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## Grasshoppers, Thanksgiving Dinner, and Utah Turkeys

By DALE W ADAMS

In anticipation of holiday celebrations, an 1897 issue of the *Deseret News Weekly* ran a column detailing how a “housemother” could best prepare her Thanksgiving table. One hoped, of course, that a succulent roast turkey would form the center of that feast, but the columnist recognized that such a treat would not fit in every family’s budget. Not to worry: if a young bird was unavailable “and nothing short of a patriarch is available, do not despair; as an hour’s preliminary steaming will plump him, make him tender, and in good condition for roasting.” Yet “if even the honored bird—the turkey—flies too high for the housewife of limited resources, ‘mock duck’ can essay its place at a quarter of the cost.”

As the *Deseret News* piece made clear, turkeys—in spite of their exalted place in American cuisine—were not always an item easily obtained. And in Utah, the ability of a home cook to present a turkey at the Thanksgiving feast might well be entwined with the intricacies of technology, markets, and transportation systems. How, then, did turkeys become a thriving element of Utah’s agricultural economy in the twentieth century? Natives and pioneers had uses for the bird, but the development of a profitable turkey industry required technological advancements, adequate financing, and the concerted action of organizations and individuals.

Turkeys have a long history in the state of Utah. Paleontologists found turkey-like fossils in the Grand Staircase-Escalante National Monument in a formation dated to be some 76 million years old. Though wild turkeys probably did not exist in Utah prior to 1847, Indians in southeast Utah had numerous domesticated turkeys, raising them for many purposes besides food. Numerous Mormon pioneers brought turkeys with them to the Great Basin. These bronze, relatively small, birds were of the Narragansett breed. Within a few years, a handful of turkeys, strutting around a farmyard, became a familiar sight in the Utah Territory. Rudimentary markets for the birds soon developed, as shown by an advertisement from a Salt Lake City entrepreneur, George Goddard, who offered to buy fat turkeys. By the late 1850s, turkeys had become common

enough that the Church of Jesus Christ of Latter-day Saints posted a price of \$1.50 to \$2.50 for each turkey submitted as tithing.

By 1858, merchants in Salt Lake City regularly sold live turkeys during the holidays. William Jennings's Deseret Meat and General Provisions Store offered a supply of meats that included "turkeys that were as good as it was possible to raise any place." Jennings bragged that he had sold one turkey that year for the princely sum of twenty-five dollars, perhaps an exaggeration since a so-so horse fetched less than this at the time. Similar sales of live turkeys during the holiday season increased in other communities around the territory.

The pioneers, like the Indians before them, had various reasons for raising turkeys. In 1848, Brigham Young and Heber C. Kimball included turkeys on a list of animals they recommended to bring west because of their value in insect control. Before 1848, Great Basin insects had hopped and crawled long distances in their quest for sprigs of greenery, but the pioneers' irrigated crops soon provided them sumptuous banquets. What came to be called Mormon Crickets, along with grasshoppers, were, and still are, a nuisance for Utah farmers. Utahns designated the California gull as their state bird because of its role in lessening the crop damage done by swarms of crickets during the spring of 1848. Had domesticated turkeys existed in number by then, they might have been accorded this recognition instead.

Turkeys especially helped to control insects in the Uinta Basin where farmers relied on alfalfa, a crop relished by grasshoppers and weevils. After spending a week touring the basin in 1923, Thomas Redmond reported seeing more turkeys there than he had ever seen elsewhere in the state. He mentioned that insects had severely damaged crops the previous spring, but that turkeys had protected alfalfa during 1923. Farmers asserted that turkeys allowed them to have three crops: alfalfa hay, alfalfa seed, and the turkeys themselves.

Eventually, turkeys helped control insects throughout the state, and were occasionally hauled long distances for that purpose. In 1945 Wilford Larsen partially raised 2,500 turkeys in Orem before trucking them hundreds of miles south to Indian Creek, located northwest of Monticello, to the Scorup-Somerville Cattle Company ranch. There they feasted on swarms of grasshoppers that infested alfalfa fields.

