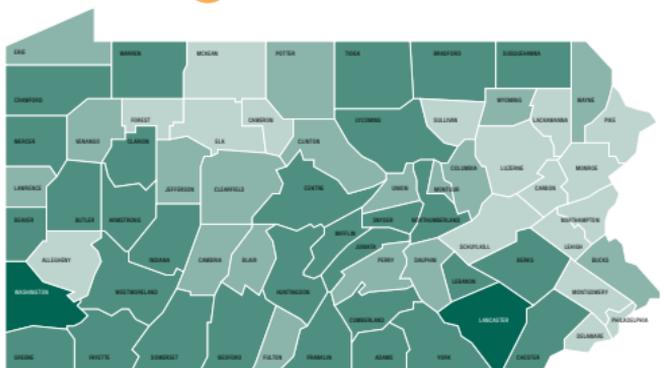
0–100 Farms    101–500 Farms    501–1,000 Farms    >1,000 Farms

## Farms with \$100,000 or More in Annual Sales



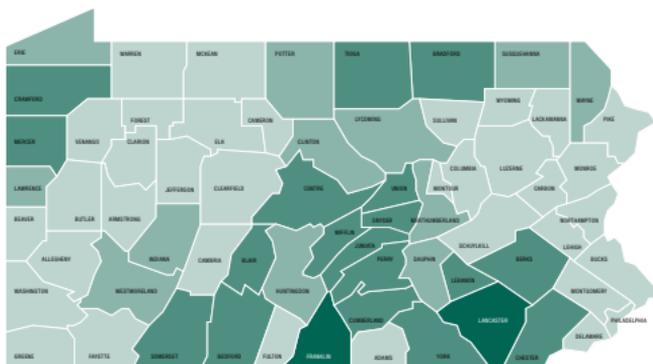
0–50 Farms    51–100 Farms    101–300 Farms    >300 Farms

## Beef Cattle Farms



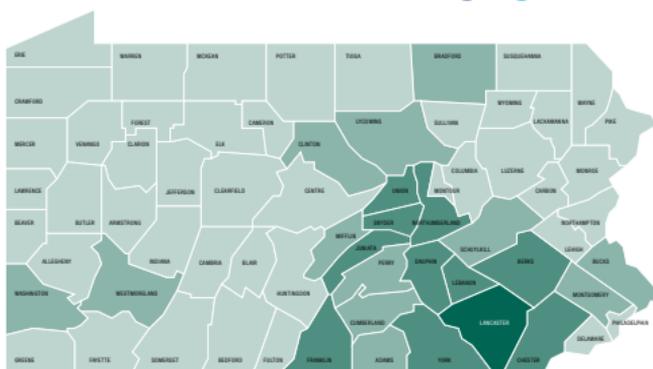
0–50 Farms    51–100 Farms    101–300 Farms    >300 Farms

## Dairy Farms



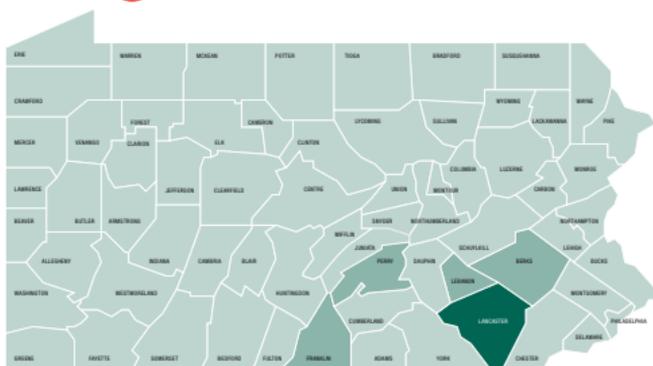
0-50 Farms    51-100 Farms    101-300 Farms    >300 Farms

## Poultry (Layers and Broilers) Farms



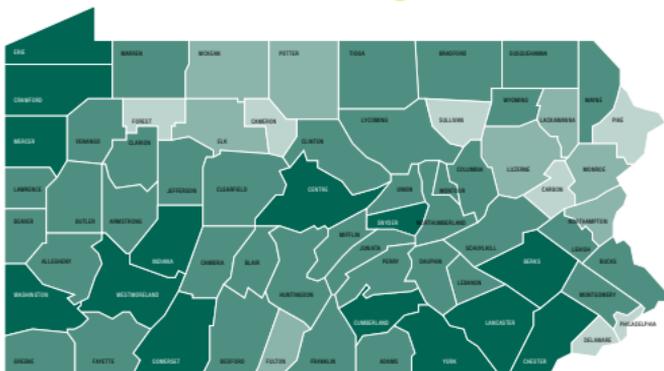
0-25 Farms    26-50 Farms    51-100 Farms    >100 Farms

