



Pennsylvania State Historic Preservation Office
PENNSYLVANIA HISTORICAL AND MUSEUM COMMISSION

PA State Historic Preservation Office (PA SHPO)

Agricultural Resources of Pennsylvania, c1960-1980: An Era of Specialization and Expanded Amish Presence

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Agricultural Resources in Pennsylvania MPDF:
Agricultural Resources c1960-1980

Introduction

This document provides information about for Pennsylvania agricultural resources that date to the 1960-1980 period; it should be used in conjunction with the [Agricultural Resources of Pennsylvania, c1700-1960 MPDF](#). A need for this document has arisen as more resources qualify as historic under the National Register 50-year window. As well, the extension to 1980 anticipates the inclusion of more resources as time passes.

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Historic Farming Systems

Products

For this revision to the MPDF, the period 1960-1980 was chosen for several reasons. 1960 is where the original MPDF ended, but the next two decades witnessed some fundamental changes that justify the ending at 1980. Specialization and a growing Plain Sect, largely Amish, presence were the two key developments of the period. Once the 1980s arrived, widespread economic crisis in agriculture, more environmental regulation, changes to immigration policy, and the rise of the organic movement brought in yet another era. The year 1980 is at present outside the National Register 50-year window but resources will become eligible rapidly.

Between about 1960 and 1980 Pennsylvania agriculture entered a new phase. A pronounced decline in Pennsylvania farm numbers continued, as did the farming percentage of the population. Likewise the total amount of the state's land in farms dropped from about 11.86 million acres in 1960 to 8.3 million in 1982.¹ The average farm size rose from 119 to 153 acres; this increase was less than it might have been because so much farmland was simply taken out of production through abandonment, reforestation, or development. Competitive farming conditions, rising employment rates for women, and continued men's off-farm employment made more farms than ever dependent on nonfarm income. (By the twenty-first century, only 10 percent of Pennsylvania farms would generate all their household income from farming.)² Off-farm employment both responded to production trends and shaped them.

The most striking trend of the period was toward specialized production. Specialization was pervasive. It was accompanied by ever greater capital expenses on inputs: feed, livestock, hybrid seed, fertilizer, pesticides, herbicides, equipment, labor, professional services, medications, and so forth. Even on relatively small-scale operations diversification diminished to almost a vanishing point. For example, in

¹ The agriculture census switched from in-person interviewing to mail survey after 1954, and the 1974 definition change of "farm" was the eighth. The wording used was "any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year. A place not having sufficient sales to qualify as a farm may qualify with potential sales based on livestock inventory and acres of crops harvested." ("Coverage Evaluation," US Census of Agriculture, 1992, Volume 2, Part 2, page v.)

² M. C. Hallberg et al, "Part-Time Farming in Pennsylvania and Massachusetts," *A. E. & R. S.* no. 194 (September 1987); Linda Lobao and Katherine Meyer, "The Great Agricultural Transition: Crisis, Change, and Social Consequences of Twentieth Century US Farming," *Annual Review of Sociology* 27 (2001): 103.

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1960 sixty percent of Pennsylvania farms had milk cows; by 1982 only a third had milk cows, and most of these were classified as dairy farms. In 1960 forty percent of farms had hogs; in 1982, only eleven percent. Southern competition hit the Pennsylvania poultry business hard. In 1960 over half of Pennsylvania's farms had poultry; in 1982, only fifteen percent of farms had poultry, and only three percent of the state's farms specialized in poultry. In the fruit regions, general fruit production gave way to a more exclusive focus on apples (in Adams County). In Erie County grape vineyards and orchards continued, but small fruits and vegetable truck crops declined. Across the state the number of different farming specialties also became fewer. Potato and cannery crop production in the state plummeted. Nurseries and greenhouse productions, maple syrup, and sheep occupied ever smaller slices of Pennsylvania's agricultural sector.

An indication of how pervasive specialization had become was a shift in the Census Bureau's way of classifying farms. The 1959 census (here called 1960 for convenience) retained an older classification of "commercial" and "non-commercial," with the threshold being whether a farm had more than \$2,500 in sales. Only the "commercial" farms were categorized by specialty. That left 41 percent of all farms simply categorized as "part-time, part-retirement, or abnormal." Implicitly they were diversified operations. By 1982, the census bureau had switched to a Standard Industrial Classification (SIC) system. All farms were considered specialized and put into classes based on what specialty accounted for at least half of farm sales, regardless of amount. Only five percent of Pennsylvania farms were classed as "general" in this scheme – that is, not having one specialty that garnered at least half of farm sales.

Thus, by the 1980s specialization was present no matter where a farm stood on the continuum between larger-scale, high-producing, high-investment, high-input farming and its opposite. At the high end, farms typically eliminated all but one or maybe two enterprises. At the other end of the spectrum, smaller scale diversified farms also narrowed down, but they chose specialties that demanded less labor and lower capital inputs, such as seasonal cattle feeding or raising hay. So, specialization occurred at both ends of the farm spectrum but in different ways.

Another trend of note is the increasing influence of the "agricultural establishment" -- the combined forces of the land-grant university system, government programs, and agribusiness. Of course, these

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were already well established, but arguably their power increased many fold as capital-intensive, mechanized, specialized farming became the norm, and as regulations and various government farm programs proliferated. Scientific and technical knowledge became more important than ever. Agribusiness especially took a more prominent role. For example, vertically integrated poultry corporations supplied expertise that in an earlier era would have come from the land-grant system.

If we look more closely at the pie charts for 1960 and 1982, we can make a few inferences about production patterns, even if it is hard to compare directly. Shifting proportions probably arose from two factors: the new classification, and an overall decline in dairying. The increase in “Livestock, except dairy, poultry...” occurred partly because this category now included many small farms formerly lumped with the “noncommercial” group. These operations raised calves or beef cattle. For example, the Washington County extension agent reported in 1964 that farmers there grazed beef calves because it “fits into off-farm managers’ programs.” In 1968 in Bedford County, many beef cow-calf operations were run by operators who had full time off-farm jobs.³

Another reason livestock farms claimed a bigger proportion by 1982 was that so many farms went out of the dairy business, pushing the overall percentage of dairy farms down. In Bedford County, for example, in the late 1960s already many beef farms were former dairy farms. The reason was the intensified competition in dairying, a result of many factors including lower per-capita consumption (mainly due to fewer children and more soft drinks). Though dairy farm operators produced hay and silage on the farm, they had to sink more and more money into purchased feed and many other expenses. For example, the average value of farm machinery (adjusted for inflation) rose more than twentyfold between 1945 and 1978. Federal price support programs could not outpace the cost-price squeeze and many dairy farms went out of business. Some shifted production to field crop (mainly hay), cash-grain, or raised non-milking livestock.⁴

³ Washington County Agricultural Extension Report, 1964; Bedford County Agricultural Extension Report, 1968. Penn State University Archives.

⁴ Bedford County Agricultural Extension Report, 1967, 11. Penn State University Archives. National Agricultural Statistics Service, 2007, “demographic,” Slide 57.

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The proportion of farms specializing in crops (cash grain or field crops other than cash grain, in PA primarily hay) jumped from about 3% of the total to over a third. The new classification system explains some of this shift, since many formerly non-commercial farms only raised crops or hay. As well, some dairy farms probably got rid of livestock altogether but still produced crops. In some ways, agriculture was reverting to the old colonial days when crop and livestock farming were not integrated. Now that artificial fertilizer made livestock (i.e. manure) unnecessary, producing crops alone was feasible. In addition, the number of different crops declined. Corn became much more dominant, mainly because wheat and oats declined.⁵ The increase in soybean acreage occurred after 1980.) Hay accounted for a high percentage of cropland. Over time these farms would account for an even higher percentage of the state's farms but a small portion of overall farm revenues.

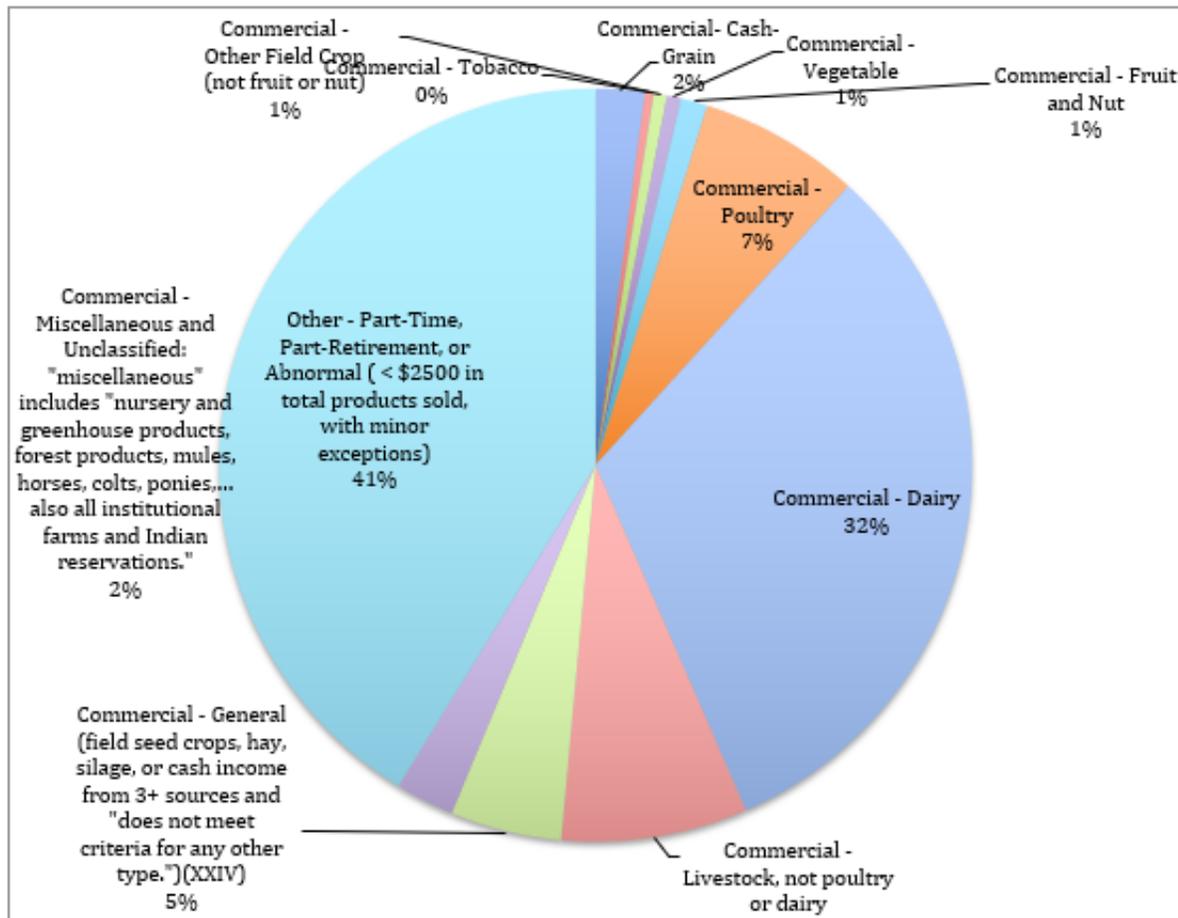


Figure 1: Pennsylvania Farm Types, 1959. State Table 19, pg. 92.

⁵ Bedford County Agricultural Extension Report, 1968.

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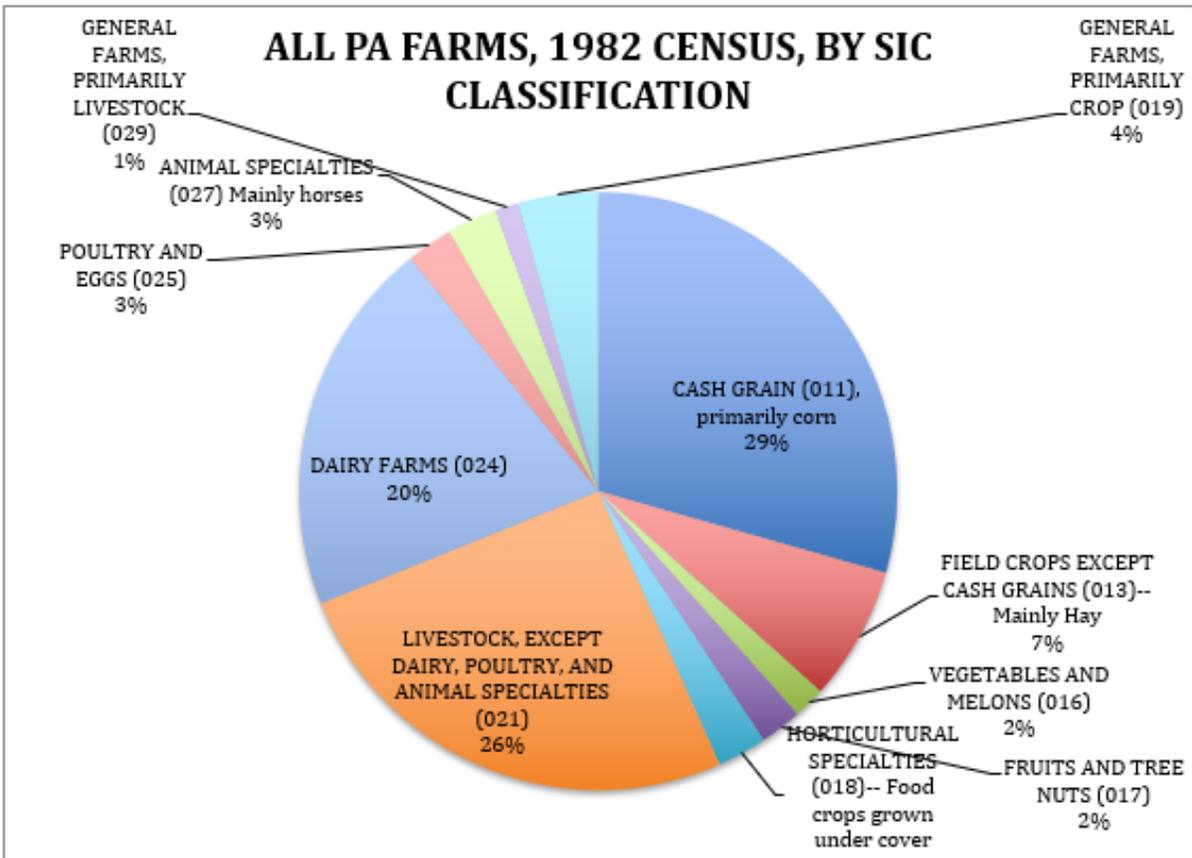


Figure 2: Pennsylvania farms in 1982 by Standard Industrial Classifications. U.S. Census of Agriculture, Pennsylvania 1982, Table 15.