The beginnings of a commercial turkey industry in Utah can be traced to the 1880s. Until then, several factors—including a restricted ability to incubate and market turkeys—limited flock size to a few dozen birds, and insect control was a major reason for having them. Hens hatched their own eggs, turkeys foraged for much of their sustenance, and they were usually sold live. Turkey growers mostly provided supplemental feed to poults and sometimes to adults several weeks before selling them. Most turkeys were consumed near the places where they were raised. The invention of small kerosene incubators in the 1880s enabled a few farmers to increase their flocks to a few hundred turkeys, and this helped boost Utah's total turkey production to perhaps a hundred thousand birds by 1900. These simple incubators cost about thirty dollars and could hatch up to 180 eggs at a time.

Limited means of transporting and selling turkeys outside a farmer's local area also constrained flock sizes; this did not begin to change until the early 1900s. One early out-of-area shipment occurred when Ernest Hafen and Theodore Graf hauled a wagonload of live turkeys and chickens from Santa Clara, Utah, to sell to miners in Caliente and Pioche, Nevada, during the 1908 Christmas holiday. Two years later, Andrew Sproul Jr. from the nearby community of Washington hauled 150 dressed birds north to Modena for shipment by rail to Ogden. Similar sales of turkeys some distance from where they had been raised began in other Utah communities around the

same time. Eventually, railroads played a major role in facilitating the marketing of Utah turkeys inside and outside of the state.

Another technological improvement—the invention of the Smith Electric Incubator at the beginning of the First World War—furthered the development of Utah’s turkey industry. The Smith incubator, accompanied by the importation of poults from California and Oregon (where turkey eggs hatched more readily), allowed a few farmers to boost their flock sizes to around a thousand birds.

Before World War I, Utah was a net importer of turkeys and other poultry to satisfy holiday needs, with the worth of turkey, chickens, and eggs imported annually amounting to perhaps a half million dollars. Dressed turkeys were shipped to Utah in barrels via rail, but they sold at a discount in comparison to local birds. In 1905 imported turkeys sold for thirteen cents a pound wholesale, while fresh, local turkeys sold for eighteen cents a pound. This changed soon after the war when Utah became a net exporter of poultry products, amounting to about half a million dollars in revenue each year, part of which came from turkey sales. The U.S. Department of Agriculture did not collect statistics on turkey production in Utah until 1929, but the total number in the state likely was not much more than one hundred thousand in any year before WWI.

Between 1900 and the early 1930s islands of commercial turkey production gradually formed around the state, with concentrations in the Uinta Basin, around St. George, in Iron County, in Sanpete and Sevier Counties, in Utah Valley, and along the Wasatch Front from Salt Lake County to Box Elder County, including the Cache Valley. Initially, these islands involved a few farmers who raised up to a thousand birds each, one or more local merchants who sold feed, and perhaps one or more entrepreneurs who arranged to “pool” turkeys for shipment to cities during the holiday season. After the mid-1920s these islands of production increasingly concentrated around new processing plants.

One of the first areas of commercial production emerged in the Uinta Basin, a trend facilitated in part by motorized vehicles. In 1914, a few turkey growers in the basin shipped their birds to Salt Lake City during the holidays. Soon, several local businessmen bought turkeys for resale, and along with some of the larger growers, shipped dressed turkeys out of the basin by parcel post. In 1915, William Witbeck sent a thousand dressed turkeys from the basin to Salt Lake City via parcel post with good economic results. Favorable farm prices during WWI induced growers to boost the number of turkeys raised in many parts of Utah, including the Uinta Basin. For the 1920 Thanksgiving season the Post Office hauled about ten thousand pounds of turkeys from Vernal to Price, from which point they went by rail to Los Angeles. In 1922, the American Poultry Association handled the Thanksgiving marketing in Los Angeles, and the Uintah County Farm Bureau arranged for the pooling of turkeys for shipment. The Farm Bureau also helped to ship an additional two railroad cars of dressed turkeys to Omaha for the Christmas market that year. A number of farmers in the basin increased the size of their flocks because of these opportunities to export turkeys out of the state. F. O. Lundberg, for example, who lived in Fort Duchesne, had several hundred turkeys in 1922 but increased his flock to about 1,500 birds the next year. Uinta Basin growers raised some forty thousand turkeys in 1923.

Elsewhere in the state, other centers of commercial production likewise developed in the 1920s and 1930s. In Park Valley, Box Elder County, L. G. Cater had two thousand turkeys in 1923, the largest number in that part of the state. Within a couple of years, he and several other growers in the county were raising about six thousand turkeys. Ray S. Tanner in Indianola, Sanpete County, started with a small flock of about a hundred birds imported from California and Colorado in 1923. From these he raised

about one thousand turkeys, saving three hundred of them to be laying hens. The next year a hatchery in Manti processed his eggs and produced enough poults for Tanner to sell a railroad car full of turkeys in 1924.

