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Introduction



Armsby Building, dedicated in 1906, was home to the Animal Nutrition and Animal Husbandry faculty from 1907 until Henning Building was occupied in 1969.

Dairy cattle, pigs, horses, and mules appeared on the campus of the Farmer's High School in the late 1850s. Photos of the campus before Old Main was completed show a dairy barn, piggery, horses, and mules. These animals were a permanent part of every Pennsylvania farm operation. Here at Penn State they were used to work the fields, feed the early students and laborers, and as a source of surplus meat and milk that could be sold to the residents in town. These sales supported early farm operations.

The origin of the present Department of Dairy and Animal Science goes back to 1887, when Dr. Henry Armsby came to Penn State as

Director of the Agricultural Experiment Station.

The department has undergone a number of mergers and name changes. In 1900 Armsby became the first Dean of the School of Agriculture, but resigned in 1904 to devote full time to the Experiment Station and to continue his research in the animal nutrition field. The calorimeter was completed in 1902, and Armsby became director of the newly-formed Institute of Animal Nutrition in 1907. The Institute was reorganized to function as a department in 1933, although the name was retained until 1946 when it officially became the Department of Animal Nutrition.

The Department of Animal Husbandry had been formed about the same time as the Institute (1907) with Thomas Mairs as head. Poultry studies were initially a part of the department, but a separate Department of Poultry Husbandry was formed in 1920. Dr. James Shigley joined the Animal Husbandry department and established a pre-vet curriculum in 1923. He continued in that role until 1953, at which time a Department of Veterinary Science was established. The Departments of Animal Nutrition and Animal Husbandry merged in 1960. The new Department of Animal Industry was headed by Russell C. Miller. Five years later, Thomas B. King became department head, and the name was once again changed to Department of Animal Science.

The Dairy Husbandry department was formed in 1905 and in 1954 was renamed the Department of Dairy Science. Almost from the beginning, the department offered two courses of study: dairy manufacturing and dairy production. Both options were available to students until 1975. At that time,

the dairy manufacturing faculty joined with selected faculty from animal science, poultry science, horticulture, and home economics/human development to form the new Department of Food Science. In 1976 the dairy production faculty was merged with that of animal science, becoming the Department of Dairy and Animal Science, under the leadership of B. R. Baumgardt.

Appendix 1 illustrates how the forerunners of the present Department of Dairy and Animal Science came together over the years, along with the names of the heads of their respective departments.

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Armsby Calorimeter



The respiration calorimeter, with Raymond Swift seated, during an experiment in 1955.

The Armsby Calorimeter was completed in 1902, and in 1907 Armsby became director of the newly-formed Institute of Animal Nutrition. From that time, and until his death in 1921, Armsby and his staff operated the calorimeter continuously, while performing experiments in the energy metabolism of cattle. He recognized the importance of heat loss as a waste of feed energy, which had gotten little attention in the past, and was determined to gather the data that would enable publication of net energy value of all the feedstuffs used in formulating livestock rations. Net energy is that feed energy remaining after subtracting that lost in feces, urine, combustible gases, and that used in metabolizing the feed itself (heat increment)-in other words-that energy available for animal production.

Dr. E. B. Forbes became director of the Institute after Armsby's death. Forbes, August Fries (who had worked with Armsby from the beginning), and R. W. Swift led a staff of scientists and technicians in the operation of the calorimeter and in the pursuit of Armsby's goal of a feeding standard based upon net energy. However, by the time of Forbes's retirement in 1946, he and Swift concurred that net energy is influenced by so many factors not related to the feed that it cannot be used as a routine expression of the nutritive value of any feed. Swift likened labeling a feed with a net energy value to stating an expected crop yield on the label of a sack of seed or fertilizer. In Pennsylvania Agricultural Experiment Station Bulletin # 615 (1957), he commented on the futility of the "estimated net energy" value included on many feed labels and concluded that accuracy, ease of measuring, and other factors make digestible energy a more practical measure of nutritional value.

After Forbes' retirement in 1946, the Institute of Animal Nutrition became the Department of Animal Nutrition with Swift as head. The calorimeter was modified to accommodate four sheep instead of one large ruminant and was used mainly in comparative evaluation of forages until the mid-1950s, when it was converted to study the relationship of proportion of nutrients (fat, protein, etc.) to energy

metabolism in humans. These experiments demonstrated the sensitivity of the calorimeter, as the operator could easily detect the burst of heat generated when the volunteer student subject turned over in his sleep or was stimulated by sight of a volunteer coed delivering his meal.

When Swift retired in 1960, the Department of Animal Nutrition was merged with Animal Husbandry. The calorimeter was converted to a museum in 1969. Under Forbes' and Swift's leadership, the department had served as a training ground for younger scientists, since the six junior faculty members (calorimeter operators) had instructorships allowing time for graduate study, usually leading to a Ph.D. Some of their theses involved use of the large calorimeter. Many of them were studies of dietary balance as related to energy metabolism of albino rats, in total body balance trials, or in measuring heat production indirectly with a miniature calorimeter in which the respiration chamber was a half-gallon Mason jar.

Robert L. Cowan, Professor of Animal Nutrition



The calorimeter building of the Institute of Animal Nutrition, circa 1900.

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Dairy

The Agricultural Experiment Station was established in 1887. Before the departments of Dairy Husbandry and Animal Husbandry were established, several people shared the instructional work for all animal species. William Caldwell was placed in charge of dairy studies in 1888, but left to become Secretary of the American Guernsey Cattle Club. He was succeeded by Harry Hayward in 1894. The Dairy Husbandry department with offices in Patterson Building was organized in 1905. Professor H. E. Van Norman was head with responsibilities across all animal species. In 1907 the Department of Animal Husbandry became a separate unit with Professor Mairs as chair. Thus, for the first time, there were two departments with separate leadership. The new Agricultural Building, dedicated in 1906 and later named the Armsby Building, became the home of the faculties for both Animal Husbandry and the Institute of Animal Nutrition.



The first Old West dairy barn (1857) included housing for both dairy cows and swine plus a creamery. The shacks in foreground included laundry, cook house, mess hall and dormitory for students and workers while Old Main was being built. These buildings were located behind the present Old Main and where Carnegie Building is located.

Many believe that Extension work in Dairy and Animal Science began with the passage of the Smith-Lever Act in 1914. However, numerous Extension-type activities were underway before that time. If Agricultural Extension can be described as carrying the teaching of agriculture to the people beyond the campus, then the "Farmers Institutes" and other agricultural teaching began in 1877 and were carried out in various ways and locations. It was soon evident that this type of teaching created a hardship for faculty who were expected to continue to teach in the classroom on campus.

Penn State's Board of Trustees met on January 23, 1907, and took action to create the Agricultural Extension Service in Pennsylvania. Alva Agee of Wooster, Ohio, was hired as the first superintendent of Agricultural Extension. In January 1910, M. S. McDowell was transferred from a teaching

position to the Department of Agricultural Extension, thus creating a two-man Extension Service. When Agee resigned in 1912 to accept a similar position in New Jersey, McDowell was appointed Director of Extension and served in that capacity until he retired in 1941. On March 1, 1910, A. B. Ross was appointed as the first county agricultural agent in the United States and was assigned to

Bedford County. Pennsylvania had 13 county agents by the time funding from the Smith-Lever Act became available in 1915. Before that time, most had been funded by local Farm Bureau units.

In the early 1900s, most farms kept a variety of livestock: cows, horses, sheep, swine, and poultry. Livestock numbers were small, and by today's standards, such farms would be classified as subsistence agriculture. The work of the early livestock specialist in teaching the basics of feeding and management was limited by the amount of technical information available and, in many cases, took the form of reporting what was working for others. The agents could not be experts in all fields, and they came to rely on "specialists" from each of the departments on campus. Funding and administrative supervision of the specialists was under the Director of Extension until the early 1970s, when these responsibilities were transferred to the appropriate department heads.

L. C. Tompkins was an instructor in dairy husbandry starting in 1913. He taught courses on campus, but also had educational duties in the field. Tompkins resigned in 1918 and was replaced by Roscoe Welch. Prior to that time, Welch had been a USDA-sponsored Community Development agent and had organized the first Pennsylvania bull ring in Mercer County in 1916. Welch did extension work in dairy from 1919 to 1921, when a funding shortage caused him to seek other employment. Welch returned to the dairy department in 1926 and continued to do extension work until his retirement in 1948.



After Old Main was completed, the shacks were removed. This barn and out buildings were lost to fire in 1897.

As mentioned earlier, William H. Caldwell was appointed in 1888 as the first instructor to teach dairy subject matter in a winter short course type of setting, even though instruction and research in dairy was not organized into a specific department until 1905. The first classroom was in a structure at the site of the "Old West Barns." Patterson Hall was built in 1904, and within the year the newly-created department moved to more adequate teaching and research facilities that included a creamery. The first college credit course in the manufacture of ice cream was held in 1905. About 1910, as the dairy industry became more specialized, instruction and research in dairy subjects was divided into dairy production and dairy manufacturing options.

In 1915 the Stock Judging Pavilion (now the Pavilion Theatre) was constructed and provided facilities for the evaluation of meat animals and the educational work related to the processing and handling of meat and its by-products. Another development that impacted the staff was the merging of the college poultry program with the Animal Husbandry department in 1908, an arrangement that continued until 1920. In 1923 Dr. James F. Shigley joined the Department of Animal Husbandry and established a pre-vet curriculum that continued until 1953.

Borland Lab was completed in 1932. Both the Dairy Department and the creamery were moved

from Patterson Hall to the new facility. In 1954 the Dairy Husbandry Department was renamed the Dairy Science Department. In 1966, Dr. Stuart Patton became the first faculty member from the department to be named an Evan Pugh Professor. Patton had started his Penn State career in 1949, and his work in the micro-chemistry of food flavors, primarily those in milk and dairy products, gained world-wide attention for the department. He pioneered the use of gas chromatography and mass spectrometry in flavor research and was among the first to develop an interest in lipids as a factor in heart disease and to study milk and lactation in humans.

The departments of Animal Nutrition and Animal Husbandry were combined to form the Animal Science Department under the leadership of Dr. Russell Miller in 1960. The Animal Science faculty moved from Armsby to the third floor of Henning Building in 1969.

In 1976 Dairy Manufacturing faculty joined with selected personnel from several other departments, to become the core of the newly-formed Food Science Department. The Dairy Production and Dairy Extension units were then merged with their Animal Science counterparts to form the Department of Dairy and Animal Science with B. R. Baumgardt as head. Since 1990 the department has occupied the third floor in both the Henning Building and the inter-connected Animal Science and Industries Building.

Dairy Husbandry/Science Extension

Professor E. B. Fitts was the first head of Dairy Extension at Penn State. He began work in 1922 and retired in 1937. Robert H. Olmstead became chair of Dairy Extension in 1937 and retired in 1954. Upon his retirement, Joe S. Taylor became chair and held the post until his death in 1974. Both Olmstead and Taylor made significant contributions to the development of the artificial insemination (AI) industry in the state. They also led the educational effort to eradicate both TB and brucellosis from the Commonwealth's dairy herds. Prior to 1975, Extension groups operated somewhat independently of the department, as they were responsible to the Director of Extension for the College of Agriculture, rather than to the head of the Dairy Department. This arrangement was true for all Extension units in the college at the time they were established, but they were all gradually integrated into their departmental structure.