These figures still do not tell the whole story. Within the dominant agricultural specialties, the gap widened between large-scale, high-producing farms and the rest. By the 1980s the poultry business was vertically integrated; Pennsylvania production was so concentrated that just over two hundred poultry operations (out of 1,700 specialized poultry farms) produced over 80 percent of the state’s broilers. This was a drastic change from even a generation before when York County had achieved a leadership position by producing under ten percent of Pennsylvania chickens through the accumulated output of over two thousand farms. Concentration in dairying was not as extreme, but even so larger herds (over 200 cows) contributed disproportionately to the milk output.⁶ The gap was wide between these relatively large-scale operations and the rest.

⁶ John A. Cross, “Restructuring America’s Dairy Farms,” *Geographical Review* 96 (January 2006): 1-23; National Agricultural Statistics Service, 2012, “dairy,” Slide 11; “Will your farm survive agriculture’s mega-trends?”

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Regional differences were still present, but (outside the two fruit belts) they were much attenuated from before. A regional map for this period would now have large swaths where agricultural activity was minimal, either because of abandonment or development. The potato regions (Lehigh and Potter) would be essentially gone. What agricultural “regions” existed now were much less distinctive than earlier ones. This was because there were so few products, because building techniques and landscape practices were more standardized, because distinctive local markets were less important than before, and because (except for the Amish) cultural practices no longer contributed visual layers that made for uniqueness.

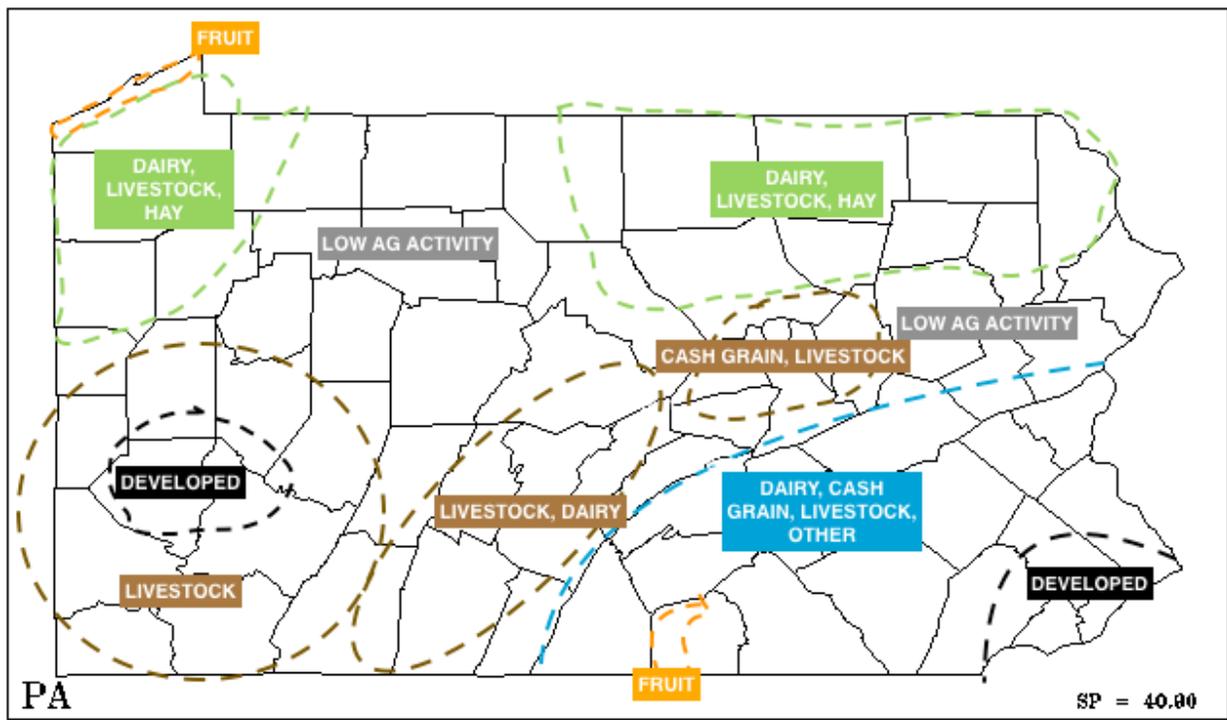


Figure 3: Draft map of agricultural regions, 1982. Based on leading SIC classifications in each area.

The draft map shown above roughly delineates these areas. The regions derived their character loosely, from just a few factors: land use patterns, agricultural specialty, and scale. The term “scale” includes not just acreage but also the level of capital inputs. Within a given region farm resources from this

Pennsylvania Farmer n.s. 212 (April 27, 1985): 20-21; Carolyn Sachs, “The Changing Structure of Agriculture in Pennsylvania,” *A. E. & R. S.* no. 156 (February 1982): 9, 17, 20-21; National Agricultural Statistics Service, 2012, “demographic,” slide 61; Timothy Kelsey, *The Joy of Farm Watching: a roadside guide to Pennsylvania agriculture*. (Penn State College of Agriculture, 2014), 36.

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period might vary quite a bit depending on specialty – a dairy farm and a hay farm in Bradford County, for example. Conversely, a dairy farm in the Northern Tier might share more with a dairy farm in Chester County than with a hay farm down the road.

Another important point is that every region would have some farms in each major specialty. Thus, specialization shaped farms' appearance more than location.

With these caveats, regional patterns sorted out as follows. In the former Northern Tier and Northwest, dairying was the top specialty, followed by livestock and then hay. These specialties coincided with land-use patterns that emphasized hay crops and pasture. In the former Susquehanna Lowlands, cash grain and livestock farms were the first and second most numerous specialties respectively, and land use focused more on grain crops. In the former Central Valleys, it was livestock (raising cattle and calves) and dairy. In the Southwest livestock predominated, with hay and pasture being the dominant land uses. The two fruit areas remained intact: they were already specialized and became more so. Finally, the southeast (combining the former Great Valley, York/Adams, Lancaster, and Southeast) had the most capital intensive and productive farms, with dairying the top specialty followed by cash grain and livestock. Where land use was concerned, grain crops here were much more important than hay; pasture was on the decline.

Labor and Land Tenure

Historical patterns of labor continued in that family members still made up most of the agricultural work force. Arguably the pace and extent of mechanization accelerated during these years; in every agricultural sector there was an urgent drive to reduce human labor costs. The nature of labor shifted as most operations were mechanized, but long hours and physically taxing work were still common. Gender roles still entered into household labor division; in the 1960s, for instance, advertisements and oral interviews suggest that women's work of cleaning milk cans carried over to the bulk tank era. An advertisement in the *Pennsylvania Farmer* for January 1961 showed a woman wearing a dress and high heels, pushing a button on a "self-cleaning" bulk tank.⁷ Within the family, off-farm work was the norm;

⁷ Ad for Zero Bulk Milk Cooler, Washington, MO, *Pennsylvania Farmer*, January 14, 1961, inside cover; Sidney Barnard, "Cleaning Your Bulk Tank," Penn State Agricultural Extension *Leaflet* no. 312 (1967).

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husband, wife, or both held jobs. Children did farm work too. On Amish farms children furnished more labor power since there were typically more of them, and the Amish school system stopped after the eighth grade. Children who had finished school still learned in a semi-structured way, but worked more hours than typical non-Amish farm children.

Wage workers also supplied critical farm labor power. In 1967 Lancaster, Chester, and Adams were the top three counties in terms of total “dollars paid to hired farm labor.” Immigrant farm workers had long worked in the fruit and mushroom industries. By the 1960s their presence in Potter County’s potato and cannery crop area was much diminished. In the grape belt, the appearance of a mechanical grape picker in the mid-1960s transformed the business, enabling growers to eliminate multitudes of workers.

Pneumatic shears and pre-pruning machinery expedited the pruning process. A few seasonal laborers still worked in the vineyards, but overall their presence was diminished. In the orchard region operators relied more on trucks, tractors, spray rigs, forklifts, and eventually computers to further reduce human labor. However, the apple harvest still required hand picking so seasonal workers were still important.

Despite these changes, which reduced overall the numbers of immigrant workers, migrants comprised a greater percentage of the seasonal farm labor force than before. A major shift occurred in the workers’ origins. Southern African Americans withdrew from the migrant stream and workers from other places replaced them. These included people from Caribbean nations, from Puerto Rico, and from Mexico.

Increasing numbers were undocumented. No comprehensive research has been done on Pennsylvania migrant housing, but existing field work suggests that architecturally, migrant ethnic background had at most an ephemeral architectural effect during this period.⁸

Where land tenure was concerned, full tenancy was much less prevalent than in the past. Many farm owners would rent additional land so that they could farm enough acres to operate a larger scale operation. “Custom” farming through selective land rentals would not necessarily change the built

⁸ Master Farmer profile, John Pitzer, *Pennsylvania Farmer* n.s. 182 (January 10, 1970): 23; Catherine Cason et al, “Health and Nutrition of Hispanic Migrant and Seasonal Workers,” Center for Rural Pennsylvania, 2004; *Pennsylvania Migratory Labor Program*, 1965, 1964, 1971; Adams County Agricultural Extension Report, 1960, 7, 12; 1967, 7. Later, after the 1986 immigration law especially, rentals on the private market would replace employer-provided housing in many instances.

environment, but where outright purchases occurred, farmsteads might be abandoned or severely altered to serve non-agricultural purposes.

Buildings and Landscapes

Because regions were now less important than agricultural specialty in shaping buildings and landscapes, the following discussion is organized by specialty rather than by region.

Dairy Farms

In the early twentieth century, dairy farmsteads had been shaped by fluid milk markets and also by new sanitation regulations requiring features such as the milk house, manufactured metal barn windows and ventilators, concrete barn stable floors, and metal stanchions. By the late twentieth century universal pasteurization and animal disease eradication campaigns had radically improved milk's safety for human consumption. Sanitation regulations still held, but now the most important drivers of landscape change had shifted. Specialization and pressures for cost-efficiency now led the way. In the wider dairy world, significant architectural innovations were radically changing the dairy landscape. These were generally undertaken by the largest and best capitalized operations and often located outside traditional dairy areas – in the US South or West. In Pennsylvania there were few really large dairy farms, so these innovations were less often adopted wholesale but more apt to be combined on a mix-and-match basis with less current forms depending upon distributors' demands, existing plant, herd size, and capital and labor resources.

Conventional Stall Barn (Wisconsin style dairy barn; stable barn)

This barn type appeared before our period, but in Pennsylvania new ones continued to be built between 1960 and 1980. It is known variously as a Wisconsin Style Dairy Barn, Stable Barn, or Conventional Stall Barn. (This latter term developed after the "free stall" barn appeared.) This is a specialized barn type focused solely on dairy production. Usually it is built on a level (not banked.)

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Figure 4: Conventional stall barn, intersection of Route 68 and Over Road, Reidsburg, Butler County, photographed 2005. US topo maps suggest that the barn, metal shed, and at least two of the silos were built between 1969 and 1981.



Figure 5: Conventional Stall Barn, Steamburg Road at SR 4001, Crawford County, photographed 2005. Present on 1959 aerial and topo.

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Figure 6: Conventional stall barn, Erie county, photographed 2008. Exact location unknown.



Figure 7: Conventional stall barn, Washington County, c. 1960. Key # 802240.

A typical plan would have two rows of stanchions running lengthwise, often facing outward with a central “litter alley” and feeding alleys along the outer walls. Rows of windows in the long walls admitted natural light. Stanchions were metal restraints that kept a cow in a single spot. She always had access to food and water but could not wander at will. The stanchions were set into a concrete

floor with gutters for manure. Larger pens for calves or sick animals might be situated at one end of the barn. The arched roof created a very large open volume for hay storage. Silos would be sited nearby for efficient transfer of silage to animal quarters. A milk house would usually be located convenient to both the farm lane and the barn. Cows could exercise in a yard or pasture. An example in Washington County (survey 802240, see image) appeared between the 1958 and 1967 aerials. The other examples shown here share characteristics with the Washington County example: scale, concrete block construction, and form. These large barns probably represent the top quarter of all dairy farms in terms of milking cow numbers (fifty or more). They may have accommodated heifers and calves, which would not be included in the milk cow tally.