Gradually, these centers of turkey production concentrated around hatcheries and processing plants. Moroni Sanders, Ervil Sanders, Bill Sanders, and E. J. Graff developed hatcheries that specialized in turkeys in La Verkin in the early 1930s. They had flocks that produced eggs, and their facilities took advantage of the better hatching conditions in that area. Ervil Sanders delivered poults throughout Utah and into Colorado. Along with these hatching activities, other local businessmen formed the La Verkin Feed and Hardware Company to provide feed for the poultry industry around La Verkin. For a number of years after WWII, turkeys remained a multimillion-dollar business in the area.

An additional concentration of turkey production emerged in Utah County, where Andrew W. Pulley began raising turkeys in American Fork in the early 1920s. To provide feed for his flock, Pulley and his sons John and Adolphus built a feed mill in 1926. They added a processing plant in 1935 and eventually raised as many as twenty thousand turkeys a year. The Pulleys' experience encouraged other farmers in the north end of Utah Valley to experiment with turkeys. Partly because of the increased local interest in turkeys, American Fork City celebrated Poultry Days from 1923 to 1941. Fittingly, Andrew Pulley's daughter, Mary Pulley, became the first Poultry Day Queen in 1923.

The commercialization of turkeys in Utah was closely tied to the building of modern processing plants that supported the surrounding centers of production. Charles Rudd built the first such plant in about 1925 in Salt Lake City and eventually helped to erect seventeen other plants around the state. Before these plants existed, turkey growers, such as Joseph Jones of Enoch, had invited their neighbors to help kill and remove feathers from a hundred or so birds at a time. In contrast, the modern processing plants could handle thousands of turkeys a day, under more sanitary conditions, and then immediately store them in cooling facilities.

Despite the growth of the turkey industry in the 1920s and 1930s, several difficulties checked the ability of growers to market turkeys outside of their local areas. For instance, growers needed standard methods of killing the birds, cleaning them, and packaging them for shipment. Extension agents from the Utah State Agricultural College (USAC) gave lectures around the state on how to prepare turkeys for commercial sales. The unavailability of prepared poultry feed presented a further impediment to turkey production. Before WWI, growers in most Utah communities did not have access to prepared feed. After the war, commercial feed producers, such as Sperry, General Mills, and Purina, increasingly distributed prepared poultry feed through agents; several cooperatives, and some private firms, also began to manufacture poultry feed.

A handful of individuals and several organizations played key roles in the rapid growth of the turkey industry after WWI. The switch from the state being an importer of turkeys to becoming a substantial exporter in the 1920s, for example, can be attributed largely to the efforts of Benjamin Brown and to a cooperative he organized. Born near Odessa, Ukraine, in 1885, he migrated to the United States at fifteen. During a brief stint in the National Farm School, a facility to train Jewish men and women in agricultural skills, he was inspired by the "Back to the Soil" movement that led to the establishment of about forty Jewish farm colonies around the United States. Over two years, Brown recruited several dozen Jews to settle in an area immediately west of Gunnison, Utah. The settlement, called Clarion, began in 1911 and encompassed about six thousand acres. But the soil proved to be poor, the irrigation system was unreliable, the settlers

had limited agricultural experience, and, even more importantly, they lacked social cohesion. Despite financial support from local benefactors, the project collapsed and most of the settlers left Utah.

Undaunted, Brown continued to farm with his brother. Within a few years he became director of the Paiute Reservoir and Irrigation System and was elected president of the Gunnison Valley Canning Company. He also managed a cattle feedlot and took the lead in building a cold storage and ice plant in Gunnison. This facility later made it possible for an association of central Utah poultrymen to export their products outside the state. Although numerous farmers in central Utah raised poultry before WWI, the market for their products was extremely limited. To deal with this problem, federal extension agents urged farmers to organize, and this resulted in the 1922 formation of a three-county group called the Nephi, Manti, and Richfield Poultry Association. The genesis of what would eventually become the Utah Poultry Producers' Cooperative can be traced to a meeting held in Gunnison on August 13, 1922. Brown hosted the meeting that focused on forming a marketing group. Later, in early October, the Central Utah Poultry Association was organized in Gunnison. This private marketing firm covered Sanpete, Sevier, and Juab counties.