Completed in 1932, the Dairy Department and the creamery were moved from Patterson Hall to Borland Lab.

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Table 1. Retired Dairy Extension faculty with major years of service and their area(s) of expertise.

Name	Years	Expertise
Roscoe Welch	1919-1948	Management, dairy breeding
E. B. Fitts	1922-1937	Management, section chair
Robert H. Olmstead	1921-1954	Nutrition, section chair
Charles Gearhart	1923-1955	Dairy Herd Improvement program
Joseph C. Nageotte	1929-1956	Management, dairy housing
Ivan Parkin	1934-1964	Milk quality
Joe S. Taylor	1945-1974	Management, section chair
Herbert C. Gilmore	1946-1980	Dairy Herd Improvement program
Harvey E. Shaffer	1946-1979	Reproduction
Richard S. Adams	1954-1994	Nutrition
Donald L. Ace	1955-1984	Nutrition, management, section chair
Dexter Putnam	1956-1981	Dairy Herd Improvement program
W. Paul Anderson	1956-1986	4-H dairy program, coach of 4-H judging team
Larry W. Specht	1957-1996	Genetics, dairy records, section chair
Stephen B. Spencer	1960-1995	Milking management, dairy facilities
Sidney Barnard	1964-1997	Milk quality, (Dept. of Food Science, 1975-97)
C. William Heald	1981-2002	Management, section chair

Penn State Dairy Herd

Cows were present on campus as early as 1865. They were housed in the "Old West" barn complex (where Carnegie building is now located) until 1897.

These structures had been built prior to 1865, and, in addition to the dairy barn, one building was used for classes and a second one served as a creamery. An undated photo of the original barns shows a number of outbuildings, including a horse stable, piggery, butcher shop, laundry, and creamery. One historical reference indicated that the butcher would ring a bell to let the townspeople know when meat was available for sale. The barns and outbuildings were destroyed by fire in 1897. New barns were built a bit further to the west (south of the current Recreation Hall location). These were utilized until the dairy herd was moved to new barns at the corner of Curtin and Shortlidge in 1915. A report in the Alumni News (circa 1934) indicated that the West barns



New West Barns, built 1897-98, were located below Rec Hall at the intersection of Pollack Road and Atherton Street

In November 1891 a fire destroyed most of the "Old East" barns, and new facilities were constructed. Photos before and after 1891 show two different sets of buildings. The new construction was designed to meet Armsby's needs and also to house the horses and machinery. It operated as a dairy farm with 18 acres set aside for the famous Jordan Fertility Plots. The farm provided the feed for the herds in the East Barn Complex (also known as the Experimental Farm). Sales from the farm were confined to dairy products and livestock and were used to support the research and operational costs.

The buildings housed 43 head of dairy cattle, including six box stalls, plus space for eight horses. When the barns were rebuilt, the original herd was sold because it had become infected with brucellosis. New animals were purchased including a purebred Guernsey bull. In 1894 a creamery and an ice house were built, making it possible to manufacture butter. A building known as "Hemlock Hall" was erected and used for instructional purposes. Poultry facilities were also built nearby. The dairy operation at this location probably ceased when the new barns were ready in 1915. Creamery operations were likely moved to the Patterson Building creamery when it opened in 1904. In later years, these barns housed the horses, a blacksmith shop, and farm machinery. The machine shop was torn down in 1938, and the last of the "Old East" barns was removed around 1940.

were gone and that the herdsman's house was serving as a caddy house for the new golf course.

A second herd was housed in the "Old East" barns, at the site of the present Fenske Lab. These barns were built in 1869 and housed the horses and machinery used on the college farms. Later, Armsby added facilities for dairy cattle, swine, and a creamery in support of his nutrition research program. The Agricultural Experiment Station headquarters were located north of the East Barn complex and east of Armsby. This building served at one time as housing for the Agricultural Education Department and is currently used by the College of Arts and Architecture.



The first Old East Barns (destroyed by fire in 1891) with Mt. Nittany in the background.



Armsby built the Ag. Experiment Station barns, known as East Barns, in an area where Fenske Lab and Buckhout Building now sit. In front center sits Hemlock Hall (a classroom), in back center sits the barn, far right is the power plant and to the left is the creamery. These barns burned in 1891.



Built in 1892, these Old East Barns replaced those destroyed by fire a year earlier. The corn crib is located in foreground, a pig pen was to the right and the upper story of Superintendent Patterson's House is shown in the background. The skyline shows Mt. Nittany.



A view of the power plant with some of Armsby's Guernsey cows.



The second Old East Barn showing Farms Superintendent Patterson's house (right) and the first fertility plots (front center). Photo taken in 1888.



The Shortlidge/Curtin dairy barns built in 1915, located where the Ag Administration building now sits. The shed portion along Curtin housed 60 cows and a milk house. The shed at far right was a manure holding area. The barn along Shortlidge contained areas for hay and grain storage, grinding and mixing facilities, office, locker room

In 1915 all dairy cattle were moved to the newly-built barns located on the site now occupied by the Agricultural Administration building (corner of Curtin and Shortlidge roads). The structures were of a Swiss-style of architecture and often referred to as the most esthetically pleasing buildings on campus. The outside walls were an off-white stucco, and the roofs were of reddish-colored slate shingles. A large weather vane adorned the center cupola and is now on display at the Pasto Agricultural Museum. The main barn included a heated dairy office, locker room,

and student milker dormitory.

the grinding and mixing facilities, and a hayloft. A silo was attached to it on the west end and adjacent to the silo, extending eastward, was the main dairy barn with stalls for 60 cows. The milk house was near the middle of the main barn. Beyond the dairy stable was a manure storage shed. An identical second silo stood on the north end of the barn and to the east was another dairy unit that housed 15 cows and several box stalls. This barn in later years housed the Guernsey herd, and the box stalls were used mainly for cows on "Official Test." It became known as the "Test Barn." The main structure and the dairy stables were built in a U-shaped design, with the barnyard and the watering troughs in the area between the two wings. Some years later, a shed was added to the end of the Guernsey barn. It housed baby calves and five bull pens (one for each breed) and had additional space where 25 extra cows were kept and milked by hand. In the 1930s several additional silos were added to the complex. Nearby, a two-story barn was used by the Department of Animal Nutrition for their research. Just beyond this structure, another separate building housed the veterinary hospital.

and a dormitory for four student barn workers. It also held the grain and feed storage areas,



Shortlidge/Curtin dairy barns, built in 1915, at silo filling time. Immediately behind the silo are the sheds that housed the Guernsey herd, heated baby calf pens, bull pens and overflow animals from the milking herds.



The dairy barns, built in 1915, are in the background and to the right are sheds for cows, calves and bulls. The two story structure used by the Animal Nutrition Department and the veterinary hospital is to the far right.

In 1953 the herd again moved to new facilities that were, at that time, on the edge of the campus and close to the present location of Beaver Stadium. This Dairy Center provided a barn for each of the five breeds, a main office building for the herd manager and supervisors, and an upstairs dormitory for the student workers. A small pavilion connected to the office building was used for instruction, demonstrations, and judging practice. Most all of these buildings and a number of support structures (silos, etc) are now used as research units or as offices and storage facilities.



The dairy barns, built in 1915 and destroyed by fire in 1969.



Built in 1951-52, these dairy barns were located across the fields from the football stadium. There were five barns, each housing a single breed of dairy cows and each constructed with a different plan so as to evaluate different ventilation systems, barn feeding and cleaning systems, open and closed housing, feed storage methods and different milking systems. The building in front housed offices, student dorms, a repair shop, large farms scales and an arena.

In 1995 new facilities at the Dairy Center became operational. They include a free-stall barn, a tie-stall barn (both housing milking cows), a free-stall heifer barn, and new milking parlor facilities. Currently, the herd consists of 220 milking Holsteins and 130 heifers that support the teaching and research programs of the Dairy and Animal Science Department.

Dairy Herd Health

Over the years, the herd has suffered several setbacks due to health problems. While it was one of the first in the state to be TB tested in 1892, the herd became infected with tuberculosis in 1907, and all but a dozen animals had to be destroyed. The herd was rebuilt, but in 1916, TB caused the slaughter of nearly a hundred head, and only a few survived. The newly-hired herd manager, Philip D. Jones, rebuilt the herd once again by purchasing a carload of Holstein heifers and receiving donations over time from owners of animals of other breeds. "P D" (as he was known) was herd manager for 40 years and, with the strong support of department head Andrew Borland, brought the herd much recognition during his tenure. In 1928 brucellosis caused the loss of 28 head, but there have been no major disease outbreaks since that time.

Complete records of milk and butterfat yield were kept on each cow, since the herd was maintained for instructional and research purposes. In 1905 the herd average was 5285 pounds of milk and 267 pounds of butterfat. Another average available on the herd's production was for the test year 1921/22, when 44 cows averaged 7465 pounds of milk and 304 pounds of butterfat. In 1948, when

Borland retired and Dr. Donald V. Josephson became department head, the herd averaged 11,489 pounds of milk and 478 pounds of butterfat. Currently, production exceeds 24,000 pounds of milk per cow, more than double the 1948 figure.

Other Facilities

For a number of years, an overflow group of about 30 milk cows was kept at the Mitchell Farm, located near the present-day Housing and Food Services building. These animals were merged with the main herd when the new dairy complex was completed in 1953.



Known as the cow with the window in her side, Penn State Jessie brought worldwide attention to Penn State in 1928. Professor of Dairy Husbandry Samuel I. Bechdel (left) and Professor of Veterinary Science James F. Shigley (right) conducted a series of experiments on the contents of Jessie's stomach, which had an important and lasting influence on the new field of research called Ruminology. A 3.5 inch opening was surgically created in Jessie's side and rumen through which contents could be accessed with a dipper. A crude wooden stopper was inserted to close the opening. Jessie continued to function normally with the rumen fistula.

In 1926 Professor Samuel Bechdel assembled a herd of 40 Holstein cows and a like number of heifers at an outlying farm near Houserville (known as Farm 12) for dairy nutrition research. This herd was incorporated into the main herd in 1972. The milking herds were supported by nearby calf (Farm 10) and heifer (Farms 7, 8, and 13) facilities.

Professor Bechdel was well known for his collaboration with Dr. J. F. Shigley, Professor of Veterinary Science, and their work with Penn State Jessie, known as "the cow with the window in her side." Beginning in 1928, the 3.5-inch wide rumen fistula allowed researchers to sample the contents of her rumen at any time and to make comparisons as to types of feed ingested and the microorganism's that were present. The animal's continued good health allowed the researchers to also work in the area of Vitamin B-deficient diets.