Even as people continued to build these conventional stall barns, research and economic trends were combining to render them out of date. A sweeping new system radically changed ways of handling cows, milk, feed, and shelter. The new spatial organization overlapped with the older one; the newer practices had appeared in the 1950s but in Pennsylvania were not widespread before 1960. In the most up to date operations, a carefully coordinated, horizontally organized complex replaced older buildings. Components of the system included: the free stall barn, feeding area, paved yard, holding area, milking parlor, and bulk tank milk storage. Young stock were often segregated in separate buildings. The architectural changes were directly connected to the rise in average herd size, since only with additional cows could they be financially justified.⁹ The following discussion first describes the individual elements; then explains how they all fit together; then shows examples of (mostly piecemeal) adoption in Pennsylvania.

Loose Housing

A landmark study from the University of Wisconsin (published in 1953) compared the prevailing stanchion system to “loose housing.” These were one-story pole-style buildings (see discussion of pole construction below) with shallow-pitched gable roofs and roof truss systems that permitted a large covered open space uninterrupted by vertical posts. Often one long side was left open. In loose housing, the cows had access to an open resting area (sometimes called a “loafing shed”). They had free access to feed troughs or bunkers. At milking time, they moved in small groups to a specialized milking

⁹ Charles Forney, “Dairy Housing and Herd Expansion,” *Pennsylvania Farmer* n.s. 165 (November 11, 1961): 7.

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parlor. The study found a number of advantages to the loose housing system. The animals thrived better because they exercised more (and even so they gained more weight). They had fewer injuries because they were not constantly in contact with concrete. Labor was reduced also because the horizontal layout and large aisles allowed mechanization of cleaning, feed moving, etc. and because the animals didn't have to be herded in and out of stanchions. The quality of milk was better than in conventional system because the small parlor space could be cleaned more thoroughly than the stanchions where cows stayed all day.

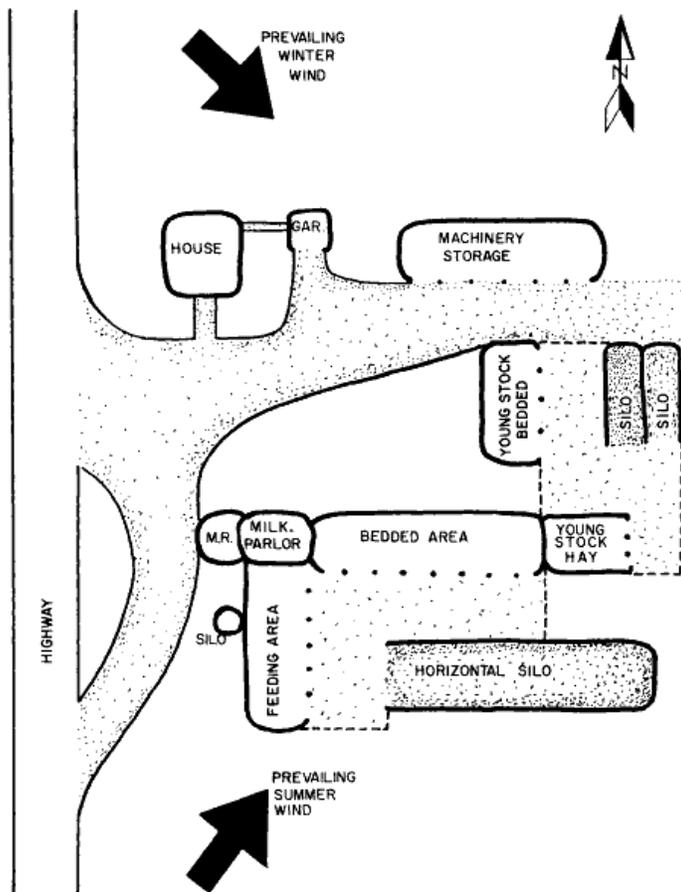


Figure 8: Loose housing bubble diagram. J. T. Clayton et al, "Farmstead Engineering for Dairy Farms," Cornell Extension Bulletin # 1039, 1960.

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Figure 9: "Aerial views of farms in Clinton, Mifflin, and Centre Counties showing loose housing. December 1961." Penn State University Archives, Agricultural Extension photos.

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Free Stall Barn

Before long a modification to the loose housing system became more popular. This was the “free stall” barn. In free stall housing, cows were still allowed to move about, but instead of congregating in an open area they rested individually in roomy stalls separated by partitions and lined with bedding material. Many “loose” housing units were converted through the addition of stalls. The Greene County agricultural agent reported in 1963: “at the present time there is great interest in the construction of free stalls in dairy loafing barns. This practice is being adopted very rapidly. Some of our leading dairy farmers are constructing stalls at the present time.” It seems that this shift took place because regular manure removal was easier with the free stall arrangement, because inter-cow conflict was reduced, and because in a free stall system the animals were “cleaner ... with less bedding.” As the Adams County extension agent wrote in 1964, “the shortage of bedding and the strict requirements of milk companies for herd cleanliness are two reasons for the trend to free stalls from loose-housing systems.”¹⁰ (Interestingly, though, a 1966 study found that the animals themselves preferred the loose housing if given a choice.)¹¹

Historical nomenclature for these various arrangements can be quite confusing, and the same is true for identifying these resources. The term “stall barn” (also called “conventional stall barn”) often was used to refer to the old-style stanchion barn. This is a bit of a misnomer because the individual cow stanchion areas were narrower and not usually separated by partitions as stalls would be, and of course the animals were tied up. The term “loose housing” usually meant an open shed with no stalls at all, but occasionally it was used to refer to housing with free stalls, presumably because the animals were “loose” when not being milked. Penn State Extension Special Circular 73, for example, was titled “Loose Housing for Dairy Cows,” but nearly all its examples featured free stalls in various configurations. The term “free stall barn” is less ambiguous.

¹⁰ Bedford County Agricultural Extension Report, 1968; Greene County Agricultural Extension Report, 1963; “Loose Housing for Dairy Cows,” Penn State Agricultural Extension Special Circular # 73, no date, page 12; Adams County Agricultural Extension Report, 1964, 15.

¹¹ W. L. Schmisser, et al, “Animal Behavior Responses to Loose and Free Stall Housing,” *Journal of Dairy Science* 49 (January 1966):102-104.

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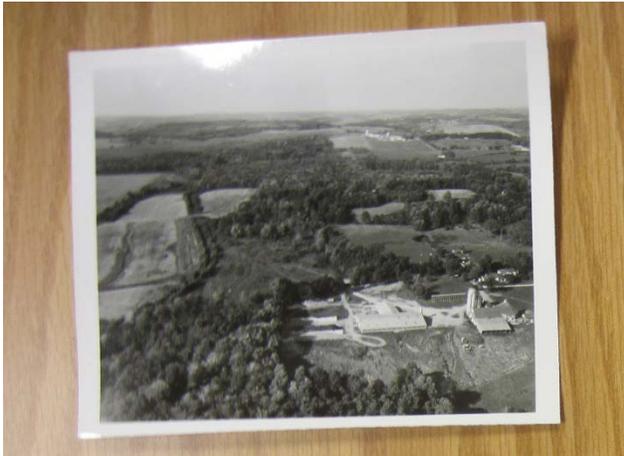


Figure 10: "Free stall dairy housing, Woodbourne Farm, Susquehanna County, October 1968." Penn State University Archives, Agricultural Extension photos.



Figure 11: Free stall barn, Lebanon County, North Cornwall Township, site 075-NC-001. About 1960-70. (appears on c 1970 aerial and after 1955 topo).

Free stall barn exterior design and placement were very similar to "loose" housing; the main difference was the interior layout. Pole construction was most common, though some had concrete block walls. The pole structures were built with lightweight metal and treated-wood frames, uninsulated, and often with lightweight metal cladding and sometimes operable curtain walls on at least one side. Inside, the cows were permitted to move about and could feed at any time. In the Northern states, free stall barns often combined feed storage, feed racks, milking parlor, and milk house under a single roof. This saved construction costs and meant that workers could stay protected in cold weather. Milk production and

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quality were comparable but labor costs significantly lower with the newer arrangement, because bedding, feed, and manure could be moved about by machine, and the cows partly fed themselves.

The pole style construction of the new free stall barns represented a departure from the past. Pole construction was an apt exemplar of the new era of cost-cutting and rapid change, accelerated by wartime shortages. As early as 1949 the Penn State extension agricultural engineers were receiving requests for help with “new pole barn construction which originated in the middle west,” according to the Crawford County extension agent report for that year. “This is the first of its kind in the area,” he wrote, “and is important in that it is being built entirely without help from professional builders.” Pole barns proliferated in the 1960-1980 period. As their name suggests, these structures were made of slim, lightweight poles supporting a shallow-pitched roof. Cladding might be metal, board, or even plywood. Pole buildings became popular because they were inexpensive and flexible. As single-story structures, they had a safety advantage in that hay was generally stored in a separate building, thus reducing danger of fire. The pole barn even fit in with the contemporary trend toward greater reliance on chemicals: often the wooden poles were pressure-treated lumber so that they wouldn’t rot while in contact with the earth.¹²

Pole construction did undergo some changes over time, though as always there was overlap as older techniques continued while newer ones were appearing. In general, the combination of cost, technology, and the changing scale of farming meant that pole barns could and often did get wider, longer, and higher over time. In general, round posts treated with creosote were used earliest, in the 1950s and 1960s in Pennsylvania. Then a shift took place to square, pressure-treated posts. By the 1970s and 1980s, laminated posts appeared, made of multiple thinner members glued or mechanically tied together. Lamination allowed for greater heights. Earlier pole barns would have interior poles, but soon the poles were eliminated because truss systems allowed for clear span interiors without poles. Very wide clear spans were technically possible already in the 1950s, but in actual practice the expense and technical difficulties typically limited clear spans to about 40 feet in the 1950s and 60s, rising to 60 feet in the 1970s and to 80 feet by the 1980s. These trusses had many configurations and materials. They were either prefabricated or assembled on site. They were put together with nails, bolts, metal

¹² Roger Grout, “Construction of Pole-Type Buildings,” Penn State Agricultural Extension *Circular* no. 437 (1954)”

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plates, or rings. By the 1990s more “engineered structural wood products” such as “glulam” and laminated veneer lumber (LVL) were being used. Also, by this time few farmers were building trusses on-site; trusses typically were manufactured in two parts in a factory, shipped to the site, and connected during construction. As for cladding and roofing, corrugated galvanized metal was common in the 1950s and 1960s but gave way over time to metal (often aluminum) claddings that were thinner, differently folded, and often painted. By the 1990s some cladding was vinyl.

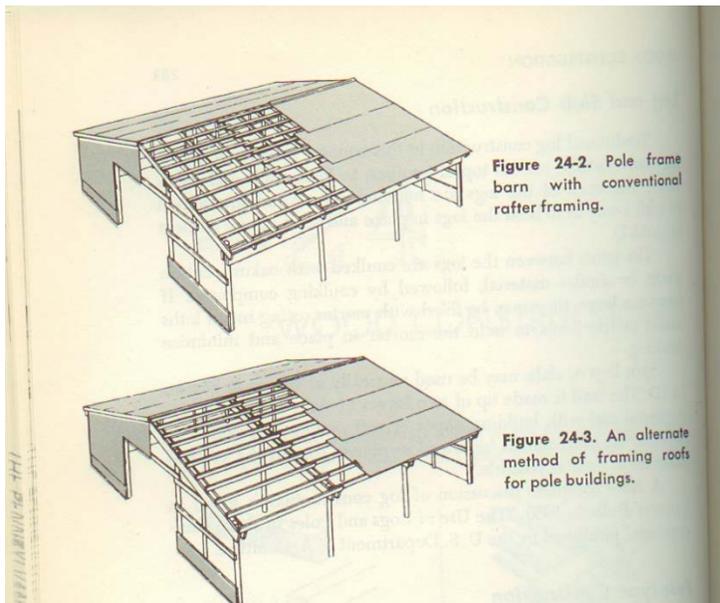


Figure 12: Pole construction diagram. Wallace Ashby et al, *Modern Farm Buildings*, (Englewood Cliffs, NJ: Prentice Hall, 1959), 282.

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Figure 13: Free stall pole barn, York County. *Pennsylvania Farmer* July 25, 1970. Note Harvestore silo.

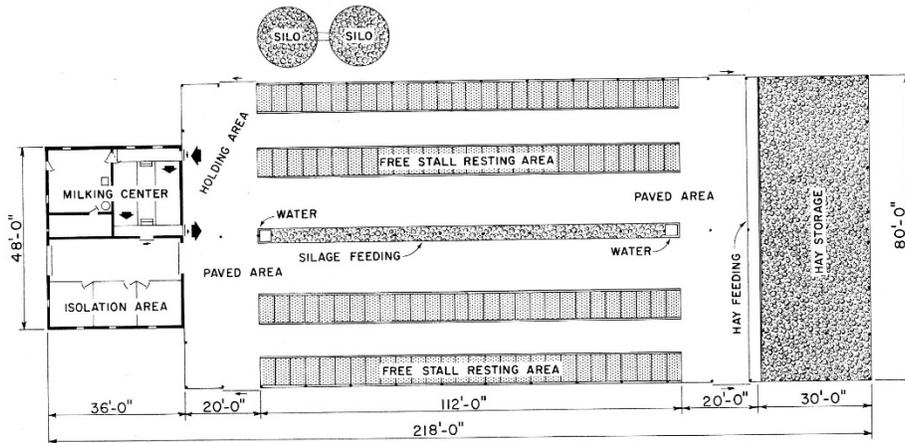


Figure 9

Also completely covered is this 80 foot wide layout. Expansion of resting area with free stalls and silage feeder can occur through and beyond the hay storage. Wide cross-alleys are helpful to maneuver tractors when scraping manure. Manure loading or storage facilities are not shown.