Brown and his exchange handled the candling and grading of eggs and also arranged for the sale of eggs, chickens, and turkeys, mostly in California. The exchange provided three important functions: pooling products into carload lots, enforcing uniform grading standards, and arranging for buyers outside the state. For the Thanksgiving market in 1922, Brown shipped two railroad cars of turkeys grown around Gunnison and Elsinore to the Harry Phillips's Company in Los Angeles. The favorable prices that farmers received prompted a surge in local egg and turkey production the following year. The selling of railroad carload lots of poultry products outside the state removed a huge bottleneck for poultry farmers in central Utah and later for poultry farmers throughout the state.

Both a visionary and a promoter, Brown recognized that his exchange was instrumental in opening profitable markets for Utah's poultry products. To fully exploit that market, however, he needed a larger organization. Together with Harry H. Metzgar from Richfield, Brown visited Los Angeles and Petaluma, California, in 1922 in pursuit of more business contacts on the West Coast, many of which were arranged through the Utah Farm Bureau. Brown's agents in Los Angeles told him they could sell all the poultry products he could send them, and owners of hatcheries in California offered to ship hatching eggs, chicks, and poults to Utah by rail at attractive prices.

Brown was brimming with enthusiasm when he returned to Utah, and in early January he met with Farm Bureau leaders in Salt Lake City. From these meetings came a proposal to form what the Gunnison newspaper called a "Gigantic Corporation" to promote a statewide organization to foster the poultry industry. With Utah Farm Bureau's support, Brown soon met with farmers in Utah and Salt Lake counties to spark their interest in a poultry marketing organization. Concurrently, a Utah Farm Bureau lawyer, Frank Evans, began looking into formalizing a statewide organization, drawing mostly on the tri-county exchange that Brown had helped to establish earlier.

At a meeting held in Salt Lake City on January 27, 1923, and sponsored by the Utah Farm Bureau, a number of farmers met to form a new association. The association designated Brown as its marketing agent and authorized him to charge a one-cent commission on each dozen eggs that he sold. Evans acted quickly and filed incorporation articles on February 2 with the Salt Lake County Court for an organization initially called the Utah Poultry Producers Association. By the end of 1923, more than five hundred farmers, mainly in Sanpete, Sevier, Juab, and Utah counties, had joined the poultry cooperative. Initially, most of them had laying hens,

but a few were also experimenting with turkeys. Utah Poultry also played a key part in the creation of the modern processing plants so critical to the industry's development by hiring Charles Rudd and purchasing his Salt Lake City plant.

In addition to Benjamin Brown, two other individuals were also instrumental in forming and later expanding Utah Poultry: Albertus Willardson, a cattleman, and Clyde C. Edmonds, a banker, both from Gunnison. Initially, Willardson was the assistant manager of the cooperative; later, he moved to Los Angeles to handle marketing there for the organization. Edmonds served as the first secretary and treasurer of the cooperative and then became its long time general manager when Brown left in 1926 to establish a marketing agency in New York City.

In 1930, seeing the need for a separate organization for turkey growers, Edmonds helped to form a multistate marketing organization initially called the Northwest Turkey Growers Association—subsequently called Norbest. Continuing his duties with Utah Poultry, Edmonds also became the turkey cooperative's first general manager. Norbest was preceded by the formation of a committee in 1930 whose purpose was to create a turkey growers' association in Utah. Extension agents helped establish these county-based turkey grower associations. By the mid-1930s, more than 2,500 farmers in Utah raised turkeys, and most of the larger growers (including many members of the county associations) joined Norbest.

Another key individual in Utah's nascent turkey industry was Herbert Beyers, who, as a member of the Oregon Turkey Growers Association, had worked to find dependable markets for turkeys. Beyers's experience led Edmonds to hire him as the assistant general manager of the Northwestern Turkey Growers Association in 1932. Two years later, the association appointed Beyers as its general manager, a position he ably filled for thirtyfive years. He was largely responsible for establishing the Norbest brand's reputation for quality.

In the decade from the end of WWI to the start of the depression in 1929, the number of turkeys raised in Utah possibly more than doubled to a quarter million; over the next eleven years, the number quadrupled to more than a million birds. The increase during the 1930s occurred despite major swings in the prices of turkeys and in the prices farmers paid for a primary component in turkey feed—corn. The turkey producers who survived these ups and downs in prices became hardened risk takers.