In 1949, another group of non-lactating dairy animals was established at the Dairy Breeding Research Center, located just beyond the present dairy production unit. The research center was built with support from the state's A. I. Cooperatives. The barns housed mature bulls, younger bulls, and females used for research and teaching in reproductive physiology.

In 1999 the facility was renamed the John O. Almquist Center in honor of the man whose work was instrumental in leading the unit to national prominence. Faculty members Drs. Robert F. Flipse, T. Y. Tanabe, and Rupert Amann all utilized this facility while making important contributions in the field of reproductive physiology.



The Dairy Breeding Research Center dedicated in 1949, funded largely through contribution from the five A.I. Cooperatives, was renamed the J. O. Almquist Research Center in 1999.

Milk Handling

A creamery was started in 1865 in one of the buildings that was a part of the "Old West Barns" complex. A second creamery was located at the "East Barns" complex where Armsby's Experiment



Following the fire in 1891 that destroyed most of the first Old East Barns, Armsby built a new creamery located to the right of the Ag Experiment Station and below where the Judging Pavilion is located.

Station herd was kept. In 1894 Armsby built a third creamery, located east of the Agricultural Experiment Station, in order to accommodate the demand for butter brought about by the increased enrollment in the winter short course program. In 1904 the Dairy Building (later named Patterson Hall) was built. The dairy department offices and the creamery facilities were relocated to Patterson and housed there until 1932. At that time, the department offices and the milk plant facilities were moved to a new "dairy building" that was later named to honor longtime department head Andrew Borland. The dairy plant in Borland Laboratory was located on the ground floor, and the dairy salesroom was one flight up. The dairy plant still occupies the major part of the basement floor in Borland. In 1961 a new sales room

was built at ground level as an addition to the main building.

Milk from the departmental herds, combined with that from local farms, was delivered to the University creamery, providing milk and other products for use by the student body and some local retail sales. Retail sales were discontinued in 1958 because of objections by local milk handlers that the University creamery had an unfair advantage since it was funded by "taxpayer" money. The facility continues to receive milk from the University herds and from two other local dairies and to process it as a part of the teaching and research program.



Patterson (Dairy Building) completed in 1904, housed the Creamery and classrooms. The horses and milk wagons are lined up along Curtin Road. The Calorimeter building is to the left and Armsby Building is to the rear.



Patterson, showing the milk receiving platforms along Curtin Road, with "Model T's" delivering milk to the Creamery from nearby farms.

Table 2. Retired Dairy faculty with major years of service and their area(s) of expertise.

Name	Years	Expertise
Samuel Bechdel	1913-1946	Nutrition, silage preservation
Wilbur Swope*	1914-1951	Milk and milk products
A. Leland Beam	1915-1954	Dairy management, dairy judging coach
Andrew Borland	1919-1948	Teacher, department head
Paul Williams	1920-1961	Official records testing programs
John O. Almquist	1944-1983	Physiology of reproduction
Earl Kesler	1948-1984	Nutrition, milk secretion
Frank Cone**	1948-1960	Dairy bacteriology
Donald V. Josephson	1948-1975	Teacher, department head
Stuart Patton***	1949-1980	Milk composition
T. Y. Tanabe	1949-1990	Physiology of reproduction
Robert Flipse	1950-1988	Physiology of reproduction
Howard Thoele	1954-1985	Genetics, College Administration
Homer Cloninger	1955-1970	Dairy management, dairy judging coach
Rupert Amann	1961-1980	Physiology of reproduction
August E. Branding	1964-1979	Dairy management, dairy club advisor
Paul Shellenberger	1967-1997	Teacher, student advisor
George Hargrove	1970-1998	Genetics, student advisor

* Dairy Manufacturing faculty, but taught required course for all dairy students

** College of Science Bacteriology faculty, but taught required course for all dairy students

*** Dairy Manufacturing faculty (later Food Science) but an integral part of the dairy science program

Donald L. Ace, Professor of Dairy Science

Larry W. Specht, Professor of Dairy Science

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Beef Cattle



The beef barn was built in 1924 along Shortlidge Road, at the intersection with Park Avenue. Both the beef barn and sheep barn (not pictured) were similar in architecture to the dairy barn, making Shortlidge from Curtin to Park an unusually picturesque scene.

The department's early activities with beef cattle were limited because such cattle were of little financial importance in Pennsylvania's agricultural economy until the middle of the twentieth century. Most farms had a mix of animals including dairy cows, swine, sheep, poultry, and horses for farm power. In 1900 the state's sheep population numbered about a million head, largely concentrated in the southwestern corner of the state. However, the earliest statistics that separated beef cattle from dairy cattle were found in the 1920 census that listed 30,000 beef and 893,000 dairy animals. Beef cow numbers declined to 12,000 head by 1940, and then reached a high of 247,000 in 1982. Beef breeding herds have usually been a secondary enterprise or located on part-time or hobby-type farms. Many farmers who had quit the dairy business and/or those who had jobs in town

put beef cows on their land to utilize their pastures and hay crop acreage. In contrast, steer feeding was a major enterprise in southeastern Pennsylvania because of the demand for "kosher" beef by slaughter plants located in Philadelphia and New Jersey. Many slaughter cattle were shipped by rail from Chicago and other mid-west assembly points. Steers in Pennsylvania weighing 500 pounds or more were reported at 121,000 head in 1920 and reached a high of 294,000 head in 1977.

When the Department of Animal Husbandry was formed in 1907, it was noted that they owned only four beef animals. Such limited numbers were a serious handicap to teaching and research work. The 1920 college catalogue reported having both Angus and Shorthorn cow herds. Early research work with beef cattle was with fattening steers, comparing housing systems (open shed vs. enclosed barn), types of roughage, and cottonseed meal vs. "Ajax" flakes. No information seems to be available as to what the latter contained.

Franklin L. Bentley was the first professor in the department with full responsibility for beef cattle teaching and research until the late 1940s. Alex Buchan was the first full-time beef herdsman. He was hired in 1923 and retired in 1963. The Pennsylvania Legislature passed the Livestock Improvement Act in 1949 that allocated funds for the improvement of the herds and flocks at Penn

State. It was a revolving fund in which the proceeds of livestock sales were returned to the fund. James Christian was on the resident staff and in charge of beef cattle from 1947-49. Glenn Kean joined the faculty in 1949 and taught the beef courses until 1954, when Herman Purdy was hired as "Coordinator of Beef Cattle." Purdy retired in 1972 and was replaced by Erskine Cash. Under Purdy and Cash, the quality of the beef herds improved. Many show champions have been exhibited in the Angus and Polled Hereford breeds, and numerous outstanding sires have been produced from the departmental herds. In the 1970s the measure of an animal's worth gradually moved from show ring winnings to the concept of beef performance testing. Over the years, Penn State has owned and worked with herds of Angus, Hereford, Shorthorn, Charolais, and Simmental cattle. With the help of long-time beef herdsman Don Nichols, the college has been in the forefront in producing top quality Angus cattle. All of the present-day purebred beef cattle are Angus.

In the mid-1950s, a cooperative agreement was worked out with the Rockview Correctional Institution for a long series of research trials comparing steer grazing systems, crossbreeding, and sire evaluation. All of the beef produced was slaughtered at the University's Meats Laboratory and returned to Rockview. The present beef cattle barns were completed in the late 1960s, with one entire wing devoted to feeding research. Trials are currently being carried out at this location utilizing food industry by-products as well as general beef nutrition studies. Harold Harpster and John Comerford direct these studies.

The Haller Research Farm enabled the department to carry out long-term studies on grazing systems, crossbreeding, and management systems under the leadership of Lowell Wilson. Wilson coordinated a cooperative research effort with the Agronomy and Agricultural Engineering departments, which utilized the Haller farm unit.

Some of the beef bulls and steers that lifted Penn State to national prominence:



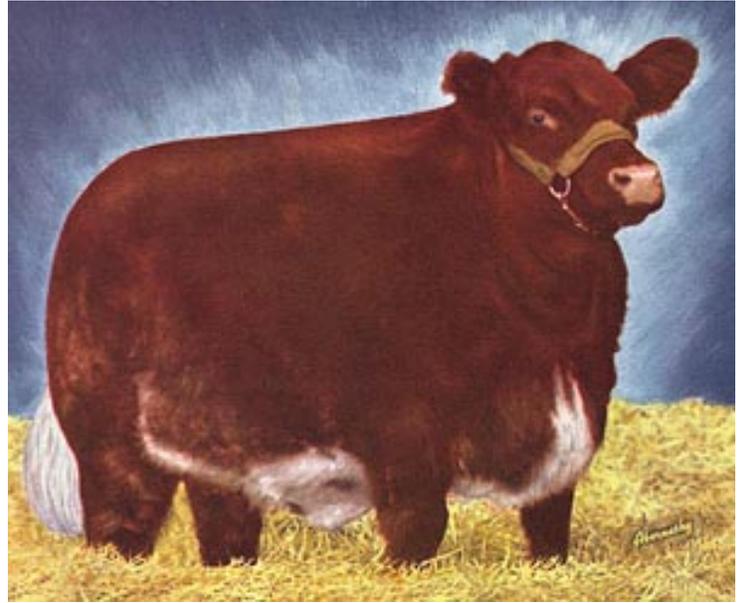
PS High Pockets



PS Eilenmere



PS Power Play



PS Troubadour

Lester A. Burdette, Professor of Animal Science

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Swine



Dave Hosterman (left) and Vernon Hazlett (right), long time swine herdsman at Penn State, with a show winner.

A report from the Agricultural Experiment Station in 1909 indicated that swine research was carried out by T. I. Mairs and S. W. Doty. It compared diets of "corn chop" and tankage with diets of middlings for pigs from a weight of 190 pounds to 635 pounds. In 1927 the Agricultural Experiment Station reported on research done by M. F. Grimes in which he compared the use of various feed ingredients for growing and finishing swine. In 1936, M. A. McCarthy, T. E. Nichols and T. B. Keith carried out studies on the value of grinding corn for pigs. The first Experiment Station Bulletin on swine research was published in 1940. This multi-year study concerning the protein levels for pigs of different weights was done by Keith and R.C. Miller, an Assistant Professor of Agricultural and Biological

Chemistry. This was the most frequently cited swine research that has ever been published by Penn State. In the 1950s and 1960s, Penn State demonstrated the effects of crossbreeding on the reproductive traits of swine. This effect of heterosis has given rise to the dominance of crossbreeding in commercial swine production. Penn State's early studies of swine behavior provided insight that led to improved swine management techniques. Early behavioral work concentrated on nursing behavior and the behavior of the nursing pig.

The first mention of a swine breeding herd was in 1920 when Grimes was in charge. In 1930 McCarthy was put in charge of the swine program. During his tenure, Penn State showed many barrows at the International Livestock Show. This effort produced a number of national champions in the Berkshire and Duroc breeds. During McCarthy's tenure, Keith joined the faculty as an instructor and later was appointed an Assistant Professor of Animal Husbandry. Larry Gobble joined the faculty in 1947 and became head of the swine program. He taught courses in swine husbandry and nutrition and did research work in swine nutrition.