Figure 10

Feeding areas are separated from resting areas by a paved alley. Straight line cleaning with few corners help reduce scraping time.

When evaluating a layout, consider if it can be rotated or reversed to best fit the site. Consider also flexibility to change feeding practices or size of operation.

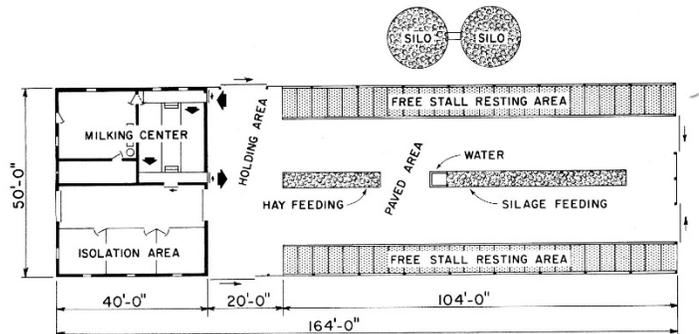


Figure 14: "Loose housing layouts for dairy cows," Penn State Agricultural Extension Special Circular # 73, no author or date, p. 9. These plans show free stall layouts.

Bulk Tank Storage

Already in the 1950s some markets would only issue "A" grades to milk delivered from large stainless-steel "bulk tanks" instead of milk cans. Rather than shuttle multiple full and empty milk cans back and forth from farm to truck to processing plant, the milk collector now pumped milk from a large farm bulk tank directly into a bigger tank mounted on a truck bed. The shift usually assumed machine milking and

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electric refrigeration. It saved distributors' costs and hard human labor, especially in wrestling with heavy cans. Architecturally the bulk tank's impact was to put the old milk house on a path to obsolescence. The term "milk house" remained in use, only now it referred to the room where the bulk tank was kept. This might be an adapted older milk house, or an entirely different space, often associated with the parlor.



Figure 15: Conventional stall barn with bulk tank house, Morris Township, Tioga county, c. 1955. Site 117-MO-002. The oral history collected at the site says the first barn on the site burned in 1954. Addition at left c. 1999 (Google Earth).

Milking Parlor

The milking parlor was another key element in the new system. This was a dedicated space for milking, designed so that the cows filed in from the barn in one direction, were milked in small groups in specially designed stalls, and exited in another direction. Often the parlor design organized the cows on an elevated platform around a pit, from which workers could reach the udders without bending down. Popular parlor arrangements included the "herringbone," where stalls were arranged in a slanted

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pattern, and perpendicular ones where stalls were at right angles to the milkers.¹³ (See the illustration from Penn State Circular 73.) While they were milked, cows were fed concentrates, which often came from a metal bin located near the parlor. Milking parlors were generally low, well-lighted, fairly small buildings with shallow-pitched gable roofs, usually made of concrete block. They might be attached to the barn or integrated into it. Milking parlors could be used with conventional stall barns but worked better in conjunction with the free stall system. They were often adopted at the same time as the bulk tank, because it was usually cheaper to connect piping to a bulk tank adjacent to the parlor than to run lines from the barn stanchions to bulk tank.



Figure 16: Milking parlor (right), cow shed (left), and trench silo (foreground), Peters Township, Franklin County, site 055-PE-002. All three were present by c. 1968 (topo map). Note the grain bin, which would have contained concentrates for feeding at milking

¹³ Ray Dankenborg and Bill Hardy, "Herringbone Milking... It's Moving Fast." *Farm Journal* 83 (January 1959): 26-7; Adams County Agricultural Extension Report, 1969, 7.

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Figure 17: Milking parlor, Peters Township, Franklin County, Site 055-PE-002, c. 1960-1968.

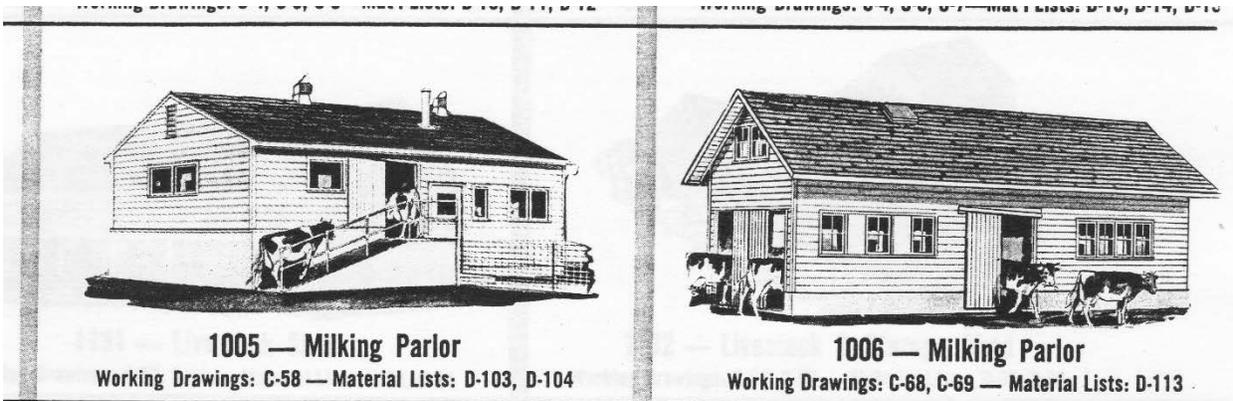


Figure 18: Milking parlor designs, undated Weyerhaeuser catalog.

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Figure 19: Milking parlor (right) and pole style free stall barn (left), Straban Township, Franklin County, site 055-ST-004, after 1971. This milking parlor was later converted to a shop.

Calf Shed, Heifer Shed

Heifers, dry cows, and calves now were often segregated in separate sheds. Often these were pole-style structures. In Chester County, for instance, the agricultural extension agent in 1970 noted that dairy farmers were looking for ways to separately feed and house them. The extension service recommended a pole barn that “incorporated ideas for; [sic] free stall housing, grouping cattle by size, fence line or bunk feeding, group feeding, easy movement and handling of cattle, and for saving labor.” A similar barn was created on a Berks County demonstration farm in 1968. Often existing buildings were converted for this purpose as well.¹⁴

¹⁴ Chester County Agricultural Extension Report, 1970; Berks County Agricultural Extension Report, 1968, 3.

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Figure 20: Calf shed, Heidelberg, Lebanon County, date unknown, site 075-HE-005. This shed is probably recent, but it does illustrate the type.

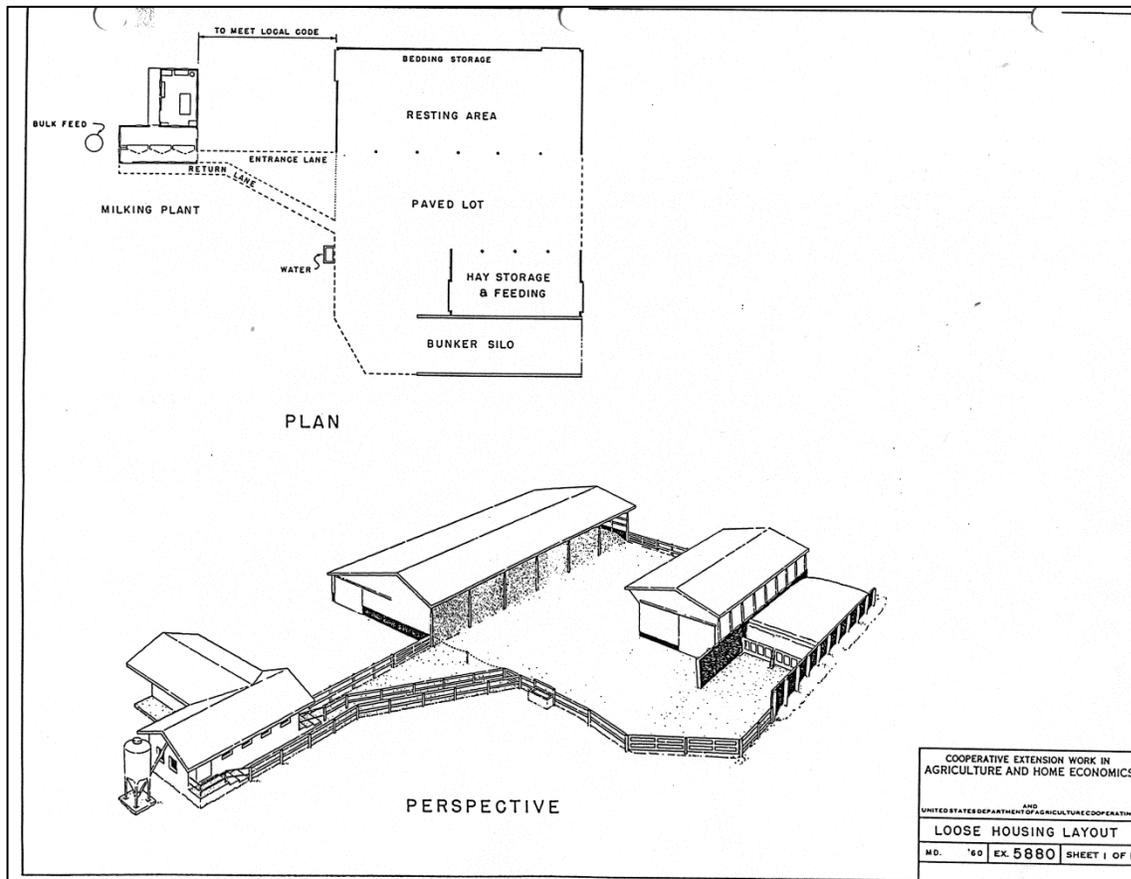


Figure 21: "Loose housing layout," USDA Cooperative Extension, 1960.

The components – free stall barn, feeding area, holding area, paved area, milking parlor – were usually envisioned as separate units within a carefully integrated system. The 1960 drawing from Cooperative Extension nicely demonstrates how the layout encouraged cows to take on some of the jobs that would be done by humans in a stanchion setup: they walked themselves to their food and drink rather than having it brought to them, and they walked themselves into the milking parlor, instead of standing still while the human milkers moved to them. When milking was finished, the cows took themselves back to their resting area. Machines could operate in the big spaces to move feed, hay, bedding, and manure, thus saving more human labor. The marked horizontality of the complete dairy setup is significant: feed storage, animal shelter, and milking were all separated spatially. Even the bunker silo was horizontal. This aspect had implications for virtually any existing Pennsylvania dairy setup, because the dominant Pennsylvania barn types were all vertically organized and therefore would not fit well with this new paradigm. Moreover, with the large paved area the complex took up quite a bit of land area; finding the room could be an issue on some densely built Pennsylvania farmsteads.

Another factor kept Pennsylvania dairy farmers from widely adopting the complete free stall complex. The initial cost of a free stall setup, according to a Penn State extension circular, was “less for 80 cows or more,” while a conventional barn setup initial cost was “less for under 50 cows.” Yet three-quarters of dairy farms in 1982 had fewer than 50 cows. About 22 percent had between 50-99. Only about five percent had 100 or more cows. Even in a dairy county, Chester, just under half of dairy farms had more than fifty milk cows.¹⁵ Operating costs might complicate this equation a bit, but even so few would have been in a financial position to implement the full-blown modern free stall complex.

Available documentation suggests that because of these factors, most Pennsylvania dairy operations adopted pieces rather than the whole system. Field study conducted between 2003 and 2010 for the Pennsylvania Agricultural History Project was not focused on resources from the 1960-1980 period but did capture photographic documentation of all buildings and landscape features on the farms that were documented. More field documentation would be desirable, but in the meantime a survey of these PAHP materials furnishes examples of a mix-and-match approach. These are discussed below.

¹⁵ Penn State Special Circular # 73; US Agricultural Census, Pennsylvania, 1982, Table 17.

Piecemeal Combinations of Free Stall barns and Related Dairy Buildings



Figure 22: Conventional Stall Barn (center) with free stall addition (left) and possible milking parlor / bulk tank room (right), Hamilton Township, Franklin County, site 055-HA-002. The topo maps show the barn appearing between 1968 and 1973 but there was a large barn present in the 1957 aerial.

A complex at 055-HA-002, Hamilton Township, Franklin County shows how a conventional stall barn (aka Wisconsin style dairy barn or stable barn) (center) was combined with a free stall shed addition (left) and probable milking parlor (right). The survey form identifies the right addition as a milk house, but it is a little big for a milk house and fits with the profile of a parlor. (Compare to Weyerhauser image 1006). It could have accommodated a bulk tank.

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Figure 23: Free stall barn, Lurgan Township, Franklin County, c. 1990, site 055-LU-004.



Figure 24: Free stall barn (left), holding area (center), and milking parlor (right), c. 1990, site 055-LU-004.

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Figure 25: Site plan, site 055-LU-004, 2009.

The images above show an active dairy farm (site 055-LU-004) in Lurgan Township, Franklin County that combines an 1858 brick end barn with free stall barn and milking parlor setup. The original barn forebay was enclosed for dairy probably in the mid twentieth century. The free stall barn (photo 023) was set off to one side of the older barn. The holding area and milking parlor portion (photo 019) abutted the 1858 barn gable end. These newer buildings postdate 1971 and probably fall outside our period, but they do show the characteristics of the types, and they show how older buildings were combined with newer ones.

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Figure 26: Poultry house (c. 1940) converted to free stall housing for young cattle, Heidelberg Township, Lebanon County, site 075-HE-002.

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Figure 27: Conventional stall barn and shed-roof addition (c. 1960) to Pennsylvania forebay barn (c. 1840), Heidelberg Township, Lebanon County, site 075-HE-002.