As farmers increased the size of their flocks, they had problems financing their enterprises. Small rural banks could not provide sufficient loans, and the collapse of many banks during the early 1930s exacerbated financing problems. Farmers found some relief from this shortage of credit after the Farm Credit Act of 1933. It created the government-supported Farm Credit System, which established four groups of lending institutions. Among these institutions was the Bank for Cooperatives that supported farmer cooperatives. Utah Poultry increasingly borrowed from the Bank for Cooperatives, and, in turn, provided short-term financing for some turkey farmers. Later, the Moroni Feed Company offered similar types of financing to members of its cooperative in Sanpete County.

Despite the assistance farmers received from these organizations, raising turkeys was a risky business, compared to most other poultry and livestock enterprises. The birds required shelter when young and when the weather was hot or inclement.

Occasionally, turkey farmers suffered losses in severe storms. For example, growers in American Fork and Pleasant Grove lost a total of about ten thousand turkeys in a severe storm in July 1943, with one grower losing most of his flock. Early turkey varieties were flighty and prone to pile into bushes when alarmed by unexpected noises such as airplanes or when frightened by predators or other animals. Moreover,



it took some years before growers fully understood the nutritional requirements of the birds.

In addition to an increase in the number of turkeys raised in Utah during the 1920s and 1930s, a major qualitative change in the birds occurred, beginning in 1937. Previously, most of the turkeys in Utah were of the Mammoth breed, an improved version of the earlier Narragansett variety. By the early 1930s, Jesse Throssel in Oregon had developed a much larger bird, the Broad Breasted Bronze. The Daniel E. Adams and Sons Hatchery in American Fork was one of the first in the state to import and hatch eggs from this new breed in 1937; within a few years it became the dominant variety in Utah.

As the size of the industry increased, various disease problems intensified. Several diseases that afflicted young turkeys, for example, passed from parents to poults through eggs. In extreme cases, these diseases caused a fifty percent mortality rate in poults. The industry eventually learned to control this problem by blood testing parent stock before allowing eggs into certified hatcheries. The U.S. Department of Agriculture and USAC administered this certification.

Blackhead was another major ailment that affected turkeys. It is a parasitic disease that was not fully understood until the 1940s. Initially, the losses from blackhead threatened the existence of the entire turkey industry, with some flock losses amounting to seventy percent. Scientists discovered that infected birds, particularly chickens and sparrows, passed the long-lived parasite to turkeys through their droppings. Because the disease only slightly affected other infected birds, such as chickens, the separation of turkeys from other birds was vital in controlling blackhead. Rotating turkeys onto fresh ground, raising them in confinement and on wire mesh, and administering new drugs eventually controlled the disease.

In addition to diseases, the state's turkey growers grappled with the recurring problems of volatility in the number of turkeys raised and in turkey prices. This instability became especially severe in 1936 and 1937. Between 1935 and 1936 the number of birds raised in the state more than tripled, but then fell by more than a quarter in 1937. In part, the stampede into turkey growing in 1936 was induced by a temporary recovery in the overall economy, accompanied by a fifty percent increase in turkey prices from 1934 to 1935. National feed companies, including General Mills, Ralston Purina, and Sperry, played a major role in this volatility. These companies recognized the business opportunity in Utah, and, in late 1935 and early 1936, they aggressively financed turkey production in the state and enrolled many new producers. The typical arrangement included the feed company providing the poults, supplying the feed on credit, and then handling the processing and sale of the birds, taking a commission on each transaction. Partly because of a decline in turkey prices in 1936, and partly due to the hefty commissions charged by the feed companies, numerous turkey farmers found at the end of the year that the receipts from the sale of their turkeys were less than their debts to the feed companies. This wrenching experience contributed to a sharp decline in the number of turkey farmers in the state from more than 2,600 in 1935 to only about 1,000 in 1940.