In 1949, the Pennsylvania Legislature passed the Livestock Improvement act. The act allocated funds to Penn State to improve the herds and flocks of the Department of Animal Husbandry. It

established a revolving fund in which the monies could be spent for animals and the hiring of personnel since the proceeds of animal sales would be returned to the fund. Grant Sherritt joined the faculty in 1949 as an instructor to do field research on strains of Landrace swine that had been developed by the United States Department of Agriculture. This work was carried out under a joint Penn State-USDA project. In 1951 Sherritt was given a research and teaching appointment that he held until he retired in 1985. In the mid-sixties, Sherritt was placed in charge of herds and facilities. Vernon Hazlett was herdsman from 1959 to 1995 and was a major factor in the success of the swine breeding program. During this time, Penn State developed outstanding herds of Yorkshires, Berkshires, and Durocs and won many national championships at the International Livestock Show and the National Barrow Show. Such animals contributed significantly to the improvement of these breeds through sales of breeding stock to herds in Pennsylvania and other states.

The earliest reported swine facilities were located at Farm 5 near Houserville. The first permanent building there was a farrowing facility with 12 pens, reportedly built in the 1930s. All swine except sows and their nursing pigs were kept on pasture with movable structures for shelter. In the late 1930s, a similar building with 12 pens was built for feeding and nutrition trials. This building is now used by the Veterinary Science Department. A Quonset hut type of structure was built in the late 1940s to store feed, to house a grinder and a mixer, and to provide an office.

In 1950-51, hog cholera infected the swine herd, and all animals were slaughtered. For the next several years, pigs were purchased for classroom use and for feeding studies and then slaughtered at market weight. This provided the push required to develop plans for a new swine facility, and the present central facility was built in 1958. The "Agway Barn" was built in 1968 in order to evaluate a system of keeping pigs in the same pen from birth to market. Agway Cooperative financed the building and the research studies. A "Nebraska" open-front type of building was built in 1980, following a proposal developed by Sherritt and Dwight Younkin, Extension Swine Specialist, on staff from 1953 to 1980.

Feral pigs: In the mid-1970s, nine weaning-age pigs were brought to Penn State from Ossabaw Island, Georgia. These were feral (wild) pigs whose ancestors had lived on the island for several hundred years. They matured at 200 to 300 pounds and at that stage had 3 to 4 inches of backfat. They were obese pigs and were used for about a ten-year period to study adipose tissue metabolism and factors that regulated adipose tissue growth and development.

Grant W. Sherritt, Professor of Animal Science

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Sheep

At one time, sheep were an important livestock species in Pennsylvania. Large flocks of fine-wooled sheep could be found in the southwestern part of the state and medium-wool mutton breeds in the southeast. Because of the pastoral agriculture practiced and the ability of sheep to utilize forage, they were a valuable livestock commodity. Wool from Merino sheep was in demand; it could be held in storage for a long period of time and could be produced economically. It is reported that more than one million sheep grazed the hills of the Commonwealth in 1900.



A group of sheep, ready for exhibition, photographed in front of the Old East Barns around 1930.

In the early years, the sheep owned by the University were almost entirely Merinos, a fine-wool breed that produced outstanding fleeces, but were of little value for lamb or mutton production. In 1920, W. H. Tomhave and C. W. McDonald authored Agricultural Experiment Station Bulletin No. 163, entitled "Cross Breeding Delaine Merino Ewes with Pure Bred Mutton Rams." One of the objectives of the experiment was to "grade up a flock to mutton-type conformation." Although fine-wooled sheep had been the predominant type for many years, the emphasis in Pennsylvania sheep production was changing. Sheep that were faster growing, more efficient, and meatier were being sought. Merinos became instrumental in the production of

foundation ewes for crossbreeding to mutton-type rams, resulting in both desirable market lambs and hothouse lambs for specialty markets. Research along these lines, plus studies in wool production and fiber diameter, continued for some time.

When Dr. William L. Henning joined the faculty, a gradual change in breed emphasis took place. Purebred flocks of Southdowns, Shropshires, and Horned Dorsets were added. Later Hampshires and Cheviots became part of the purebred breeding effort. In 1960 the five breeds named, plus one representative of the Merino breed, comprised the sheep inventory. In the early 1950s, Carroll Shaffner, a well-known fitter and showman, was hired as shepherd and flock manager and was charged with bringing the flocks to prominence. Penn State soon gained recognition as a major contender in purebred shows and sales and as a producer of quality seedstock. Rams imported from New Zealand were used in the Southdown flock, bringing about significant changes in size and

productivity. Shropshires were selected for increased size and more open faces. The other breeds were also improved by judicious selection and breeding practices. Much of this improvement was the result of the Livestock Improvement Act of 1949 that provided funds for livestock purchases.

Late in the 1950s, the Horned Dorsets were replaced with Polled Dorsets, the only breed remaining at Penn State today. The Southdown, Shropshire, and Cheviot flocks were dispersed at the height of their popularity and value. Hampshires were replaced with a high quality Suffolk flock. For several years, Polled Dorsets and Suffolks were maintained, each flock numbering approximately 40 ewes. The small flock size made it difficult to follow a meaningful breeding program, and the decision to concentrate on only one breed was made. Dick Kuzemchak succeeded Shaffner as shepherd and has continued the tradition of good shepherding and high production. The purebred flocks have made important contributions to the genetic composition of many flocks in the United States through the rams and ewes that have been produced and sold. In addition, outstanding classroom material has always been available.

The "old" sheep barn, located where the Henning Building now stands, was replaced in 1961 with the current Beef and Sheep Center. Student living quarters, offices, research areas, as well as housing for animals, are included in this facility. Numerous metabolic and related studies have been conducted in the air conditioned "metabolism room." Crossbreeding, creep feeding, milk production, estrus synchronization, and pasture trials have been ongoing research efforts through the years.

Professor Harry Havner DVM was the first faculty member appointed to carry out extension work with livestock other than dairy. He started work in 1911 and resigned in 1929 to go into commercial work. In 1918, W. B. "Bill" Connell was hired. He worked primarily with beef and sheep production until his retirement in 1951. Connell was responsible for starting the "wool pools" that became an important step in the marketing of wool in the state. Wool pools were usually held in June, and most of the early animal husbandry specialists spent a good portion of the month grading wool. Selection procedures for traits important to livestock were largely based on the physical characteristics of animals exhibited at county fairs and field days. These event demonstrations occupied a considerable amount of a specialist's time during the summer and early fall show season.

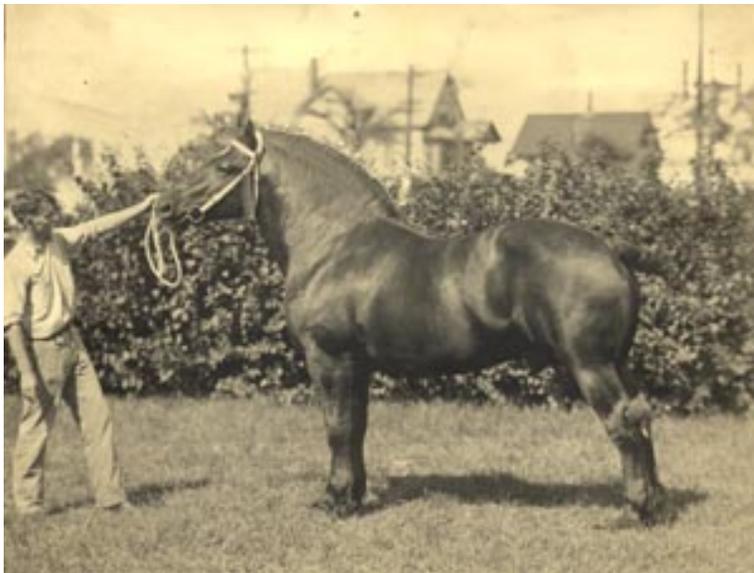
Beginning in 1956, Ben Morgan provided leadership and expertise for an excellent extension program. His shearing schools and barn meetings were very valuable to sheep producers throughout the state. Annual field days were always well attended; talks, demonstrations, and a "lamb stew" luncheon drew sheep enthusiasts to the campus. The Department hosted a National Hampshire Sheep Type Conference in 1971 that brought Hampshire breeders from a wide area. Short Courses and Correspondence Courses emphasizing the "how to" of sheep production have also been a part of the history of sheep at Penn State.

Tom Merritt, Professor of Animal Science

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Horses

Horses of various types and breeds have long been a part of Penn State history. Draft horses provided the power necessary to plow, harrow, cultivate, mow, rake, harvest, and haul the crops grown on the College farms. They also moved soil in excavating basements for buildings, hauled stone for buildings, walls, and, in general, did the heavy work required as the College grew. They were indispensable in an era without trucks and tractors. Barns to house these heavy horses were constructed in several locations on what is now the central campus. In addition to draft horses, light-leg driving horses pulled carriages that carried dignitaries to college functions, and riding horses furnished another means of transportation and recreation.



One of the early draft horses used for farm work at Penn State. Buildings in the background were part of the old East Barn Complex.

In what is now the Department of Dairy and Animal Science, horses have contributed primarily to the teaching program for undergraduate students. The aim has always been the production of quality animals that would contribute to the education of students. A complete program of selection, breeding, feeding, stable management, and marketing has been followed. Draft horses were first used in this program; Belgians and Percherons were selected as the breeds to be emphasized. One of the notable Percheron stallions used during the early years was a son of Laet, considered to be the premier stallion in the history of the Percheron breed. Three Land-Grant Universities (Penn State, Ohio State, and Michigan State) headed their Percheron breeding operations with Laet sons. All became prominent in the production of

quality animals.

A large barn designed for draft horses was constructed in 1929. This barn, located near Beaver Stadium, is still being used, although there have been some modifications and additions made. Another 24-stall barn has been added where stallions are housed and mares foal.

The 1949 Livestock Improvement Act had a significant impact on the horse program. The decision was made to acquire some of the very best Percheron horses available and to exhibit these horses

at the major shows. Elmer Taft, a well-known conditioner and showman of draft horses, was hired to head this effort. A number of champions followed, most notably the mare Linda Hope, who won numerous halter championships. Later during the 1950s, the Department embarked on a rather short-lived Morgan horse breeding and showing project with considerable success in the show ring. Of note was the record of the mare Quaker Lady, who was many times champion model mare at the National Morgan Horse Show. In 1955 the Quarter Horse stallion Sorrel Chief was purchased as a yearling from Michigan State University, and the era of the Quarter Horse began.

The American Quarter Horse was the breed of choice for departmental emphasis because of their popularity in the state and nation and because livestock judging contests had replaced draft horses with Quarter Horses in those contests. Two mares, Akins Shirley and WMD Orphan Annie, became the foundation broodmares in the breeding program.

In 1963, E. B. Rickard of Ann Arbor, Michigan, donated the stallion Poco Shade to the department. Poco Shade was by Poco Bueno and out of the mare Shady Dell, the leading broodmare of the breed at that time. Poco Shade was bred to daughters of Sorrel Chief, producing some outstanding fillies that became part of the broodmare band. Charles Pritchard from Flemington, New Jersey, donated a group of 20 Quarter Horses to the University in 1969. Among the horses donated was the stallion Rebel Sir and the mare Coral Bars. These horses contributed greatly to the success of the horse breeding operation in the years to follow.