At site 075-HE-002 in Heidelberg Township, Lebanon County, the dairy complex shows a c. 1840 Pennsylvania barn with conventional stall barn addition (c. 1960, appears between 1956 and 1970 aerials), with attached shed that may be a milking parlor or milk room. Elsewhere a pre-1940 poultry house was converted to a small free stall barn, probably for young animals.

At another site in Heidelberg Township, Lebanon County (075-HE-005, not shown here), a c. 1820 barn received numerous additions after 1960: a one-story cow shed, a gabled cattle barn, and a milking parlor. More notably a c. 1940 tobacco barn was gutted and turned into loose housing, then expanded with a one-story cow house. Several 21st-century buildings, including a free stall calf shed, were added to the complex.

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Figure 28: Free stall barns, North Cornwall Township, Lebanon County, site 075-NC-001. Aerials indicate that the nearer one dates to 1960-1970.

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Figure 29: Bulk tank room, North Cornwall Township, Lebanon County, c. 1972. Site 075-NC-001. Source: oral history.

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Figure 30: c. 2018 Google Maps aerial, site 075-NC-001. The buildings, lagoons, and bunker silos at top/center were added after 1990. The pre 1980 buildings are in the lower right of farmstead: barn with c. 1970 additions, house.

At site 075-NC-001, North Cornwall Township, Lebanon County, the 19th century barn and house are accompanied by a c. 1970 free stall barn, c. 1972 milking parlor, and c. 1972 bulk tank room. These nicely illustrate major trends of 1960-1980, but this historic fabric is overwhelmed by more recent alterations. This is a good example of a recent larger scale addition compromising overall integrity.

Silage storage



Figure 31: Cement block free stall barn with two Harvestore silos, Lower Oxford Township, Chester County, photographed 2017.

Also associated with intensive dairying were some crop storage innovations. The now-familiar blue Harvestore silo was introduced in the 1970s. Unlike other silos it was lined with glass and had other features which the makers claimed would contribute to better feed preservation and improved animal nutrition. The Harvestore was more costly (as much as double the cost) than other forms of storage and had both fans and critics. Many farm operators chose less expensive bunker silos, also known as trench or pit silos. In these simpler structures, silage was stored horizontally in a long trough, usually concrete-lined, which when full was covered with plastic. These were not new in the 1960-1980 period but they became more popular.

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Figure 32: Bunker silo, Peters Township, Franklin County, site 055-PE-002. c. 1960. (appears on aerial after 1958).

Manure containment structures

Environmental concerns led to talk of new structures in this period, but it is not clear how many were actually constructed. The total number of milk cows in the state in 1982 had dropped to about 691,000 from the c. 1905 peak of just over a million.¹⁶ Though fewer, these modern animals were more productive and more spatially concentrated than before. A growing problem developed: piles of animal waste, lots of it, all in one place. It was a difficult proposition to distribute it to crop fields when the plants most needed it. At the same time crop lands were also receiving heavy doses of synthetic fertilizer. Often these abundant nutrients (especially phosphorus) were never taken up by crops, but instead washed away. The result was environmental stress. The Chesapeake Bay watershed – covering a huge swath of central Pennsylvania – was especially affected as nutrients from runoff contributed to “dead zones,” poor water quality, and reduced biodiversity in the bay. To be sure, farming wasn’t the only culprit, but it was a major contributor to the problem. Governments wrestled with strategies for control over a forty-year period beginning with the 1972 federal Clean Water Act. Theoretically this legislation required structures such as manure lagoons and riparian buffers that would help to keep

¹⁶ US Census of Agriculture, Pennsylvania, 1982, Table 11; K. I. Chen and Jerome Pasto, “Facts on a Century of Agriculture.” Penn State Agricultural Experiment Station *Bulletin* no. 537 (January 1955), Table S28.

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excess nutrients out of the watersheds. However, because of farm lobby resistance and underfunding, actual follow-through was spotty.¹⁷ Most manure containment structures present on farms today postdate 1980, though there may be a few older ones. See the Slurry-Stone lagoon above for an example of a post 1980 manure storage facility.

Livestock Farms

Except for southwestern Pennsylvania where there were still a few sheep, farms labeled “livestock, except dairy, poultry...” were typically raising beef calves in cow-calf (mother-offspring) operations, raising beef calves alone, or feeding heifers (young females) for a nearby dairy operation. In our period most of these would be relatively small-scale operations.

Free Stall Addition to Conventional Barn

They would make use of free stall housing and such simple structures as the feeding station shown below, or free-standing hay storage sheds, corral structures, and grain bins or modern corn cribs for feed. Grain bins and corn cribs would likely be sited near the free stall barn or pen enclosures. Also, some would add a free stall shed to an older barn. Summer pasture played a role in many operations, so feed and shelter were less important than in a dairy operation. Fencing would be more prominent than in dairy operations, there would likely be fewer buildings overall, and possibly more hay barns in locations away from the central farmstead. Aerials may show a modest shift from cropland to pasture.

¹⁷ Agricultural extension reports discuss manure management beginning in the 1970s and even say that a few new construction projects have waste control projects, but there are very few specifics and no images in these files. Pennsylvania passed a fertilizer control law only in 1993. “PA Farmers Coping with Fertilizer law,” Baltimore Sun December 28, 1997; Editorial, “Do we want cleaner streams... or food?” *Pennsylvania Farmer* April 26, 1975, 3.



Figure 33: Pennsylvania forebay barn, c. 1875, with free stall shed addition, after 1970. Antrim Township, Franklin County, site 055-AN-001.

Site 055-AN-001 in Antrim Township, Franklin County, shows how a free stall shed addition was attached to the forebay side of a Pennsylvania barn. According to an oral history interview at the site, this farm was a dairy farm until the 1970s when it converted to beef and swine. The free stall addition post-dates 1970. The milk house at right was a c. 1950 structure, but the lack of bulk tank or milking parlor reflects the shift away from dairy.

Beef Feeding Station

No examples from PAHP field work are available, but these would be simple open structures, sometimes of pole construction, and often located in a pasture.

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Figure 34: Beef feeding station, *Pennsylvania Crop Reporting Service Report, 1966.*

Calf Shed, Free Stall Barn, Silage Storage, Manure containment – see Dairy Farms

These resources would have similar form, construction, and materials to those on dairy farms. In fact, they will have been previously used for dairy cows.

Poultry Farms

Poultry Houses

Poultry products were still a significant Pennsylvania agricultural sector in terms of cash receipts, even though poultry farms accounted for a small percentage of all farms. Poultry operations specialized in producing broilers, layers (i.e. eggs), or pullets. In the late twentieth century US chicken consumption rose, thanks partly to inexpensive meat produced by vertically integrated companies: think Perdue or KFC. Virtually all the chickens raised for meat were produced under contracts. In Adams County already in 1964, most of the fifteen new “new controlled-environment houses” were being used in contract situations.¹⁸ The grower provided approved housing and labor, and the company usually supplied feed, chicks, advisors, and veterinary care. The prospect appealed to many farm owners because they could

¹⁸ Adams County Agricultural Extension Report, 1964.

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reduce their risks, improve their cash flow, and often continue with another farm enterprise such as dairying. A further advantage was that a single person could handle thirty thousand or more birds. The farmer was now essentially an employee. In fact, the company usually had its own policy about the architectural form of the poultry houses.

Poultry housing from the period reflected the larger scale of the business. During the 1960s, two- or three-story houses became more common. Featured photographs suggest that concrete block construction was popular. Some, like the one featured in the 1965 Pennsylvania Crop Reporting Service annual, still had more old-fashioned features like shed roofs and just a single wall of windows, probably south facing.

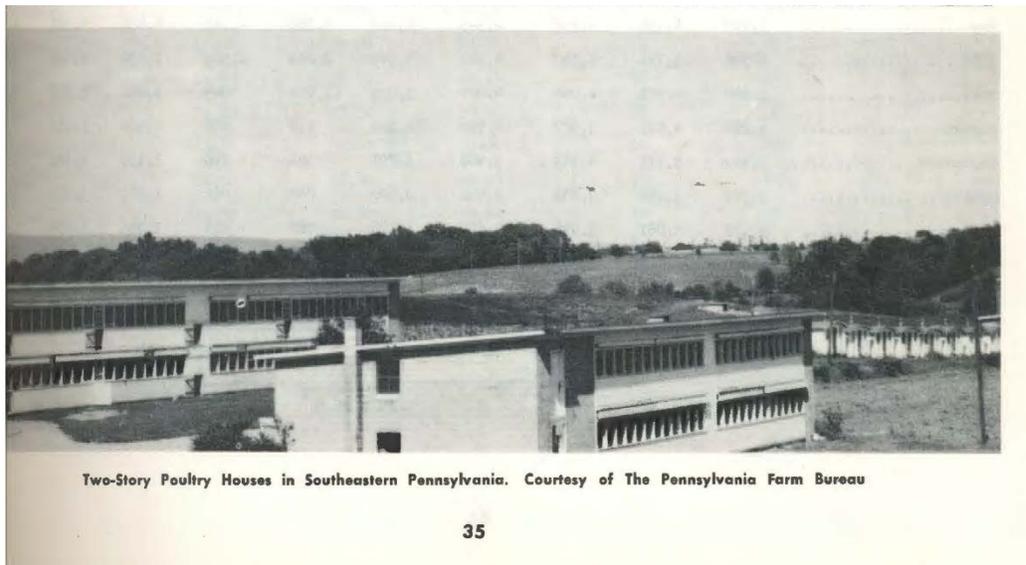


Figure 35: "Two-story poultry houses in southeastern Pennsylvania." *Pennsylvania Crop Reporting Service*, 1965.

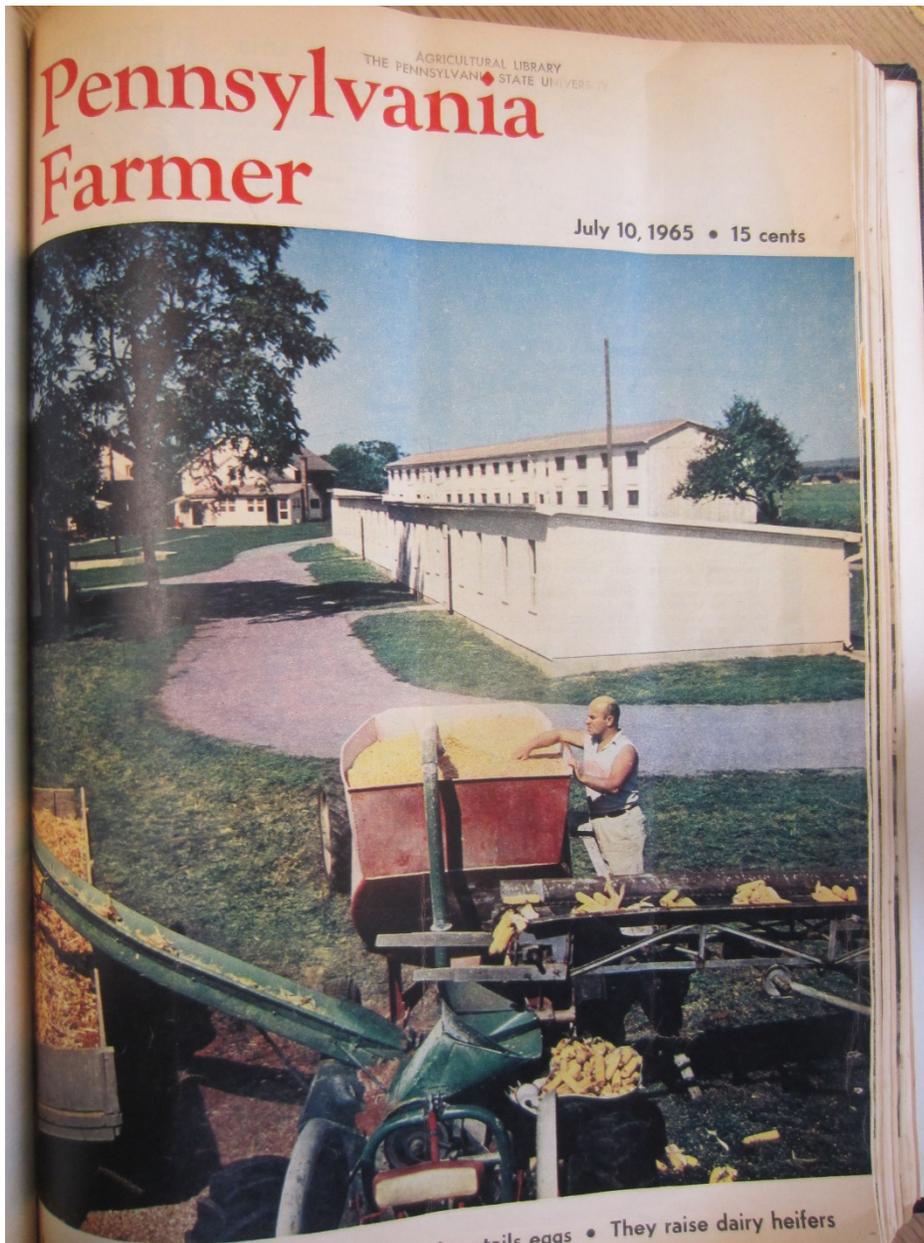


Figure 36: Richard Adams of Lancaster County with poultry outbuildings in background. *Pennsylvania Farmer* July 10, 1965.

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Figure 37: Two-story poultry house built with specialty concrete block, Tyrone Township, Adams County, c. 1960. Site 001-TY-001.



Figure 38: Two-story poultry house, Straban Township, Adams County, c. 1960. Site 001-ST-003.