From the depression years onward, turkey production in Utah became increasingly concentrated in Sanpete County, and the Moroni Feed Company—a farmers' cooperative—played a central role in this. William Irons and Marion Jolley were the first commercial turkey growers in the area, starting with flocks of about five hundred birds in 1921. They later joined with Jake Anderson, Ray Seeley, Eldon Westenskow, Rex Kellet, and Ralph Blackham to form the Moroni Feed Company in 1938. Within a few years, with help from Utah Poultry, the group bought the property of the defunct local sugar mill in Moroni, acquired the processing plant that Utah Poultry had built in

Moroni, began marketing its turkeys through Norbest, and built its own hatchery. Several factors contributed to Sanpete County becoming Utah's turkey capital. Interest in turkeys in the county originated in the 1920s with cutbacks in grazing rights on government lands that made raising sheep and livestock less profitable. The cutbacks were followed by a collapse of the local sugar beet industry, the distress caused by the Great Depression, and a prolonged drought. As a student of the business put it, "The turkey industry in Sanpete was a child of the depression." Turkeys required little water, utilized underemployed labor, and consumed inexpensive local grains. Sanpete growers found marketing outlets through several new cooperatives that sprouted in central Utah. The experience gained by turkey farmers in Sanpete County during the difficult 1930s created a stock of managerial experience that reinforced by a strong cooperative, enabled growers there to persist in the business into the next millennium, while most other turkey production in Utah disappeared.

From 1941 to the end of WWII, the number of turkeys raised in the state doubled, to more than two million birds. Military demand for animal products stimulated this increase, resulting in attractive wartime turkey prices. Many turkey farmers made enough profit during the war to pay off their debts and to capitalize their enterprises. The enthusiasm for raising turkeys in Utah and around the country led to the formation of the National Turkey Federation in 1939 and to the founding of the affiliated Utah Turkey Growers Federation in 1942. About 450 growers attended the first state convention in Salt Lake City, perhaps a fair measure of the total number of commercial turkey farmers in the state at the time. The election of Ralph Blackham from Moroni as the first president of this organization reflected the increasing importance of turkeys in Sanpete County, where more than one-third of the birds in Utah were then grown. Subsequently, the state federation held annual conventions; in 1948, it began holding turkey shows, occasionally in conjunction with its conventions.

USAC staff conducted several studies of the turkey industry from 1942 to 1962. This included collecting information from growers in the four counties where about half of the state's turkeys were grown: Box Elder, Cache, Sanpete, and Sevier. The authors of these studies documented the substantial changes that were shaping the industry. The first study took place after turkey production had increased almost five-fold, to more than one million birds, from 1935 to 1942. By 1961–1962 the number of turkeys had expanded to more than 3.5 million birds.

Yet even as the numbers of turkeys increased, the number of turkey farms decreased. The authors noted that the percentage of farms in the state with turkeys declined from about fifteen percent in 1929 to less than five percent in 1940. They also reported on the invention of bulk feeders, industry that was starting to specialize— such as those seen in this image, shrinking in terms of number of growers, but reduced labor demands on turkey continuing to expand in number of turkeys farms. raised. The average flock size in 1942 was only two or three thousand birds and many of the farmers had other agricultural enterprises; only six of the growers in Sanpete County, for example, specialized in turkeys. By 1961–1962, however, the average flock size in the state had about doubled, and many of the growers specialized in turkeys.

Changes in several measures captured the growing efficiency of the industry during this period. The first was that the average mortality rate in the state among turkey flocks dropped from about one-third in 1940 to less than fifteen percent in 1962. The second revealing measure was a sharp decline in the all-important feed-conversion-ratio (pounds of feed used to produce a pound of turkey) from more than six to less than four pounds. Since feed expenses composed about two-thirds of the costs of raising turkeys, this improvement in feed efficiency strongly affected profitability. The third important measure was a sharp decline in the number of hours of labor required



to produce a hundred pounds of turkey from 8.6 in 1940 to only 1.24 in 1962. In just two decades Utah's turkey industry had become dramatically more efficient.

The use of bulk and automatic feeders explained a major part of the decline in labor use. Walter Hansen, a local inventor who operated a machine shop in Ephraim, built some of the earliest bulk feeders in Utah. He had noted that feeding turkeys involved a lot of labor, including sacking feed, loading sacks on trucks, and then pouring the feed by hand into troughs. This led him to design and build metal turkey feeders that each held about a ton of feed. He also designed a bulk truck that hauled feed from the mill to the feeders without sacking, thus substantially reducing the time involved in feeding turkeys. Later, turkeys grown in confinement used labor-saving automatic feeders, further reducing labor costs.