During this same period, the University received a donation of 18 high quality Arabians from a breeder in Akron, Ohio. El Effendi, one of the stallions donated, was the National Reserve Champion Park Horse. Because of limited facilities, personnel, and funds, the Arabian horses were sold two years following their acquisition.

In 1971 the palomino Quarter Horse stallion Skip Sioux was purchased from Hank Weiscamp in Alamosa, Colorado. Skip became an almost instant success, siring the ROM performer Skip O' Mist in his first foal crop. Many outstanding produce that gained ROM and AQHA recognition and honors followed: horses like Ultra Skip, Color Me Skip, Hail To Skip, and Youth Supreme Champion Devious Skip. Skip was an outcross on the linebred mares in the broodmare band, and the resulting hybrid vigor was immediately apparent. He was an extremely prepotent sire, stamping his outstanding qualities of conformation, breed character, performance, disposition, and refinement on his offspring. More than 30% of his offspring were AQHA point earners. His success as a sire propelled Penn State to world class status as a breeder



of American Quarter Horses. Penn State was recognized in 1982 as the sixth leading breeder of Quarter Horses worldwide, becoming the first and only University to be ranked as a leading breeder.

Skip Sioux propelled Penn State to world class status as a breeder of American Quarter Horses.

Students benefited from the quality horses produced. In 1981 the Horse Judging Team won the Judging Contest at the World Quarter Horse Show in Oklahoma City and became a World Champion Quarter Horse Judging Team. In 1982 a Penn State student was named World Champion Performance Horse Judge. The top quality horses being produced were used extensively in management and production classes and were sought by purebred breeders and professional horsemen throughout the eastern half of the country.

From 1965 until 1982, a two-week Horseshoeing Short Course was offered each summer. Ward Studebaker was the principle instructor for the course. The course was so popular that two sessions were required to meet the demand; at one time 300 students were on the waiting list. Students from all walks of life, from coast to coast and from several foreign countries, enrolled and completed the course. Short courses in nutrition, reproductive physiology, breeding and management, plus specialized courses for Standardbred breeders and for draft horse enthusiasts became part of the educational opportunities available. A one-year "Horse Farm Managers" program was developed, utilizing expertise from several departments. In addition a ten-week "Standardbred Caretakers School" was taught to prepare young people to become grooms and caretakers of Standardbred racehorses. Correspondence Course #138, *Light Horse Management*, is one of the most frequently requested courses offered by the College of Agriculture.

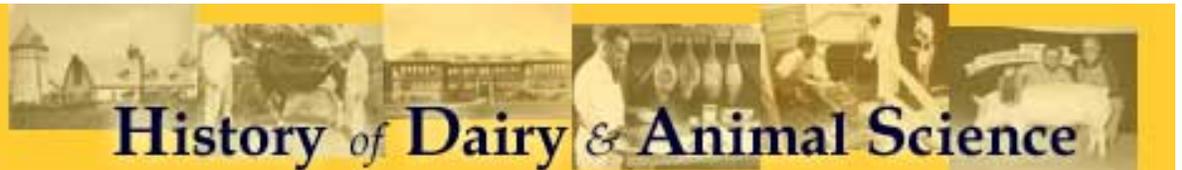
Although the major focus of the horse program has been directed toward undergraduate education, seventeen students received advanced degrees: M.Agr., M.Sc. or Ph.D., from 1966-87. Work has included a wide range of studies in reproductive physiology, nutrition (one of the early studies of digestion in the cecum by means of a fistula), pastures for horses, internal parasite control, early weaning, and therapeutic hoof repair. A few students have taken advantage of an arrangement with the University of Pennsylvania's New Bolton Center that permits a student to obtain a Penn State degree by completing course work at University Park and research at New Bolton Center.

Extension programs to serve the various facets of the industry in the state have been successful. Horse clubs for youth have flourished along with related shows and projects. Over the years both resident faculty and extension personnel have provided leadership for the Pennsylvania Equine Council, The Pennsylvania Quarter Horse Association, and many other horse-oriented groups.

Tom Merritt, Professor of Animal Science

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Animal Husbandry/Science Extension

H. H. Havner DVM was the first Chair of Animal Husbandry Extension, holding the position from 1911 to 1929. He was followed by W. B. Connell from 1929 to 1951. Thomas B. King held the chairmanship from 1953 until 1969, when he became head of Department of Animal Science. The extension staff was merged with the Animal Science faculty at that time.

Havner worked with all species, while Connell concentrated on sheep and beef cattle. L. C. Madison (1924-1953) worked with swine, and Charles Burge (1927-1953) assisted with draft horses, beef cattle, and farm slaughtering. King led the extension effort on beef production, and Dwight Younkin carried out many good swine programs. Frank Kreuzberger and Ben Morgan were hired in the mid-1950s; they both worked with sheep and beef. It was during this time that beef cattle production testing was started, as well as feeder calf sales. Lamb pools were established, and wool pools continued after being established by Bill Connell. Lester Burdette joined the staff in 1958 and worked with swine, beef, and 4-H activities. James Gallagher started on staff in 1963 and worked primarily with light horses.

Other extension faculty hired after 1980 were: Clair Engle, sheep; William R. Henning, meats; Kenneth Kephart, swine; John Comerford, beef; Pat Comerford, 4H Horse Program; and Ann Swinker, horse program.

Lester A. Burdette, Professor of Animal Science

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Deer

R. W. Swift and C. E. French started whitetail deer research in 1952, at the request of Roger Latham of the Pennsylvania Game Commission (PGC). Fawns collected by the PGC were bottle-raised in the early years of the project in chicken wire pens (later adding hog wire, then pine boards) at the Ben Heim farm that adjoined Penn State University property and was under lease to the College of Agriculture. It was learned that the voluntary intake of balanced rations fluctuated drastically with the seasonal hormone changes related to reproductive and antler-growing cycles.

After French resigned in 1958, 24 new pens and a concrete block building to house feed, scales and other equipment were built by Robert L. Cowan and T. A. Long. A new crop of fawns were bottle-raised comparing various milks and milk replacers. The Heim farm lease was dissolved in 1959, and the new pens were dismantled and moved to Penn State, with labor and some fencing provided by PGC. During the 1960s, much of the research focused on relationships between bone metabolism and the endocrine cycles of the male deer. Grants from the Atomic Energy Commission (AEC) supported this work, enabling the equipping of labs for radioisotope studies on bucks at all ages and stages of antler development. Cowan and E. W. Hartsook received training at the Oak Ridge Center for the use of radioisotopes in biological research. Dr. John George studied the effect of feeding DDT to deer in a second set of 24 pens erected at this site. The 48 pens were surrounded by a number of larger holding paddocks for group-feeding trials and breeding groups of deer.

Construction of the Mt. Nittany Expressway wiped out this facility in 1970-71. A grant of \$100,000 from the Richard King Mellon Foundation provided less than half the cost of relocating the pens to the present location, which opened in 1972. Data from extensive feeding and digestion trials, mostly with deer from the Penn State breeding herd, enabled development of equations relating digestible energy (DE) intake to weight gains or losses of growing deer and to seasonal endocrine-related weight changes. The equations provided a basis for estimating the DE consumed by deer in enclosures of natural habitat, thus measuring carrying capacity of habitat types. They also predicted weight gains in deer identical to those listed for sheep in the current NRC publication, confirming that our knowledge of domestic animal nutrition could have been applied directly to the management of deer.

Robert L. Cowan, Professor of Animal Nutrition

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Mink

Mink nutrition research began in 1964 after a request from the Pennsylvania Fur Farmers Association to Dean Jackson to make use of about \$25,000 that had accumulated in a "research fund" from a portion of license fees earmarked for research on fur animals. Dean Jackson agreed, and R. C. Miller, head of the Animal Industry Department, assigned Emery Keck to lead the project. Starting from scratch to learn mink ranching, Keck soon found that \$25,000 (which never materialized) wouldn't make a start! Mink ranchers insisted that mink would eat only fresh meat products. They all had huge walk-in freezers to store frozen horse carcasses and tons of fish and chicken. Heavy-duty electric-powered slicers, "hogger" grinders, and mixers were needed to prepare daily rations of wet paste from these frozen ingredients. A Pennsylvania Department of Agriculture grant (Harness Racing Funds - \$400,000) provided for the building of facilities at Rock Springs, with capability of pelting about 300 mink annually, with equipment for processing both conventional wet (fresh meat) diets and pelleted dry diets. Dry diets were developed utilizing by-product meal from the Empire Kosher Poultry Processing Plant, which contained about 20% whole-bird carcasses due to severity of the Kosher inspection.

The best of the dry diets produced pelts nearly as large and equal in value to those on the conventional wet diets at less than half the feed costs, eliminating the expensive physical plant needed for processing, and sanitation problems associated with spoilage of uneaten food. Because the major fur processors had already invested in the conventional system, they were not pleased with the findings that would encourage competition of lower-cost operations. Their loss of interest and the political changes that came about with the 1972 election resulted in the demise of the project.

Robert L. Cowan, Professor of Animal Nutrition

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Duikers

Blue duikers (*Cephalophus monticola*) are African antelope and are true ruminants, weighing 4-5 kg. as adults. Twenty-four duikers were captured by Robert L. Cowan (with the help of the National Parks Board rangers and as many as 50 African bushbeaters) per capture effort. Sixteen (six males and ten females) survived the required 60-day quarantine in Naples, Italy, and 30 days in a USDA facility in Clifton, New Jersey, and arrived at the Philadelphia Zoo in April 1977.



Blue duiker at home at Penn State.

Ruminants can be imported from Africa only for exhibition in USDA-approved zoological parks. The zoo agreed to exhibit and breed the duikers, giving the offspring to Penn State University to start their breeding herd for the purpose of developing a miniature laboratory subject for ruminant nutrition research. These animals were docile from the day of capture and adapted well to modified rabbit cages for metabolism and digestion trials. Dissection of available carcasses revealed typical ruminant anatomy with rumen-reticular volume ranging from 500 ml. in pellet-fed zoo duikers to 1 liter in wild specimens. Preliminary trials showed digestion coefficients for alfalfa to be very similar to those for sheep fed comparable forage. In spite of weekly visits by Cowan, trying to correct flaws in zoo management, all but four died by 1980, with no surviving offspring—a total failure.

Establishing the Penn State deer pens as a zoological entity appeared to be the most practical way to bring the duikers into a controlled management program. Negotiations with APHIS (Animal Plant Health Inspection Services) at USDA resulted in approval of the Penn State Zoo Park proposition. Cowan returned to Africa in March 1981 with permits to capture 30 duikers. The first quarantine period was to take place in Italy, but interim changes in Italian regulations effectively forced a change of plans. Negotiations (which continued for nearly six months) finally resulted in moving the 24 surviving duikers to a USDA-approved quarantine station in the Namib desert. This station had no water or electricity. Cowan rented space in an old barn, built cages, and lined the walls with cast-off fish net. He lived in a small camper trailer and made weekly trips to town for groceries and water. The quarantine period was for 60 days, but the first blood test in two duikers was positive for Rinderpest. Removal of the infected animals, cleanup, and further testing to ensure disease-free animals lengthened the quarantine period to four months. Twenty animals completed quarantine;

two more died during the final quarantine period in the United States. Thirteen females and five males finally arrived at the Zoological Park (deer pens) at Penn State in April 1982.