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Figure 39: Three-story poultry house, Cocolamus Valley, Juniata County, photographed 2005.

As with cattle housing, pole type construction had an increasing presence in poultry housing. By the seventies, probably the larger ones in Pennsylvania were about 40-50 feet wide and 300-400 feet long, low, one-story buildings with shallow-pitched roofs, openings on both sides, and sheet metal covering. Early versions still had interior vertical supports. Electric lighting now supplemented natural light, and ventilation was achieved by electric fans. These structures can often be dated with the help of aerial photographs. Other typical visible exterior characteristics of the period include fans mounted in the center of the long side. By the 1980s and 1990s the houses were longer and wider (possibly 60 X 500), often with no windows at all, and with fans located at one end of the long side.

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Figure 40: Pole style poultry house with exposed nesting boxes, Lower Mahanoy Township, Northumberland County. Site 097-LM-003.



Figure 41: Metal clad poultry house, Lower Mahanoy Township, Northumberland County, site 097-LM-005.

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Cash Grain/Hay Farms

Buildings

The typical architectural characteristics of crop/hay farms in this period are a bit obscure. Most of these farms evolved from integrated crop and livestock operations of one kind or another, so they would likely retain livestock-related buildings (bank barns, silos, milk houses, etc.) as well as machinery storage from that phase of their history. Many were relatively low capital enterprises so they would probably be repurposing existing spaces. Existing barns could store hay, for example.¹⁹

Corn Crib

Corn was the major “cash grain” in this period. In PAHP survey file photos, many relatively large corn cribs appeared. It is possible that these represent a shift to cash grain in the 1960-1980 period. Dates are mostly not yet been confirmed because most of the survey forms are not available on CRGIS. Below are several examples from different counties.

¹⁹ Large metal grain bins are prominent today, but aerials suggest that they generally postdate 1980.

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Figure 42: Combination corn crib/ machine shed, Greenwood Township, present on 1969 (but definitely not 1959 aerial).

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Figure 43: Corn crib, Limestone Township, Clarion County, site 031-LST-001.

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Figure 44: Corn crib, North Centre Township, Columbia County, 037-NC-001, North Centre Township, Columbia County, c. 1970, site 037-NC-001 (89 Mountain Road Berwick PA 18603. After 1969, not on 1969 aerial. Possibly after 1994 Google Earth aerial).



Figure 45: Corn crib, Lower Mahanoy Township, Northumberland County, site 097-LM-004. Date unknown.

These corn cribs share common features. All are constructed with light wood lath. The example from Greenwood Township, Columbia County, site 001, has the lath spaced very close together horizontally, with wider spaced vertical posts. The close spacing kept the ears secure inside the crib but let in air. The metal shed roof and attached machinery bay allowed for a dual purpose. The other cribs are also constructed of lath, but in a looser, more open lattice, to which wire mesh is applied. Diagonal wood supports are attached on the gable end. Some are single, others double. *consult Keith Roe about these, how they work. All of the cribs are elevated on concrete supports. Another shared characteristic is location: all of these cribs are sited apart from other farmstead buildings, sometimes in a field or on a lane. This suggests that the corn was being raised for sale rather than for feeding on the farm, since corn storage for feed would be located closer to the animals instead of to a pickup point for transportation elsewhere.

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Orchards

Migrant Worker housing

Worker housing in the Adams orchard region underwent some shifts from the older, hotel style accommodation. Documentary sources suggest that single family rental housing was more common, and the landscape bears this out. Generally, the housing is modest in scale, often one story, sometimes converted from other uses. Materials range from conventional stick-built wooden structures to concrete block and metal. Perhaps a mobile home would be located near the orchard worksite, or an apartment over a garage or storage building. Often this housing would be sited in an inconspicuous location, peripheral to the orchard or to other nearby houses. Topography and vegetation might contribute to the relative seclusion of this housing.



Figure 46: Worker housing, Menallen Township, Adams County, c. 1980. Site 001-ME-004.

Machinery Storage

Machinery storage buildings and garages from this period were more often pole-style metal-clad sheds. Cold storage did appear on farms, but it was not very common.

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Figure 47: Pole style machine shed, Latimore Township, Adams County, c. 1980. Site 001-LA-002.

Bulk Bin Storage

This type of storage appeared before 1960 but continued to be built thereafter. See below for an example of a modern pole building for bulk bin storage.



Figure 48: Modern bulk bin storage, Adams County, 2016.

Vineyards

Buildings

In general, it seems that the 1960-80 period did not bring significant changes in building patterns in the grape belt, except perhaps in the decline of facilities related to tree fruit culture and to migrant worker accommodation.

Plain Sect Variations

Introduction:

The pre-existing MPDF framework recognizes cultural values (including those grounded in ethnicity), ideas, social relationships (gender, land tenure, labor, household structure), and political environments as factors in shaping agricultural landscapes. The Amish case does not fit squarely into any one of these categories. To be sure, Amish practices do have “cultural” or “ethnic” dimensions, but the overriding

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consideration is religion. In this MPDF for 1960-1980, therefore, we add religion to the list of factors shaping agricultural landscapes.

Amish and other Plain Sect people had long farmed in Pennsylvania, but most (about 70%) of the settlements now in existence were founded after 1960; Amish populations increased rapidly because of high fertility, low exit rates, and low mortality.²⁰ The characteristic appearance of Amish/Plain Sect landscape is not usually due to differences from mainstream operations in terms of production; Amish/Plain Sect farms generally have paralleled mainstream patterns in specialized dairy, livestock, or grain farming. Rather, the unique look of Amish farms results from religiously motivated choices.

In Pennsylvania the largest Amish population center is of course in Lancaster County. Amish communities also took root in the interior valleys such as Big Valley, Sugar Valley, Brush Valley, and Nittany Valley, and in Somerset County in the southwest. Amish groups live in northwestern Pennsylvania, especially in areas bordering Ohio. Some have moved to places along the Northern Tier and have also expanded eastward into Chester County from Lancaster. When they migrate, the Amish always do so together and settle in close proximity to one another, even if among non-Amish (or as they say, “English”) neighbors. Areas with concentrations of Amish families are called “settlements” which in turn are composed of “church districts,” each of which includes about forty households. The district is a geographic unit but otherwise analogous to a church congregation; residents worship in each others’ homes every other week. The “affiliation” is a group of districts sharing certain elements of discipline and ritual, somewhat analogous to a denomination. Affiliations can overlap geographically with (or even stretch beyond) a settlement. In Lancaster County, for example, there are several affiliations including the Old Order Amish, the New Amish, and the Beachy Amish. There is a dynamic element to Amish collective deliberation; over time splits have frequently given rise to new affiliations.²¹

²⁰ Young Center for Anabaptist and Pietist Studies, “Amish population profile 2016,” <https://www.etown.edu/centers/young-center/>; Donald Kraybill et al, *The Amish* (Baltimore: Johns Hopkins University Press, 2013), 40-49; Donald Kraybill, *The Riddle of Amish Culture*. Revised edition. (Baltimore: Johns Hopkins University Press, 2001), 14.

²¹ John A. Hostetler, *The Amish* (Originally published as *Amish Life*. Third edition revised by Steven Nolt and Ann Hostetler. Harrisonburg, VA: Herald Press, 2013), 11; John A. Hostetler, *Amish Society* 4th edition (Baltimore and London: Johns Hopkins University Press, 1993), 90-95.

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Amish groups are above all religious communities, variously called “redemptive communities” or “covenant communities.” They believe that the best hope of salvation lies in separation from “worldly” influences, achieved through simple living and humble demeanor. Personal humility, a quiet demeanor, and patience are highly regarded traits. Conversely, individual self-promotion is discouraged. The Amish and other Plain Sect groups interpret these mandates through the *Ordnung*, the body of disciplinary guidelines developed by each church group. The *Ordnung* is ratified by the congregation and frequently revisited as new issues emerge. Because decision making is so decentralized, Amish practice varies.²²

The intense economic pressures on agriculture after 1950 did not spare the Amish. Scholar Donald Kraybill refers to the 1950-2000 period as the “Big Squeeze.” High land prices (brought on by suburbanization), large families, state regulations, global competition, and the cost-price squeeze forced migrations and agricultural adaptations. Amish farm production trends generally followed those in the wider agricultural economy; many followed more specialized dairying, livestock farming, or poultry production. There were two notable differences: continued activity in self-provisioning; and continued tobacco production (in Lancaster County only). For discussions of dairying, livestock farming, etc. see the body of this document.

“Self-provisioning” continued to be an important strategy for Amish families well after “English” families gave it up. Amish women in particular labored to grow, can, and preserve a good portion of the family food supply. Poultry and sometimes hogs or steers were also kept for household use.

On the Lancaster Plain, tobacco farming gradually became associated with Plain Sect people, especially the Amish. Virtually all farms on the Lancaster Plain had produced tobacco in the 19th and early 20th centuries, but slowly “English” farming families left it to the Amish. Plain Sect people continued it, in large part for the same reason that non-Amish people abandoned tobacco: because it demanded intensive family labor. In 1982 there were about 1700 farms in the county that raised tobacco, with 10,700 acres in tobacco.²³

²² Kraybill et al, *The Amish*, 64-5; Hostetler, *Amish Society* 4th ed., 83.

²³ Walter Kollmorgen, “Culture of a contemporary rural community: The Old Order Amish of Lancaster County, Pennsylvania.” Washington, DC: U.S. Dept. of Agriculture, Bureau of Agricultural Economics, 1942; US Census of Agriculture, 1982, Pennsylvania, Table 25.

By keeping to horse-powered farming, avoiding deep engagement with consumer culture and external financing structures, continuing self-provisioning practices, and relying on family and communal labor the Amish managed to cling to their farms while their “English” counterparts were leaving in droves. Around 1950 over 90% of Amish household heads were farmers, while by that time fewer than seven percent of Pennsylvanians lived on farms. Over time Amish individuals acquired more and more farmland in Lancaster County and made up an increasing percentage of farm owners there. By the turn of the 21st century 40 percent of the farms in Lancaster County would have Amish owners.²⁴

Over time, however, Amish people too were forced into non-farming occupations. By the 1980s in some places, half or even more had nonfarming occupations. Amish non-agricultural work was different in character from off-farm work among mainstream farming families. To be sure, some men took off-farm jobs for wages, working for non-Amish employers. But many became entrepreneurs and started small businesses situated right on the farm. Amish businesses enjoyed exceptionally high success rates, attributed to such factors as community support, a strong work ethic, unique products, an apprenticeship system, and use of family labor.²⁵

These forces together shaped Amish experience and landscape in selective ways as discussed below.

Houses

As Amish occupants developed their farmsteads in the late 20th century their domestic architecture also evolved. Unlike “mainstream” farmhouses, Amish houses continued to be productive spaces. They sustained multiple generations and fostered self-provisioning work. Open porches facilitated household work such as clothes drying. A common sight in Amish country was the “dawdy” house, an attached section (or sometimes a separate structure) signaling residential quarters for multiple generations in a family. Often these accretions were placed in a telescoping fashion to maximize natural light exposure. These features are agriculture-related because they concern the organization of labor.

²⁴ Kraybill et al, *The Amish*, 276; Sindya Bhanoo, “Amish Farming Draws Rare Government Scrutiny,” *New York Times*, June 8, 2010.

²⁵ Hostetler, *The Amish*, 22; Kraybill et al, *The Amish*, 282, 294-295; Kraybill, *Riddle*, 250-258.

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Figure 49: Amish farm, Upper Oxford Township, Chester County, photographed 2017. This complex is probably post 1980 but it shows characteristic features of uniform, inconspicuous color and lack of ornament. Some of the outbuildings may relate to small businesses.



Figure 50: Nineteenth-century farmhouse occupied by Amish owners, photographed 2010. Site 029-UO-001. Note lack of ornament on the house, and utilitarian spaces running right up to the house.

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Figure 51: Carol Highsmith, "Tidy Farm in "Amish Country," Lancaster County, Pennsylvania," 1980. Library of Congress. This image shows how the Amish combined modern conventional and free stall barns and silos with a windmill for power, and an adapted four-over-four house with white color and minimal ornament.

Barns and outbuildings:

In many respects, barns and outbuildings on Amish farms differed little from those on mainstream farms at this time. As competition mounted in dairying, Amish farming families turned to the same kinds of architectural responses as their mainstream counterparts. A c. 1980 barn on an Amish dairy farm in Chester County, for example, had the key features of a modern dairy barn: concrete block construction, hinged metal-framed windows, and laminated wood roof framing; stable barn form adapted for freestall housing; milking parlor; and manure lagoon. Squat gambrel-roofed concrete block structures also became very popular among the Amish for functions such as milking parlors, cow houses, and stables. Pole barns were also used.

When distributors began to insist on bulk tanks and mechanical milking equipment, difficult discussions followed within Amish communities. As always each district group made its own decision, but many ended up allowing battery and diesel systems that would power milking, cooling, and bulk tank equipment so that farming could continue.²⁶ Those who elected to continue collecting milk in cans found or created new markets through small-scale artisan cheese factories. In Leraysville, Bradford County, for example, an Old Order Amish group founded a cheese factory in 1978 that still exists.

²⁶ Stephen Scott, *Amish Houses and Barns* (Intercourse, PA: Good Books, no date), 82; Kraybill et al, *The Amish*, 178-9; Kraybill, *Riddle*, 313; Stolfus, "Amish Agriculture."