Traditionally, consumers bought turkeys mainly for Thanksgiving and Christmas dinners, and this led growers to organize production around these two markets. After WWII, leaders in the industry recognized the opportunity to expand turkey consumption beyond just holiday markets. The National Turkey Federation—assisted by state groups, including the Utah Turkey Growers Federation—took the lead in convincing consumers to eat more turkey. A major aspect of this effort in Utah was a vote taken by growers in 1947 to contribute money to fund the promotion of turkey consumption. These funds were used to support research, as well as advertising. This included urging consumers to eat turkey throughout the year and also to accept new turkey products, such as turkey in bologna, salami, frankfurters, and burgers, and turkey parts, steaks, and bacon. A deboning machine developed by a Utah firm, the Beehive Machine Company, was critical in the production of these new shapes. In 2013, a facility in Salina owned by the Moroni Feed Company processed about half of the turkeys raised in Utah into these new shapes.

Another important change was the switch from selling “New York dressed” birds (which still had their heads, legs, and entrails) to marketing oven-ready birds. The National Turkey Federation played a key role in convincing consumers that eviscerated turkeys were safe to eat, and that they had been checked by government-licensed inspectors. Part of the “Eat More Turkey” campaign included the presentation of a turkey to the nation's president by the National Federation before the holiday season each year. In 1956, J. Arza Adams from Pleasant Grove was president of the federation, and along with Ezra Taft Benson, who was then Secretary of Agriculture, he presented President Dwight D. Eisenhower with a turkey that year.

The rapid growth of the industry in Utah after WWII was due to the leadership of a few individuals, among them William A. Barlocker. He developed a thriving turkey business during the 1950s in St. George and Enterprise, one of the largest in the nation at the time. On two occasions he won the National Turkey Federation's prize for raising the largest turkey in the country; his 1961 winner weighed over fifty-eight pounds. In addition to his turkey enterprise, Barlocker was actively involved in Utah politics. Yet his career also illustrated the risks involved in the turkey business: he lost an average of a half million dollars each year from 1961 to 1965 and was forced to liquidate many of his assets, including his turkey businesses.

Developments in technology and advertising, as well as the leadership of growers' associations and a few key individuals, further contributed to the advancement of Utah's turkey industry after World War II. Government supported research was also important. The development of turkey production in Sanpete County prompted the USAC, in 1956, to open a facility in Ephraim known as the Snow Field Station, which emphasized research on turkeys. The station was supported, in part, by funds collected from Utah turkey growers, and in 2000, it changed its name to the Turkey Research Facility. For forty years several scientists worked there on a variety of problems

including turkey diseases, nutritional problems, using pelletized newspaper for bedding, manure management, dust control, use of solar energy, and housing and shelter issues. 48 In the late 1960s and 1970s, several major changes occurred in Utah's turkey industry. Beginning in the late 1960s, the Broad Breasted White turkey began to replace the bronze variety, and by 2013 most domesticated turkeys in Utah were white. Three factors led to this change. The white turkey dressed out more cleanly than did bronze turkeys, and they were less prone to a form of arthritis that afflicted the bronze variety. Also, when packaged for sale the white birds had a flatter and broader breast than earlier varieties.

Raising turkeys completely in confinement and throughout the year were two other major changes in the industry beginning in the 1970s. Earlier, most turkey poults were first raised in coops, later transferred to more open confinement facilities, and when about a third grown turned loose in fields with rudimentary shelters from the sun and storms. Growers moved to complete confinement primarily for the sake of bio-security, or disease control. Various wild animals and birds carry diseases to which turkeys are susceptible, such as cholera. Two additional factors drove the change to year-round production. Continuous production allowed hiring permanent, instead of hard-to-find temporary, workers in processing plants. It also resulted in more efficient use of investments in processing plants, feed mills, and other associated facilities, than was the case when turkeys were grown mostly for the holiday markets.

Two other major changes occurred in the industry after the 1970s. Earlier, turkey producers had required as many as six months to ready their birds for market and they used as many as six pounds of feed to produce each pound of turkey. Thanks in part to the quicker maturation time of white turkeys, by 2013 growers typically marketed their birds when they were only four months old and produced a pound of turkey with just three pounds of feed.

Perhaps the most dramatic change, however, was the geographic concentration of the industry. By 1970, the industry had begun to contract geographically and was increasingly concentrated around six remaining processing plants. These included Ogden Poultry; the American Holding Company in St. George; Turkey Growers Incorporated, which included growers from Richfield and Spanish Fork; Moroni Feed Cooperative; the Morgan Brothers, in Davis County, which used a Salt Lake plant; and independent growers in Box Elder County who processed some of their birds in Twin Falls, Idaho. Six hatcheries in the state, all using supplemental oxygen, provided some of the poults, and those growers who produced turkey eggs in the state used artificial insemination to enhance egg fertility. During the 1970s, the total number of turkeys increased to about four million birds, a level that was maintained with ups-and-downs over the next four decades, until 2012, when the number increased to about five million birds.