The duikers prospered in quarantine, reaching a population of about 140 by 1990 (40 born in 1988; 46 in 1989). During 1990 more than 70 animals died, mostly in an outbreak of Bovine Viral Diarrhea (BVD). Also in 1990, ten males and ten females were euthanized to compare their digestive systems with those of other ruminants. The BVD was brought under control by vaccination and efforts of Dr. Lester Griel, Robert Mothersbaugh, and the resources of the Veterinary Science Department of Penn State. Twenty duikers were donated to Dr. Arian Zarkower for research on Johnes disease. Seven pairs were given to Dr. Kevin Pond at North Carolina State University (NCSU) in 1985 under an agreement stipulating that they be used for breeding only until surplus males were available for research. Eight more males were sent to NCSU in 1989. NCSU donated all of their remaining duikers to various zoos in 1990. The duikers remaining at Penn State were dispersed to zoos in 1991-92, except for six pairs given to Cowan. While studbook numbers grew to over 500 animals, fewer than 50 survive in the year 2002.

Robert L. Cowan, Professor of Animal Nutrition

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Meats

William Henry Tomhave developed and taught the first meats course in 1912. One year later, he became the Head of the Department of Animal Husbandry and served in that capacity until 1925. A native Pennsylvanian, Percival Thomas Ziegler, was hired in 1919 as an instructor in Poultry Husbandry. When a separate Department of Poultry Husbandry was formed in 1920, "P. T." remained in the Department of Animal Husbandry and assumed responsibility for the meats courses. He developed and continued his meats instruction, research, and extension activities until he retired in 1957. During his tenure, he coached both the livestock and meats judging teams, including the 1929 international championship team at Chicago. He also authored *The Meat We Eat*, the well-known college textbook that first appeared in 1939.



P. Thomas Ziegler is demonstrating the "dry rub" technique. Much of his research work was related to home curing of pork. He developed a dry rub formula that became the basis for production of southern-type cured pork.

Tomhave's first teaching laboratory was a small, basement room in the Main Agricultural Building. Slaughtering was only done in winter, as there was no refrigeration available other than that provided by the outside temperatures. Meat was sold to members of the faculty, and no slaughtering could take place until all of the meat was called for or delivered. Only senior animal husbandry students were allowed to take the course.

All meats operations moved to the basement of the new Livestock Judging Pavilion in 1915, after its completion. The new slaughter room was larger and had a windlass for hoisting and a holding track, although there still was no mechanical refrigeration. Slaughtered animals were wheeled on a cart to the basement of McAllister Hall, which did have refrigeration. All meat placed in McAllister Hall became the property of the dining commons at wholesale

market prices. McAllister Hall had no power meat grinding equipment, and students ground 200 pounds of hamburger by hand twice a week. In 1920 students were offered "Animal Husbandry 21," *Meat Cutting and Processing*, for the first time.

The slaughter facilities in the Pavilion gradually improved. A small, nearby brick building served as a

smokehouse. A second-hand vertical boiler was installed, to become both an incinerator and also to supply steam for two steam kettles. Before an incinerator was available, blood and offal by-products of slaughter were buried in a large trench, dug by students near the Old West Barn. One room was made into a walk-in refrigerator. By 1936, a larger refrigerator, a small freezer space, and trackage were in place. Money was made available during the Milton Eisenhower administration for a new meats laboratory.

The new Meats Laboratory was occupied in January 1960. It included the most modern slaughter and meat processing facilities of its time. The new laboratory was fully equipped to handle all teaching, research, and extension requirements in its two large classrooms with 75 and 204 seats respectively, approximately 1200 square feet of refrigerated space, two research laboratories, and a large, cooled cutting room, and retail outlet. The kill floor was fully equipped to simulate a commercial operation with holding pens and provisions for humane slaughtering under the Pennsylvania Department of Agriculture meat inspection program. Students taking courses in the new laboratory were primarily those majoring in agriculture and the hospitality services and were transported to classes in college buses.



The Judging Pavilion, constructed in 1915, was used as an exhibition arena and housed the early meats program. At the time it was built, poultry facilities were added to the south side. The Pavilion was converted to the Playhouse Theater.

The USDA took over all meat inspection activities in Pennsylvania in 1972, and the Penn State facility has operated as Federal Establishment #9844 since that time. In 1994, a "P" was added to the number to permit the routine handling of poultry products, as they are included in the teaching and research of muscle foods.

During the early years of meats work at Penn State, the majority of citizens of the Commonwealth lived in rural areas. Most people were somewhat self-sufficient relative to their annual meat supply and raised several hogs each year. The family slaughtered, cut, processed, and cured the meat for home use. The meats work at Penn State was directed toward the development of curing and smoking procedures that could be used for pork processing at home. Curing mixtures and procedures were extensively studied, and other efforts involving products such as sausage and scrapple were incorporated into widely distributed pamphlets and publications.

In the early 1930s, the meats laboratory faculty cooperated with the departments of Foods and Nutrition and Agricultural Engineering on extensive investigations on all aspects of home freezing of fruits, vegetables, and meats. When the emphasis of sheep breeding changed from wool to meat production, meats faculty devised the recommended procedures for slaughtering, chilling, packing, and shipping carcasses to the "big city" markets.

Since 1960, meats teaching, research, and extension activities that have been carried out in the new laboratory with modern and sophisticated facilities have covered a wide range of activities. The Penn State faculty and staff members closely associated with the laboratory provide essential animal carcass and cut information, resulting from breeding, feeding, and management variations imposed by the live animal researchers of the College.

Another major activity of the laboratory personnel involves the further processing of meat and meat products. In 1960, James L. Watkins became the plant manager, and John H. Ziegler was appointed as coordinator of Meats Laboratory activities. Glenn R. Kean was appointed to the faculty of the Department of Animal Husbandry in 1949, and, although he taught other livestock courses, he continued to be involved with livestock slaughtering and the coaching of the meats judging team. In 1962, John D. Sink was appointed to the faculty and initiated much of the basic analytical work associated with carcass fat deposition, fat composition, and residues. This work was taken over in 1981 by J. Scott Smith. In 1989, Edward W. Mills joined the Department of Dairy and Animal Science as the faculty member in charge of the meats program.



Inside the Pavilion, several rows of seats ringed the arena. Tan bark covered the arena floor and all classes of livestock were shown and judged in this facility.

The most continuous and extensive project involving the meats laboratory has been in cooperation with the Department of Agronomy (now Department of Crop and Soil Sciences) and the State Correctional Institution at Rockview. This study, initiated in 1957, was primarily concerned with the production of block beef from an Angus-Holstein crossbred herd. Penn State personnel processed all cattle produced from that project.

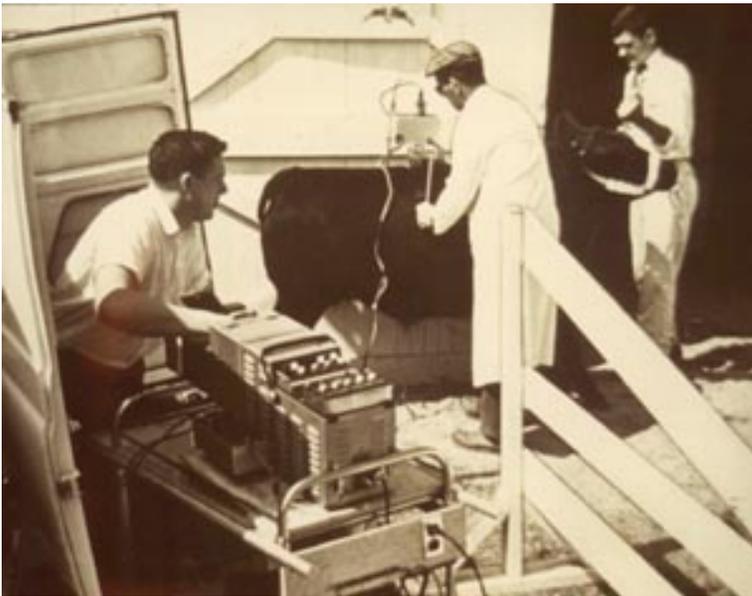
As an outgrowth of the Rockview work, and also as part of another project, in 1967 a trained panel was assembled and facilities established for the sensory evaluation of meat and meat products. Information collected on steer and heifer carcasses from the Rockview project shed important light on the application of USDA beef grading standards. In 1964, as part of the Rockview project, Penn State pioneered the successful application of ultrasound as a method of evaluating live cattle for subcutaneous fat thickness and later for determining muscularity. The meats group embarked on an extensive program related to adipose tissue of meat animals in 1959. Initially the work dealt with the deposition and composition of depot fats employing radioactive materials. Additional work confirmed the increased unsaturation of depot fats in ruminants fed low-fiber rations.

Beginning in 1962, the Meats Laboratory staff cooperated with the Department of Dairy Science to carry out work relative to the production and economics of acceptable block beef from Holstein bulls and steers. Also in that year, in answer to numerous requests, recommended plans for a small packing and processing facility were designed to meet federal inspection regulations. Using these plans, several successful plants were built within the Commonwealth. In addition, that project

developed humane slaughter methods for small meat packers and pioneered work on the use of electrical stunning for hogs.

Work on residues of chlorinated hydrocarbon pesticides was initiated in 1966 and resulted in information relative to the difficult depletion of pesticide residues in live cattle and the uniform distribution of residues throughout the whole of the meat animal carcass. This research culminated in the survey and the availability and practicality of feeding horticultural wastes to cattle. The sophisticated analytical techniques required for pesticide residue research permitted the meats staff to pursue other areas in which extremely small amounts of compounds are of major significance in meat and meat products, such as the hormone and hormone-like substances responsible for pork and mutton odors.

Between 1967 and 1970, the meats staff conducted extensive research on new fabricated products for increased utilization of lamb and mutton in cooperation with the ASRS of the USDA. In cooperation with the Penn State swine specialists, and from data collected in packing houses, a system for grading swine carcasses based on minimum meat-type certification, minimum acceptable quality, and yield of trimmed lean cuts was formulated and put into use. In addition to a carcass placing system, routine records collected at the meats laboratory have provided the basis for documenting the significant reductions in fat content that have occurred relative to market hog carcasses and cuts.



Early ultrasound equipment being tested as a means of evaluating fat and muscle tissue in meat animals.

In 1967 the Meat Animal Evaluation Center was built and began operating on the Penn State campus. This center provided progeny testing, carcass evaluation, and sire certification to livestock breeders, and the meats laboratory covered the expense of slaughtering, carcass evaluation, and disposal by selling the resulting meat products.