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The same was true of poultry farms. In the mid-1970s Amish farms with poultry operations sometimes built large houses for thousands of birds, just as were found on “English” poultry farms. They might light the interior with an ingenious system of Coleman lanterns. However, as energy requirements mounted for huge windowless poultry houses it became more difficult for Amish growers to adapt.²⁷

Amish farms had their counterparts to the machinery sheds found on “English” farms. Though tractors were forbidden, draft animals pulled all sorts of machinery for harvesting, manure spreading, planting, spraying, and other tasks. Existing buildings or new ones provided storage for this equipment. Typically, they would be the same type of pole style, metal clad buildings going up everywhere. Perhaps they might not be on such a large scale as in mainstream agriculture, but in other respects they were not fundamentally different.

Tobacco Barn

Most tobacco barns predate the period, but some Amish people built new ones during the period. See the PAHP Field Guide for identifying characteristics.

Stable for Work Animals

Horses and mules would be stabled either in a barn or in a specially built shed or even a repurposed garage.

Buggy Shed

One departure from mainstream building types was the buggy shed, usually sited near the house. The buggy shed was usually smaller in scale than an auto garage, and sometimes had an overhang so the horses could be harnessed in a dry space.

²⁷ Victor Stoltzfus, “Amish Agriculture: Adaptive Strategies for economic survival of community life.” *Rural Sociology* 38 (Summer 1973): 196-206; Scott, *Amish Houses and Barns*, 79.

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Figure 52: Buggy shed, foreground, and tobacco barn, 1986, Lower Oxford Township, Chester county. Site 029-LO-001. These two buildings date to 1986 so they are outside our period, but they show characteristics of types commonly in use by the Amish.

Small Businesses and Industries

Amish entrepreneurship had a dramatic landscape impact on the farm. Many Amish families preferred the home-based enterprise because it helped to preserve separation from the world and to keep the family together. Workshops, pallet factories, greenhouses, engine repair shops, bakeries, dry goods shops, harness shops, utility building manufactories, sawmills, and furniture businesses appeared on the grounds. Sometimes existing buildings were adapted for businesses, but often they required new construction. In Brush Valley, Centre County, a family greenhouse business was established on a farm that mixed adapted buildings with new structures. The 19th century bank barn housed draft animals and buggies and wagons, and also stored pots, soil, and other supplies. Half a dozen newer greenhouses contained bedding plants, vegetable plants, and house plants. In addition to selling plants, the family also retailed garden seeds, seed potatoes, fertilizer, weed killers, containers, eggs, and the like in a shop attached to the greenhouses. Structures like these are agriculture-related for more than one reason.

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Some (small engine repair, harness shops, sawmills, greenhouses, farm stands) directly support farm operations within and outside the Amish community. Also, because they are located within the farmstead and share the same labor force, they are integral to the farm's continuation. In some respects, they are a larger scale version of the colonial or 19th century artisan workshop on a farm.

Landscape Features

Trends in field patterns in the 1960-1980 period were generally continuations of trends established earlier, rather than dramatic new developments. On a large scale (for example a 1:20000 aerial photo) there may be few striking changes in field size and shape. Established contour plantings and crop strips often continued in use. Since there was a pronounced trend to corn as the single major grain crop, some aerials show more homogeneous gray tones where corn monocrop culture (often half or more of grain crop acreage) replaced a more diverse mix.²⁸ Some fields were consolidated to accommodate ever larger machines. Hay land continued to be important, most of all in the north and southwest. Everywhere, pasture accounted for significantly less farm acreage. Orchards disappeared outside the fruit regions. Therefore, field patterns in general were more homogeneous than in the previous period. Because pasture was on the decline and livestock more closely confined, fencing also tended to disappear. Finally, small scale truck farming plots disappeared.

Woodlots and boundary lines show more continuity than other farm landscape features. Note the consistency between the Cochranville aerials from 1958 and 1971. (n. 29)

Ponds continued to be added to the farm landscape. Again, this was not a new development but the pace of pond building possibly picked up. Justifications for farm pond construction were several. They included reductions in insurance rates; recreation (fishing, swimming, boating, skating); water for livestock; links to erosion-reduction practices such as permanent grassland and contour cropping; small-scale irrigation; water for mixing sprays.

²⁸ (See Cochranville 1958 vs 1971, center left, http://data.cei.psu.edu/pennpilot/era1970/chester_1971/chester_1971_photos_jpg_200/chester_070571_ahk_6mm_54.jpg)

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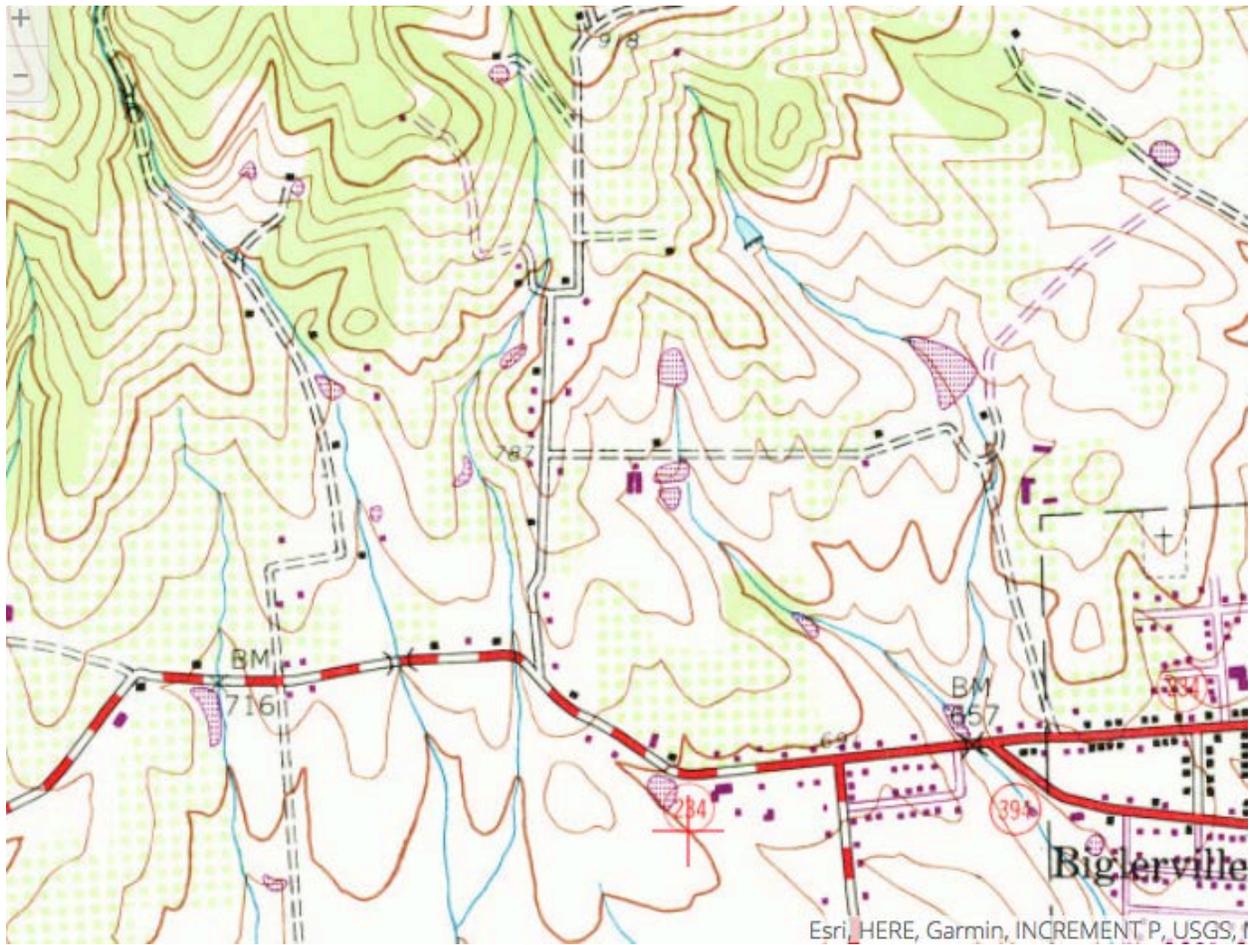


Figure 53: Biglerville, Adams County, 1973. Ponds in purple appeared since the 1956 topo map was published. Note their relationship to orchard lands.

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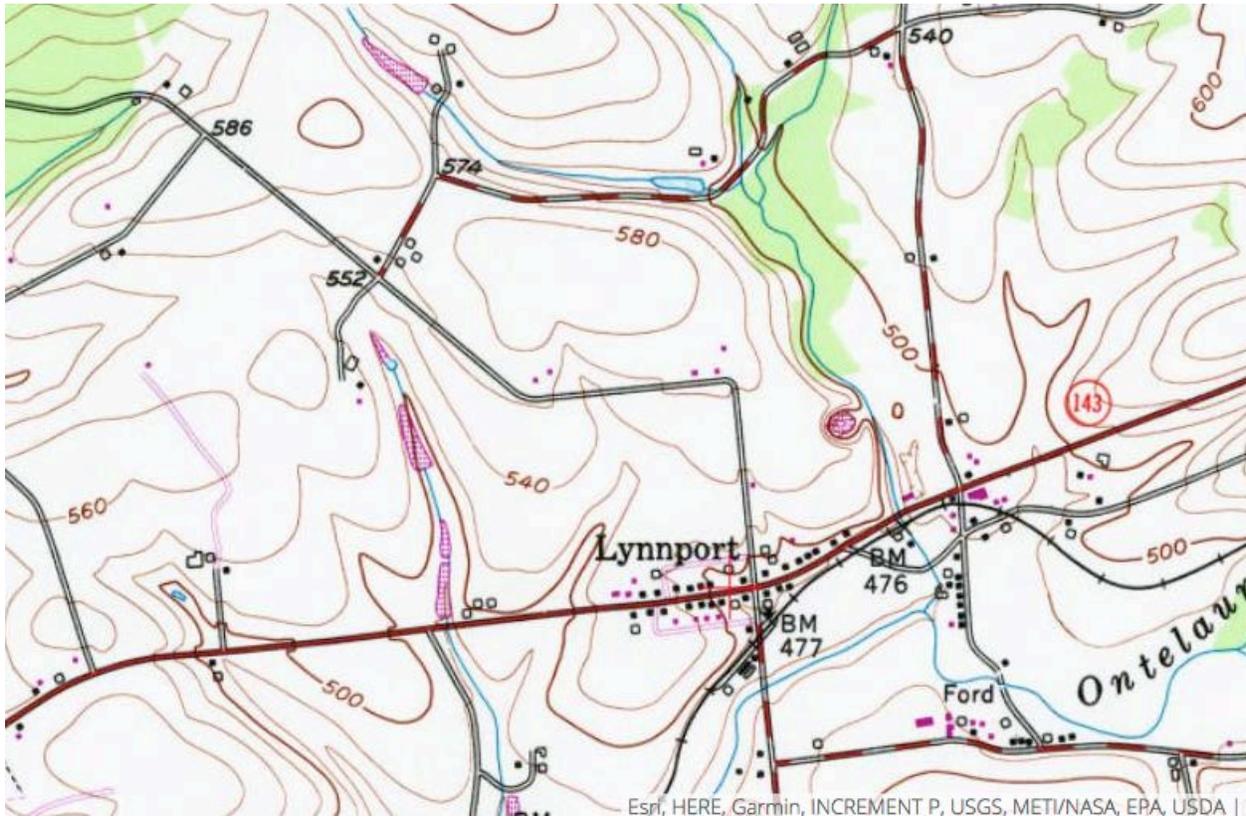


Figure 54: Lynnport, Lehigh County, 1976. Ponds in purple appeared since 1956. Aerials confirm that they are on farms.

In the orchard area, specialization in apples brought greater homogeneity to the landscape. Size-controlled trees changed the landscape's appearance since the trees were not only smaller than standard trees, but less bushy and more densely planted. Ponds seemed to be more popular in Adams County than elsewhere, possibly because they had great utility for orchard culture. They provided water for irrigation (size-controlled trees needed more water because their root systems were shallower); for spray mixing; and for fire insurance.

Amish variations:

In general, field patterns on Amish farms did not differ a lot from their mainstream counterparts. However, the landscape immediately adjacent to the farmstead itself was noticeably more varied, dense, and multi-textured. It consisted of an intricate patchwork of large vegetable gardens, horse pastures, hen coops, grape arbors, wash houses, fruit trees, cold frames, and "dawdy" houses. Wood piles, windmills, propane tanks, stationary diesel engines, and compressed-air machinery are other landscape features more likely to be found on an Amish farm. The same is true for fenced-in pastures for

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work animals, which are frequently near both house and barn. Ornamental lawns are generally small, for both practical and religious reasons.²⁹

²⁹ Kraybill, *Riddle*, 83, 303, 305.

Registration Requirements ca. 1960-1980 period

Note: The “Agricultural Resources of Pennsylvania, 1700-1960” MPDF created a comprehensive statewide context for evaluating properties under Criterion A for agriculture. Evaluation for the pre-1960 periods required examination of separate regional narratives and registration requirements focused on buildings and landscapes typical of the region. As regionalization largely disappears from the landscape after 1960, the registration requirements for the 1960-1980 period focuses on how the built environment and landscape reflects statewide agricultural trends. Due to the growth of the Plain Sect, largely Amish population, in this period and their ties to agrarian lifestyles, an additional cultural/religious group is also recognized.

A. Criterion A, Agriculture

This section first outlines general consideration for Pennsylvania farms related to labor, culture, and tenure, followed by Criterion A requirements for the 1960-1980 period.