## Swine Farms

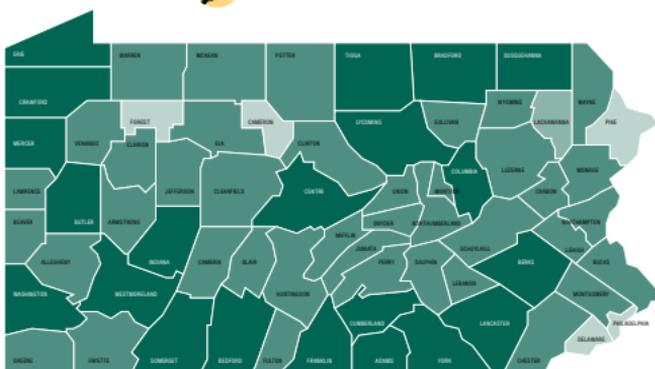


0-25 Farms    26-50 Farms    51-100 Farms    >100 Farms

## Horse and Other Equine Farms



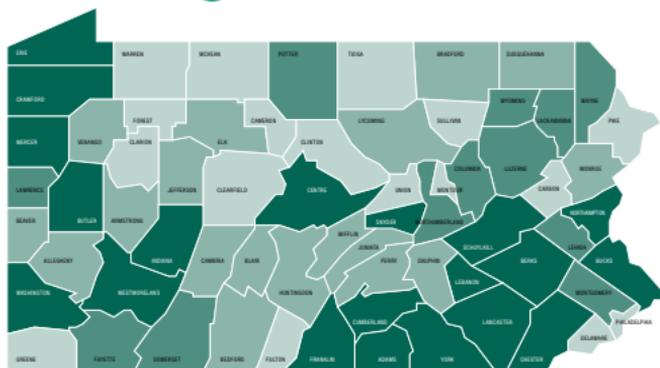
## Field Crop Farms



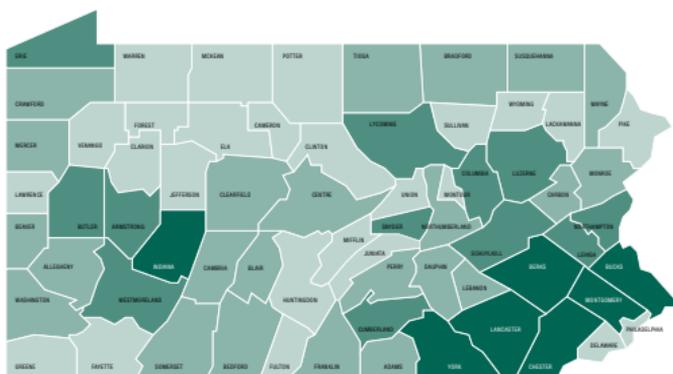
## Fruit and Berry Farms



## Vegetable Farms



## Greenhouse/Nursery Farms



## Mushroom Farms



## **Where to Learn More about Farms**

**Penn State Extension**

**[extension.psu.edu](http://extension.psu.edu)**

**National Agriculture in the Classroom**

**[www.agclassroom.org](http://www.agclassroom.org)**

**Pennsylvania Department of Agriculture**

**[www.agriculture.state.pa.us](http://www.agriculture.state.pa.us)**

**PA Friends of Ag Foundation**

**[www.pafbfriends.org](http://www.pafbfriends.org)**

**PennAg Industries**

**[www.pennag.com](http://www.pennag.com)**

**Pennsylvania Association for Sustainable Agriculture**

**[www.pasafarming.org](http://www.pasafarming.org)**

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## Penn State **Extension**

On May 8, 1914, the signing of the Smith-Lever Act established the Cooperative Extension Service, a unique partnership between the U.S. Department of Agriculture and the nation's land-grant universities that extends innovative, research-based knowledge and vital educational programs in topic areas such as animals, plants and pests, natural resources and energy, community and business, food and health, and youth and family through a state-by-state, county-based network of extension educators.

Today, Penn State Extension continues to engage rural and urban learners to help strengthen the profitability of animal and plant production systems, protect natural resources, help people make healthful lifestyle choices, ensure a safe and abundant food supply, encourage community vitality, and grow the next generation of leaders.

An aerial photograph of the Penn State University campus, showing various brick buildings, parking lots, and green spaces. In the foreground, a young woman with braided hair, wearing a red headband and a white long-sleeved shirt with "AGRICULTURAL SCIENCES" and "PENN STATE" printed on it, stands with her hands on her hips. A white speech bubble with a black border is positioned above her, containing text.

Find out more about  
Penn State Extension at  
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## What's in This Guide?

Hundreds of thousands of people in the United States enjoy the hobby of farm watching. Identifying and observing farms and farm activity provides endless joy and can make living in or visiting the country even more pleasurable. This somewhat tongue-in-cheek guide is intended as an amateur's introduction to farmology—the study of farms and farming. It will help you understand the farms and farm activities you may observe in your own community and gain a deeper appreciation for agriculture.