Meats instruction at Penn State kept pace with research with the inclusion of two science-oriented courses: the senior undergraduate "Animal Industry 421," *The Science of Meat* (first taught in 1968) and the graduate level "Animal Industry 514," *Meat Animal Growth and Development* (first taught in 1974).

Prior to 1972, resident faculty members in Animal Science traveled throughout the state to judge carcass contests, present meat cutting demonstrations, prepare and serve meats at field days, and to solve the packing and processing problems of the industry. In 1972, the administration of the College of Agricultural Sciences recognized the need for a full-time, red meats extension specialist for the Commonwealth and hired W. R. Jones to initiate the program. In 1983, William R. Henning became the faculty member for that extension activity.

John H. Ziegler, Professor of Meat Science

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Undergraduate Education

The Department of Dairy and Animal Science and its predecessors have always had the education of students as one of its' highest priorities. The original departments of Dairy Husbandry and Animal Husbandry were basically organized as teaching departments.

The first dairy major was Dairy Husbandry, initiated in 1905, which incorporated dairy production and dairy manufacturing. In 1907, the major of Animal Husbandry was initiated to provide teaching of courses in producing beef cattle, horses, sheep, swine, and poultry. The major also had consisted of work in the meats area. In 1940 the Department of Dairy Husbandry offered two majors: Dairy Production and Dairy Manufacturing. In 1960, the two majors became Dairy Production and Dairy Technology. Also in 1960, the Department of Animal Husbandry and the Department of Animal Nutrition merged, and the new Department of Animal Science and Industry offered a major in Animal Industry. In 1966, the College of Agriculture formed a Division of Animal Science and Industry consisting of the departments of Animal Science, Dairy Science, Veterinary Science, Poultry Science, and Entomology. This division, designated to coordinate and plan undergraduate curriculums, established three majors: Animal Industry, Animal Science, and Animal Bioscience. They were administered by the Division. In 1976, the divisional approach was disbanded, and the current Department of Dairy and Animal Science was formed by the merger of Animal Science and Dairy Science, which offered majors in Animal Science and Dairy Production. These majors became Animal Production and Dairy Production in 1978.

Graduate programs developed early in the history of the various departments. The first report of these programs was in 1908, when four graduate students were enrolled. Graduate training and graduate students have continually played an important role in these various departments with graduate students making significant contributions to research and teaching.

Undergraduate Clubs

The departments involved with the dairy and animal sciences at Penn State have always supported undergraduate clubs. Two clubs that have been active over the years are the Dairy Science Club and the Block and Bridle Club. These clubs encourage student socialization and fellowship, provide academic and professional experience, and provide the opportunity to develop leadership skills. The largest events of the two clubs are the Little International Livestock Exposition and the Dairy Exposition, initiated in 1917 and 1922, respectively. The shows provide students with the opportunity to work cooperatively with other students and develop leadership skills, as well as obtaining experience working directly with animals of the various species. These events are organized, run, and financed by the students and their clubs. In 2002, the 76th Dairy Exposition and

the 85th Little International were held.

Judging Teams

Judging teams have continually been valued and sponsored by the Department of Dairy and Animal Science and its predecessors. The judging teams and courses serve a variety of educational purposes, perhaps the most important being the experience the students obtain in organizing their thoughts and information and presenting them in an organized, clear, and comprehensive manner. The students develop their communication ability through oral and written presentations. The ability to accumulate and evaluate information and form judgments based on this information is an asset. The students also learn much valuable technical knowledge about livestock, their physical traits, and their function. Over the years students have participated on judging teams in Livestock, Dairy Cattle, Dairy Products, Horses, Wool, Meats, and Meat Animal Evaluation.

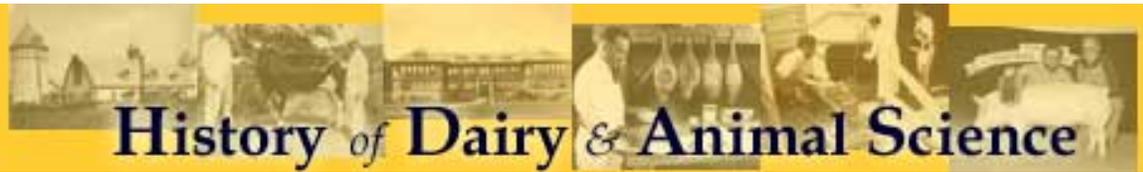
After Graduation

Although post-graduate performance is difficult to quantify, graduates have in general found jobs available in their fields of interest upon graduation. The major field of opportunity has been in the industries associated with animal agriculture and agriculture in general, with the feed industry being one of the major employers. Many of the graduates enter fields of education and public service with jobs in teaching, extension, research, and government service. A sizable number go into production agriculture. The following lists of Distinguished Alumni indicate the wide range of occupations the department's graduates have undertaken.

G. W. Sherritt, Professor of Animal Science

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Distinguished Alumni, Dairy Science

Year	Name	Profession	Class
1978	Wilbur Seipt	Dairy farmer and industry leader	1924
1979	Enos J. Perry	Dairy scientist/educator	1916
1980	Obie Snider	Dairy farmer and industry leader Penn State Board of Trustees	1950
1981	Clyde Robison	Dairy farmer and industry leader	1939
1982	Russell L. Jones	Dairy farmer and industry leader	1939
1983	Darwin G. Braund	Dairy industry researcher and leader	1956
1984	Harry F. Roth	AI industry leader	1954
1985	Donald L. Ace	Extension dairy specialist	1952
1986	Dieter Krieg	Editor, <i>Farmshine</i>	1967
1987	George E. Seidel	Professor of reproductive physiology, Colorado State University	1965
1988	Boyd E. Wolff	Dairy farmer, Pennsylvania Secretary of Agriculture	1953
1989	Donald V. Seipt	Dairy farmer and industry leader	1950
1990	Earl M. Kesler	Researcher, Professor of Dairy Science, Penn State University	1948
1991	David C. Slusser	Dairy farmer and industry leader	1965
1992	David A. Morrow	Professor of Veterinary Science, Michigan State University	1956
1993	Charles Brosius	Industry leader, Pennsylvania Secretary of Agriculture	1952
1994	George E. Shook	Professor of Dairy Science, University of Wisconsin	1963
1995	Rodger A. Madigan	Pennsylvania State House of Representatives, Penn State Board of Trustees	1951

1996	Rupert P. Amann	Professor of Reproductive Physiology, Colorado State University	1961
1997	Robert D. Heilman	Dairy industry leader	1959
1998	Stuart Patton	Evan Pugh Professor of Food Science, Penn State University	1943
1999	Stephen B. Spencer	Extension dairy specialist	1954
2000	Robert H. Rumler	CEO, Holstein Association Dairy industry leader	1936
2001	James B. Holter	Professor of Dairy Nutrition, University of New Hampshire	1956
2002	J. Robert Brunner	Professor of Food Science/Human Nutrition, Michigan State University	1940
2003	John W. Fuquay	Professor of Animal and Dairy Science, Mississippi State University	1969

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Distinguished Alumni, Animal Science

Year	Name	Profession	Class
1954	L. F. "Dad" Engle	County agent	1913
1955	Burnett H. Wilson	Manager, Buck & Doe Valley Farm	1920
1956	William B. Connell	Extension livestock specialist	1918
1957	Jesse L. Krall	Manager, Willow Brook Farms	1920
1958	Mason C. Gilpin	Editor, <i>Pennsylvania Farmer</i>	1915
1959	John H. Zeller	Chief Swine Researcher, USDA	1917
1960	Buff L. Coleman	County agent	1923
1961	Milton E. Miller	Field staff director, American Angus Association	1932
1962	Albert A. Rhoad	Geneticist, King Ranch	1925
1963	William P. Lehrer, Jr.	Director of Nutrition & Research, Albers Milling Company	1941
1964	P. Thomas Ziegler	Professor of Meats, Penn State	1913
1965	Robert K. Hamilton	Speaker, Pennsylvania House of Representatives	1928
1966	William L. Henning	Head, Department of Animal Husbandry Pennsylvania Secretary of Agriculture	1923
1967	Raymond H. Dutt	Professor of Animal Science, University of Kentucky	1941
1968	John G. Auld	Manager, Old Home Manor Farm	1940
1969	Leland Bull	County agent, Pennsylvania Secretary of Agriculture	1937
1970	Ralph Yergey	Head Veterinarian, Bowie Race Track	1952
1971	William Kramlich	Vice-President, John Morrell & Co.	1952
1972	Robert C. Morton	Director, Corporate Personnel, Ralston Purina	1956
1973	William N. Garrett	Professor of Animal Science and Nutrition, University of California	1950

1974	Edgar E. Fehnel	Vice President, Elanco Products, Division of Eli Lilly	1954
1975	M. M. Smith	County Extension Director	1936
1976	Herbert M. Gans	Master Farmer and industry leader	1926
1977	James A. Christian	Head, Extension Food Science Department, University of Georgia	1942
1978	Barry L. Flinchbaugh	Assistant to the President, Kansas State University	1964
1979	Herman R. Purdy	Professor of Animal Husbandry, Penn State	1958
1980	Glen O. Klippenstein	Manager, Glenkirk Beef Cattle Farms	1958
1981	Thomas B. King	Extension livestock specialist, Assistant Dean of Extension, Penn State	1950
1982	Henry A.W. Gruber	Head of Livestock Procurement, A and B Packing Company	1957
1983	Ralph E. Dotterer	Owner, Dotterer Farms	1949
1984	Anthony G. Dobrosky	County Extension Director	1958
1985	Louis M. Colvin	Director of Certified Angus Beef Program	1960
1986	Richard E. Fowler	Director of Cooperative Extension, University of Delaware	1958
1987	William C. Kelly	County Extension Director	1955
1988	Ray S. Lehr	Vice-President, Pennfield Corporation	1960
1989	Thomas W. Calvert	Area Conservation Agronomist, Soil Conservation Service	1962
1990	Peter H. Krall	Farm Manager, Willowbrook Farm	1956
1991	James P. Gallagher	Extension equine specialist	1961
1992	D. Robert Vallance	Equine Veterinarian	1963
1993	James E. Work	Farmer/businessman	1949
1994	Joseph J. Knapka	Researcher, National Institutes of Health	1958
1995	T. Roy Bogle	Director Cooperative Service, Oklahoma State University	1960
1996	Don Hutzell	Sire Procurement, NOBA	1957
1997	Pierre A. Conti	Pharmaceutical Researcher, Bristol Meyers Squibb	1956
1998	Richard E. Denison	Manager, Pennsylvania Farmer's Association	1954
1999	O. J. Ginther	Professor of Reproductive Physiology, University of Wisconsin	1957
2000	Donald McCreight	Professor of Animal Science, University of Rhode Island	1957

2001	Jack H. Dreibelbis	Manager, Feed Industry, Agway, Inc.	1952
2002	James R. Males	Head, Department of Animal Science, Oregon State University	1967
2003	John C. Graham, Sr.	Founder and Member, Board of Directors: First National Bank of Missouri	

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Appendix 1: Evolution of the Department of Dairy and Animal Science

Forerunners of the present Department of Dairy and Animal Science included the animal nutrition, animal husbandry, and dairy husbandry units. The respective department heads were:

Animal Nutrition

H. P. Armsby 1887-1921
E. B. Forbes 1922-1946
R. W. Swift* 1947-1959

*In 1960, Animal Nutrition and Animal Husbandry combined to form the Department of Animal Industry with Russell Miller as chair. The latter name was changed to the Department of Animal Science in 1965.