Patterns of Agricultural Production

For the 1960-1980 period, farms became more dependent on non-farm income. Unlike the pre-1960 period, which was characterized by diversified, small family farms, the trend of this period was toward specialized production, on both small and larger scale farms. Overall there was a pronounced decline in Pennsylvania farm production levels, except for commodities like hay and corn, and the number of farmers. The total amount of the state’s land in farms dropped by 30% in this period due to abandonment, reforestation, or development. The average farm size rose from 119 to 153 acres. Competitive farming conditions, rising employment rates for women, and continued men’s off-farm employment made nearly all farms dependent on nonfarm income.

There was an overall decline in dairying and a relative increase in beef cattle and crop production in the form of corn, hay, and soybeans. It was during this period there was a shift from creating “value-added” products by using the farm’s own resources to supply for animal feed, pasture, fertilizer, grain, and family provisions; instead feed, fertilizers, and processing services were largely purchased off the farm. For the first time in Pennsylvania’s agricultural history since settlement, crop and livestock production were separate and no longer integrated. In some cases, this resulted in a landscape of uninterrupted and unfenced expanses of corn, hay and soybeans. Across the state the number of different farming

specialties also became fewer with the prominent specialties including dairy, livestock, poultry, cash grain, hay, and orchards. The cultural practices of the expanding Plain Sect, largely Amish, population also had a significant impact on the landscape and built environment. The related narrative further explains the common agricultural products and trends of the period.

Social Organization of Agricultural Practice

Historic production patterns are necessary but not sufficient to determine eligibility. Social organization of agricultural practice had a profound influence on the landscape that must be recognized. Labor, land tenure, mechanization, and cultural practice should be considered. In this period, there were significant shifts in on-farm labor. Within the family farm, off-farm work was now the norm. Those farms focusing on commodity specialization were required to invest in new equipment and building systems that allowed for less labor. Thus, larger operations producing the bulk of farm commodities were complemented by a growing number of smaller farms earning most of their income from off-farm sources. These small farms provided some supplemental income and/or food sources, but they were not the mainstay of the farm family.

The introduction of mechanization eliminated the need for some labor all together, particularly in vineyards. The level of mechanization continued to shape the landscape through field patterns and architectural accommodation for machinery storage. Only apple harvesting continued to require hand picking and mushroom farming continued to employ migrant labor; migrant housing was common in these areas. Large families provided labor on Plain Sect farms and enabled them to continue cultivation of more labor-intensive crops such as tobacco. With a few exceptions, particularly in the Plain Sect community, self-provisioning was no longer economically rational as farm women worked off the farm.

Land Tenure

Rental of additional land became a more common practice as farmers tried to farm enough land to operate larger scale operations which allowed them to continue to farm full time. In some cases, where selective land rentals occurred, farmstead complexes were largely abandoned except in cases where barns and larger outbuildings continued to be used for crop or equipment storage. Others were altered to serve non-agricultural purposes.

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Cultural Patterns

By 1960-1980 period ethnic distinctions had largely dissolved except for the Plain Sect religious communities.

For 1960-1980 resources, another category may apply, and that is patterns shaped by religious communities in the case of Plain Sect groups. If, in instances where a farm has a strong, documented connection to the Plain Sects, its architecture and landscape should show evidence of that connection. Significance should be evaluated by the degree of clarity with which ethnic heritage is expressed (i.e. is it highly visible in more than one way, for example in both construction details and use?); and in cases of farmsteads, the extent to which multiple buildings and landscape features express ethnically derived agricultural practice.

Property Types and Registration Requirements: Criterion A, Agriculture: Registration Requirements for the period 1960-1980 - How to Measure a Property in its period context for 1960-1980:

To be determined significant with respect to Criterion A for agriculture, a farmstead or farm should possess a strong representation of typical buildings and landscape features from the 1960-1980 period in agricultural history.

A property will be eligible if:

Its individual production reflects one of the dominant agricultural specialties for the period.

Documentation may be obtained from an examination of the following:

Period aerials (available through Pennsylvania Spatial Data Access at

<http://www.pasda.psu.edu/uci/SearchResults.aspx?Shortcut=aerial>, and other sources. (See [Appendix B: Interpreting Historic Aerial and Photographs for Agricultural Production.](#))

Oral Interviews with current or former owners. Questions to be asked should include:

What were the main agricultural products of the farm after World War II? How did things change in the 1960s, 70s, 80s?

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What changes were made to buildings or landscape features, such as additions, new buildings, removal of old buildings, moving buildings, making contour strips, adding or removing fences, clearing woodlots, etc.? When were these changes made?³⁰

Comparative property types. In the absence of primary documentation that explains level of farm production and agricultural specialization, such as historic aerials or oral interviews, compare the built environment of the farmstead to surrounding farmsteads of the same specialization. For example, for farms specializing in dairy, how do the 50-year-old buildings that make up the farmstead that are related to production compare in terms of size and number to neighboring farmsteads of similar composition? In this period, farms with buildings larger in number and size tend to reflect higher levels of production. A maximum of a one-mile radius should be used for comparative property types.³¹

Its built environment reflects locally prevalent social organization of agriculture including one or more of the following:

- a) levels of mechanization: array of machine sheds that can accommodate larger machinery; structures/systems associated with feeding/housing/milking of larger number of animals;
- b) labor organization: including migrant worker housing in areas of apple and mushroom production; evidence of elimination of labor organization due to mechanization and off-farm income;
- c) tenancy. In the 1960-1980 period, this aspect of social organization will be reflected most in historic agricultural districts (rather than on farmsteads or farms). This may be visible on the landscape in the form of farms whose farmsteads are abandoned but the land continues under cultivation via leasing.
- d) Its built environment reflects agricultural specialization in this time period (See agricultural building types and landscape features that reflect or relate to specific agricultural commodities for farmsteads below.)

³⁰ For a more detailed list of questions, please consult: [Appendix A: Conducting Oral Interviews for Agricultural Properties](#).

³¹ Comparative property types are required only in cases where there is a lack of useful information on production levels from aerial comparison, oral interviews, or other primary source documents.

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Farmstead

The layout and contents of the farmstead should approximate state and national standards outlined in the associated narrative. Farms that do not contain building and layout components of the 1960-1980 specialized farm, including small, part-time farms that became more common in this period, would not be considered individually eligible for listing in the National Register but may be considered contributing to a historic agricultural district.

Piecemeal combinations of older barns and outbuildings to create complexes for specialized production could be eligible as part of a specialized farm dating to the 1960-1980 period or as part of a farmstead that reflects changes over time. For example, a dairy farmstead that contains an older barn or conventional stall barn with free stall addition and milking parlor with bulk tank along with poultry house converted to animal shed for segregation would reflect changes over time. Farmsteads with diversified production would not be reflective of the average farm in Pennsylvania in this period and would not be considered individually eligible.

For any specialization, a farmstead needs a house although it does need to date precisely from the period.

Dairy Farmstead

In this period there was an increase in the average herd size; the majority of feed was purchased off the farm; and there were a number of technological improvements to increase efficiency and productivity. There was an overall decrease in the number of dairy farms, as production shifted to beef cattle or cash crops or ceased operation altogether.

A farmstead on a dairy farm should have buildings and layout that reflect one or both of the farming systems that rose for handling cows, milk, feed, and shelter in this period:

Conventional stall barn (concrete block construction; rows of stanchions and windows running lengthwise; arched roof for hay storage and attached silos); with nearby milking parlor (low well-lit building with shallow roof), and milk house.

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Free stall barn (pole construction clad with metal siding, with wide stalls, usually with one open side for feeding) with separate milking parlor, often adjoined by a holding area, feeding area, and bulk milk tank (often in an adapted milk house or integrated with the milking parlor). In terms of layout, these components were envisioned as separate units within an integrated system that allowed for efficiencies in movement of animals and labor of farmers.

In addition to the above, a farmstead on a dairy farm should also have three or more of the following associated support structures located nearby and constructed in the 1960-1980 period:

- storage for bedding, hay and/or associated equipment for transfer;
- silage storage (Harvestore silos and bunker or pit silos);
- animal segregation area (calf hutches or sheds for heifers and dry cows; sometimes in form of converted buildings); or
- grain bins (often near milk house to provide concentrates in feed).

Livestock Farmstead:

Livestock farms became the second most common farm type in this period as they could more easily accommodate part-time farming and off-farm income production. These farms also required less investment in equipment. Generally, these farms were small-scale operations and included raising beef cattle and feeding young heifers for nearby dairy operations. Significant examples would contain multiple barns and related outbuildings and landscape features that would demonstrate specialization including:

- a free stall barn or free stall addition to older barn for feeding;
- a free-standing hay barn, possibly located away from the central farmstead
- grain storage located near free stall barn or pen enclosures; and
- evidence of loading chutes.

Poultry Farmstead:

A farmstead on a poultry farm should have buildings and layout that reflect broiler (meat), layer (eggs) or pullet (soon to be layer) production:

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- Prior to the 1970s, one or two stories in height, often concrete block construction, some with shed roofs and single wall of windows, often south facing;
- After the 1970s, low one-story buildings with shallow pitched roofs, pole construction to allow for easy cleaning, openings on sides (ventilation by fans occurs around 2000), and mechanical lighting, watering and feeding systems; and
- Evidence of grain storage in proximity to poultry housing

Cash Grain Farmstead:

Corn remained the most common grain crop in this period. Wheat, barley and oats declined in importance. A farmstead on a cash grain/hay farm should have buildings and layout that reflect specialized crop production:

- Multiple corn cribs or other grain storage structures dating from the period; Storage structures may be on roads or lanes and not necessarily near livestock; and
- Machinery storage spaces from this or earlier periods.

Hay Farmstead:

Hay farming was among the most numerous of operations in the state as it accommodated part-time farming. Therefore, in order for a farmstead to be significant for hay production, it would have to clearly illustrate a specialization in hay production:

- Multiple hay barns from this or earlier periods; Storage structures may be on roads or lanes and not necessarily near livestock; and
- Machinery storage spaces from this or earlier periods

Orchard:

A farmstead on an orchard should have buildings and layout that reflect specialized orchard production:

- Machine sheds;
- Sheds for storage of bins and packing or shipping;
- Water storage tanks from the period (erected on concrete piers over well, with pump housed in the space under the tank); and
- Migrant housing

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Plain Section Farmstead:

In the case of Plain Sect properties, its agriculture-related built environment also reflects choices shaped by the religious community.

The distinctiveness of the Plain Sect farm on the Pennsylvania landscape became pronounced by the mid-twentieth century. At the same time, a number of new Amish settlements were established; 70 percent of the present-day Amish settlements were established after 1960. Primary research documenting the length of association with the Plain Section community (at least 50 years) is necessary to make the case for eligibility in the area of Agriculture. Directories (known as church directories in the Amish community) which explain the historical development of a community as well as family genealogies can be useful in determining when an area was settled by the Plain Sects. Plain Sect farms may also be eligible in the area of Ethnic Heritage but that is outside the scope of this context which focuses on Agriculture.

A Plain Sect farmstead should have buildings relating to its agricultural specialty plus:

- A house with typical features that relate to the period of Plain Sect occupation, either deriving from new construction or from alteration of an existing dwelling. These may include expansion of dwelling spaces (via enclosure of porch, for example), addition of wash house (small one-story addition to rear elevation), expansion of dwelling space, etc. Plain treatment of exterior of dwelling in terms of color of siding and lack of ornamentation.
- A large addition to the main dwelling or the addition of a secondary dwelling, often at the end of the farm lane, for extended family;
- Buggy shed (sometimes an adapted garage);
- Horse stable (sometimes combined with buggy shed);
- Small scale features that reflect off-grid life such as windmills (sometimes with above ground storage tanks) or laundry poles.

And at least one of the following:

- Farm stand;
- Telephone shed;

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- Tobacco barn;
- Small business or industry from the period (sometimes occupying earlier outbuilding).

In addition to landscape features characteristic of a specialty, Plain Sect farmsteads should include the following reflections of culture in the dooryard:

- Kitchen garden, grape arbor, or ornamental garden;
- Well-manicured small lawn areas.

Farm:

A farm should have buildings relating to specialized agriculture plus landscape features characteristic of the period, i.e. contour plantings, strip crops, ponds. It may occasionally be possible to relate changes in farm landscape features to the adoption of a specialty. For example, pasture and fencing may disappear when a farm shifts away from livestock to crops, or crop fields may be consolidated through elimination of tree lines and hedgerows. On livestock farms, a shift from cropland to pasture and the addition of fencing would be common. Modernization in orchard landscapes is more obvious as size-controlled stands replace larger trees and orchards or ponds often replaced other cropland. Documenting such shifts is difficult and depends on whether appropriate aerials are available. When possible, such landscape changes relating to specialization should be considered as contributing to significance.

In addition to landscape features characteristic of a specialty, Plain Sect farms should include the following reflections of culture:

- pasture for work animals;
- open landscape lacking windbreaks and ornamental trees; and
- intensive cultivation of field crops to the edge of the roadway.

Historic Agricultural District:

In areas where “mainstream” social groups prevail, farms that are significant for the period 1960-1980 will likely be scattered among farms that represent other periods. As such they may function to demonstrate change over time within a district. In areas heavily settled by Plain Sect groups, there may be Historic Agricultural Districts consisting of multiple Plain Sect farms adjoining one another. For farms

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in districts significant for their Plain Sect association, primary research documenting the length of association is necessary to make the case for eligibility.

B. Criterion B, Association with the Lives of Significant Persons

See original MPDF for property types and registration requirements.

C. Criterion C, Design and Construction

See original MPDF for property types and registration requirements.

D. Criterion D, Archaeology

See original MPDF for property types and registration requirements.

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Note: some of the text in this document is from Sally McMurry, *Pennsylvania Farming: a History in Landscapes* (University of Pittsburgh Press, 2017). See especially Chapters 22 and 23.

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