Over time, the turkey industry increasingly centered on Sanpete County. Population growth provides one explanation for this trend. Many of the areas along the Wasatch Front where turkeys had once roamed became housing developments and shopping centers. Land became too expensive for agricultural uses, and growing turkeys close to dwellings caused environmental problems, especially dust. Land in Sanpete County was less expensive and environmental issues were less problematic there, especially after turkeys were raised in confinement.

By 2013, only two processing plants for turkeys remained in the state. Forty-five turkey producers—all with large flocks, all members of the Moroni Feed Cooperative, and most of them located in Sanpete County— used a plant in Moroni. The other was the Wight's Farm Fresh Turkey Business near Ogden, which processed a few thousand turkeys each year, mostly for the natural foods market. Similarly, the number of

hatcheries in Utah that handled turkey eggs declined; the last turkey hatchery, located in Moroni, ceased operating in 2008. Thereafter the Moroni Feed Company imported all of its poults from the Midwest in semi-trucks that carried as many as fifty thousand poults each.

In 2011 Utah's domesticated turkeys make up only about two percent of all turkeys in the U.S. Moreover, only a tiny fraction of Utah farmers raise turkeys commercially, and they contributed only four percent of the value of all farm products in the state in 2011. The turkey industry in Utah is interesting, not because of its size or even because it provides centerpieces for Thanksgiving dinners in Utah, but rather because it exists. We all appreciate the good cooks and recipes that result in a fantastic holiday meal, but we should likewise acknowledge the craftsmen who grew the showpieces for those meals and the "ingredients" they used to create the turkey industry in Utah.

Before white settlers came, the Great Basin lacked a tolerable habitat for wild turkeys. The only advantage the area had for turkeys was an abundant supply of grasshoppers, crickets, and other insects. Utah's mountains and deserts were more suited for sheep, cattle, jackrabbits, and rattlesnakes. The fact that Utah turkey growers had to import most of their feed from out of state and then pay to have many of their products hauled out to distant urban centers, put Utah growers at an economic disadvantage. As a result, the state is a challenging place to raise turkeys. How the individuals who were involved in the turkey industry surmounted these obstacles and ended up raising four to five million turkeys each year is the intriguing part of the story.

Four ingredients contributed to this success. The first was a handful of creative individuals who formed and led several organizations that supported the turkey industry. The formation of Utah Poultry, Norbest, Moroni Feed Company and the Utah Turkey Growers Association occurred largely through the efforts of men by the names of Brown, Edmonds, Byers, Blackham, Barlocker, and Adams, as well as a few others. The second critical ingredient was the persistent farmers who survived the ups-and-downs in the turkey business and mastered the art of raising these persnickety birds. The few dozen Utah farmers who remained in the turkey business in 2013 were survivors. Along the way, numerous other farmers failed to master the skills that were necessary to raise turkeys successfully in the state.

Several state and federal agencies constituted a third ingredient in the industry's success. Research by the U.S. Department of Agriculture, the USAC, and others led to the control of turkey diseases, improved nutrition, and the development of new varieties of turkeys. Federal extension agents disseminated useful information to growers and promoted the formation of essential farmers' cooperatives. Especially after WWII, the Farm Credit System became a vital ingredient in enabling turkey growers and their cooperatives to boost the size of their operations. The National Turkey Federation also deserves credit for leading the successful campaign to expand the market for turkey products beyond just the holiday season. Especially early on, the Utah Farm Bureau played a key role in nurturing the turkey business in Utah.

The final ingredient for success, and perhaps the most important, was the ability and willingness of some nimble Utah farmers to adopt cost-saving, profit-enhancing technologies. Those turkey growers who persisted had to adapt more quickly than growers in other states did. This included using new technologies that lessened turkey mortality, enhanced the efficiency of feed, and reduced labor requirements; employing their capital investments more efficiently; and decreasing their average costs by expanding their flock sizes. Turkey growers in Utah survived because they ran faster than did their competitors in other states. Only time will tell if they are able to keep up the pace.