Animal Husbandry/Industry/Science Chairmen:

Thomas Mairs 1905-1907
William Cochel 1907-1913
W. H. Tomhave 1913-1925
F. L. Bentley 1925-1953
W. L. Henning 1953-1955
Glenn R. Kean 1955-1959
Russell Miller 1960-1965
Thomas B. King 1965-1970
B. R. Baumgardt** 1970-1976

Dairy Husbandry/Science Chairmen:

William Caldwell 1888-1894
Harry Hayward 1894-1902
Thomas Mairs 1902-1905
Herbert Van Norman 1905-1913
Carl Larson 1913-1915
Fred Putney 1915-1916

Fred Rasmussen 1916-1919
Andrew Borland 1919-1948
Donald Josephson ** 1948-1975

**In 1976, Dairy Science combined with Animal Science to form the Department of Dairy and Animal Science with B. R. Baumgardt as head. Since that time, the following people have been the department leaders.

Dairy and Animal Science Department:

B. R. Baumgardt 1976-1979
D. L. Ace 1979-1980
P. J. Wangsness 1980-1989
C. W. Heald 1989-1990
S. E. Curtis 1990-1995
D. R. Hagen 1995-1998
T. E. Etherton 1998-

FACULTY in the DAIRY AND ANIMAL SCIENCE DEPARTMENT as of SEPTEMBER 1, 2003

Craig R. Baumrucker	Professor of Animal Nutrition and Physiology	crb@psu.edu 814-863-0712
R. Dean Boyd	Adjunct Professor	dboyd@hanorusa.com 270-598-0706
Keith A. Bryan	Senior Instructor in Dairy and Animal Science	kab124@psu.edu 814-863-0569
Christopher J. Canale	Adjunct Professor (Agway)	ccanale@agway.com 717-530-7778
Erskine H. Cash	Professor of Animal Science Animal Sciences Program Coordinator	ehc1@psu.edu 814-863-3662
John W. Comerford	Associate Professor of Dairy & Animal Science	jxc16@psu.edu 814-863-3661
Pat M. Comerford	Extension Horse Specialist Instructor of Animal Science	pcomerford@psu.edu 814-863-3657

Catherine N. Cutter	Assistant Professor of Food Science & Food Safety Extension Specialist-Muscle Foods	cnc3@psu.edu 814-865-8862
Daniel R. Deaver	Adjunct Professor Director of Life Sciences	ddeaver@attbi.com 617-250-1590
Chad Dechow	Assistant Professor of Dairy Genetics	cdd1@psu.edu 814-863-3659
Nancy K. Diehl	Assistant Professor of Equine Science	ndiehl@psu.edu 814-863-9727
Alan D. Ealy	Assistant Professor of Molecular Endocrinology/Developmental Biology	aealy@psu.edu 814-863-7434
Glenn D. Eberly	Director Meat Animal Evaluation Center	geberly@psu.edu 814-238-2527 and 814-865-5857
Terry D. Etherton	Department Head & Distinguished Professor of Animal Nutrition	tetherton@psu.edu 814-863-3665
Daniel R. Hagen	Professor of Animal Science	dhagen@psu.edu 814-863-0723
Harold W. Harpster	Associate Professor of Animal Science	h1h@psu.edu 814-863-0734
Jud Heinrichs	Professor of Dairy & Animal Science	ajh@psu.edu 814-863-3916
William R. Henning	Professor of Animal Science	bhenning@psu.edu 814-863-3670
Lisa Holden	Associate Professor of Dairy & Animal Science	lholden@psu.edu 814-863-3672
Ronald S. Kensinger	Associate Professor Animal Nutrition and Physiology	rsk7@psu.edu 814-863-0558
Kenneth B. Kephart	Professor of Animal Science	kbk2@psu.edu 814-863-3671

Gary J. Killian	Distinguished Professor of Reproductive Physiology	lwj@psu.edu 814-865-5894
Daniel M. Kniffen	Assistant Professor of Dairy and Animal Science	dkniffen@psu.edu 814-865-7809
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Cindy E. McKinney	Assistant Professor of Transgenic Biology Director, Penn State Transgenic Mouse Facility	cem12@psu.edu 814-865-0698
Edward W. Mills	Associate Professor of Dairy & Animal Science	emills@psu.edu 814-865-2394
Lawrence D. Muller	Professor of Dairy Science	lmuller@psu.edu 814-863-4205
James E. Nocek	Adjunct Professor	jimnocek@worldnet.att.net 800-843-5591
Michael L. O'Connor	Professor of Dairy Science	moconnor@psu.edu 814-863-3913
Dale R. Olver	Instructor of Dairy & Animal Science	dolver@psu.edu 814-863-3914
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Special Recognition and Thanks

Most projects require assistance beyond the work of the committee members. Our efforts to write the history of the Dairy and Animal Science Department were greatly aided by others to whom we offer our thanks and gratitude: to Earl Kesler for loaning his file of historical data; to Mike Bezilla, who wrote the history of the College of Agriculture and directed us to potential historical files; to the staff in the Special Collections section of the Pattee Library; to Christian Vinten-Johansen, the department webmaster, for his help with the photos and production of the Web version of this history; to Carol Gene Ertley for arranging meeting schedules and sites; and to Sandra Gunsallus for typing/editing the manuscript. Bezillas' *History of the College of Agriculture* (1987) and Frank Zettles' *History of Cooperative Extension* (1983) offered much background information, and we have borrowed from both publications.

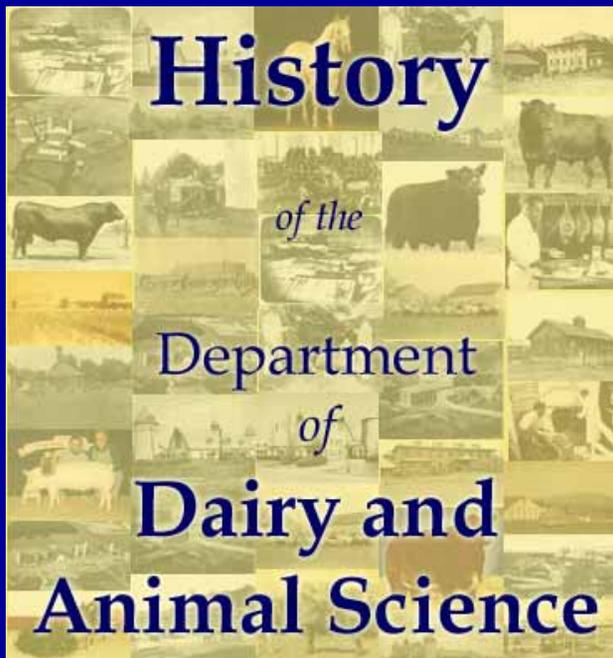
The Department History Committee

Lester Burdette
Bob Cowan
Tom Merritt
Grant Sherritt
Larry Specht
John Zeigler
Don Ace, Chairman

January, 2003

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Policy AD42 STATEMENT ON NONDISCRIMINATION AND HARASSMENT

Contents:

- [Purpose](#)
 - [Policy](#)
 - [Definition](#)
 - [Resolution of Discrimination Complaints](#)
 - [Disciplinary Sanctions](#)
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-

PURPOSE:

To establish the University's policy prohibiting discrimination and harassment.

POLICY:

The Pennsylvania State University is committed to the policy that all persons shall have equal access to programs, facilities, admission and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by University policy or by state or federal authorities. It is the policy of the University to maintain an academic and work environment free of discrimination, including harassment. The Pennsylvania State University prohibits discrimination and harassment against any person because of age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation or veteran status. Discrimination or harassment against faculty, staff or students will not be tolerated at The Pennsylvania State University.

DEFINITIONS:

Discrimination is conduct of any nature which denies equal privileges or treatment to a particular individual because of the individual's age, ancestry, color, disability or handicap, national origin, race, religious creed, sex, sexual orientation or veteran status.

Harassment may include, but is not limited to, verbal or physical attacks, written threats or slurs that relate to a person's membership in a protected class, unwelcome banter, teasing, or jokes that are derogatory, or depict members of a protected class in a stereotypical and demeaning manner, or any other conduct which has the purpose or effect of interfering unreasonably with an individual's work or academic performance or creates an offensive, hostile, or intimidating working or learning environment.

RESOLUTION OF COMPLAINTS:

The University will make every effort to promptly investigate and resolve complaints of discrimination or harassment, with due regard for fairness and the rights of both the complainant and alleged offender, and to conduct all proceedings in the most confidential manner possible.

Any member of the University community who experiences discrimination or harassment should immediately report the incident to the Affirmative Action Office, an administrator in his or her department or unit, or the Office of Human Resources. In cases where an individual reports alleged discrimination or harassment to an administrator, faculty member, or staff member, the person receiving the complaint should contact the Affirmative Action Office to discuss resolution and ensure consistent responses to issues across units.

The Affirmative Action Office has primary responsibility for resolving discrimination and harassment complaints. If unsuccessful at resolving the issue informally, the Affirmative Action Office may investigate to reach a formal determination on the merits of the allegations. Investigations will include notifying the alleged offender of the complaint and providing an opportunity to respond to the allegations.

If there is evidence of discrimination or harassment, the University will make every effort to ensure the discrimination and/or harassment immediately stops and does not recur. The complainant will be informed of the corrective measures taken.

The University prohibits retaliation against anyone who files a complaint and/or participates in an investigation involving alleged discrimination or harassment.

DISCIPLINARY SANCTIONS:

Disciplinary sanctions for violation of this policy, which may range from a disciplinary warning to expulsion from the University, will be imposed in accordance with applicable University policies.

CROSS REFERENCES:

Other Policies in this Manual may apply, especially:

[AD29](#) - Statement on Intolerance,

[AD41](#) - Sexual Harassment,

[HR01](#) - Fair Employment Practices,

[HR11](#) - Affirmative Action in Employment at The Pennsylvania State University, and

[HR76](#) - Faculty Rights and Responsibilities

[HR79](#) - Staff Grievance Procedure

Effective Date: September 6, 2001

Date Approved: September 6, 2001

Date Published: September 6, 2001

Most recent changes:

- Under the DISCIPLINARY SANCTIONS section, changed "reprimand to dismissal" to "disciplinary warning to expulsion."

Revision History (and effective dates):

- August 30, 2001 - vised definition of 'harassment.'
- January 03, 2000 - Significant revisions throughout policy. Added Purpose, Definitions, Resolution of Complaints, and Disciplinary Sanctions sections. policy renamed from "Statement on Nondiscrimination" to "Statement on Nondiscrimination and Harassment".
- November 16, 1992 - New policy.

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