

Boulder County's Agricultural Heritage



Prepared for:
Boulder County Parks & Open Space
Department
and
Boulder County Land Use Department

By:
Deon Wolfenbarger
March 10, 2006

TABLE OF CONTENTS

Introduction	1
Historic Agricultural Contexts	3
<i>Early Settlement/Pioneer Agriculture: 1859-1896</i>	5
<i>Growth in Agriculture: 1897-1919</i>	18
<i>Retrenching and New Directions in Agriculture: 1920-1967</i>	27
Historic Agricultural Property Types	36
<i>Farms, Ranches, Agricultural Districts and Rural Cultural Landscapes</i>	37
<i>Farm house, ranch house, or worker housing</i>	39
<i>Barns and secondary outbuildings</i>	42
<i>Feed storage and processing resources</i>	46
<i>Food storage and processing resources</i>	50
<i>Watering facilities, windmills, and irrigation resources</i>	52
<i>Agricultural landscape features</i>	54
<i>Granges and agricultural society buildings</i>	56
Summary	57
Appendices	58
<i>Boulder County Ditches</i>	59
<i>Boulder County Landmarks with agricultural associations</i>	64
<i>Centennial Farms/Ranches in Boulder County</i>	66
Bibliography	67

Cover photos:

Top left - Cito Barn on Mineral Road

Bottom right - Scates Ranch on Magnolia Road

*Some of the agricultural resources pictured in this document
are on private property, and are not open for public viewing.*

Boulder County has a rich agricultural heritage. From its beginnings in the 1860s providing food supplies for the mining camps to the large wheat farms and beet fields of the early twentieth century, Boulder County agriculture is noted for its diverse history. Unfortunately, over the past several decades numerous historic agricultural properties have been lost or are under threat due to increasing property values and development pressures. In addition to increased development pressures, the way in which Boulder County is farmed is changing. Due in part to open space acquisitions of agricultural properties, the once prevalent farm family living and working on their land has been replaced in many cases by an agricultural lease agreement to an off site tenant. This relatively new arrangement has eliminated the need for some of the historic agricultural buildings once necessary for the resident family farmer.

In order to plan for the protection and preservation of historic agricultural resources, they must first be inventoried and evaluated. Boulder County recognized this responsibility nearly two decades ago by focusing on historic agricultural resources as part of its overall historic sites survey plan to inventory all buildings 50 years of age and older in unincorporated areas of the county. This aggressive agenda has resulted in Boulder County accumulating a large inventory of surveyed agricultural properties and plans for future survey phases. This accumulated survey data provides a sufficient basis of knowledge of the number, location, and significance of historic agricultural. However, an understanding of the how these agricultural resources came into being, how they functioned, and how they changed over the years is necessary in order to properly evaluate them. It is therefore the goal of this document to take a comprehensive look the history of the development of Boulder County's agriculture.

Project Description

This document is part of Boulder County Parks and Open Space's 2005 Certified Local Government grant to research and write a countywide agricultural historic context, prepare a National Register Multiple Property Documentation Form, develop local landmark eligibility guidelines for agricultural related properties, and to evaluate completed survey forms for agricultural properties in order to develop a list of eligible properties based upon the context findings.

Funding, personnel, and project dates

The project was funded in part with federal funds from the National Historic Preservation Act, administered by the National Park Service, U.S. Department of the Interior and for the Colorado Historical Society. However, the contents and opinions do not necessarily reflect the views or policies of the U.S. Department of the Interior or the Society, nor does the mention of trade names or commercial products constitute an endorsement or recommendation by the Department of the Interior or the Society. This program receives federal funds from the National Park Service; regulations of the U.S. Department of the Interior strictly prohibit unlawful discrimination in departmental federally assisted programs on the basis of race, color, national origin, age or handicap. Any person who believes he or she has been discriminated against in any

program, activity, or facility operated by a recipient of federal assistance should write to:
Director, Equal Opportunity Program, U.S. Department of the Interior, National Park Service,
1849 C Street, N.W. Washington, D.C. 20240.

In August 2005, Boulder County contracted with Deon Wolfenbarger of Three Gables Preservation to complete the multiple segments of the Certified Local Government project. Carol Beam, Historic Preservation Specialist, served as project coordinator for Boulder County. Dan Corson, Intergovernmental Services Director, served as grant coordinator for the Colorado Historical Society and Dale Heckendorn, Preservation Planning Coordinator and State and National Register Coordinator, served as project reviewer for the Colorado Historical Society.

HISTORIC AGRICULTURAL CONTEXTS

This report is organized around the built resources and historic landscapes that resulted from agricultural activities in Boulder County, Colorado. It provides a context for understanding the conditions that encouraged, hindered, or changed agriculture in the county, and includes information on extant resources dating from 1862 through 1950, based on numerous field surveys conducted in unincorporated Boulder County.

The historic contexts cover three major historic periods of agricultural development in Boulder County. The *Early Settlement/Pioneer Agriculture: 1859-1896* period in Boulder County saw many major agricultural developments occurring in a relatively compressed time period. In just a few decades, Boulder County went from an Indian hunting ground covered with prairie grasses to bustling mountain mining camps supported by successful farms on the plains. Settlers arrived shortly after the discovery of gold, broke sod, established farms and ranches, organized and built irrigation systems, founded farming communities, and organized communal agricultural societies and county fairs – all in less than thirty years. The next period of agricultural development in Boulder County, *Growth in Agriculture: 1897-1919*, saw increasing specialization combined with the introduction of crops better suited for the climate. This was also a period of growing national and international markets for Boulder County agricultural products and increased mechanization in farming. The *Retrenching and New Directions in Agriculture: 1920-1967* period extended from the end of the first World War through the mid-1960s. Significant changes in farming continued during this period, brought about in part by severe climatic factors and increasing residential growth in the county. In addition to further specialization and mechanization, new government programs developed for agriculture and soil conservation were introduced. Farms grew in size, but decreased in numbers. This last historic period of agriculture ended when several initiatives, first developed to limit growth in Boulder County, led to open space protection and purchases. In 1967, the Boulder County Commissioners appointed the first Parks and Open Space Advisory Committee (POSAC) and the City of Boulder started their Open Space program. Both of these programs would eventually serve to protect agricultural properties through the purchase and lease of farm and ranch lands throughout the county. Although these programs may not have initially been conceived to protect agricultural land, the end result was the preservation of thousands of acres of farms through easements and outright purchases through the programs initiated in 1967.

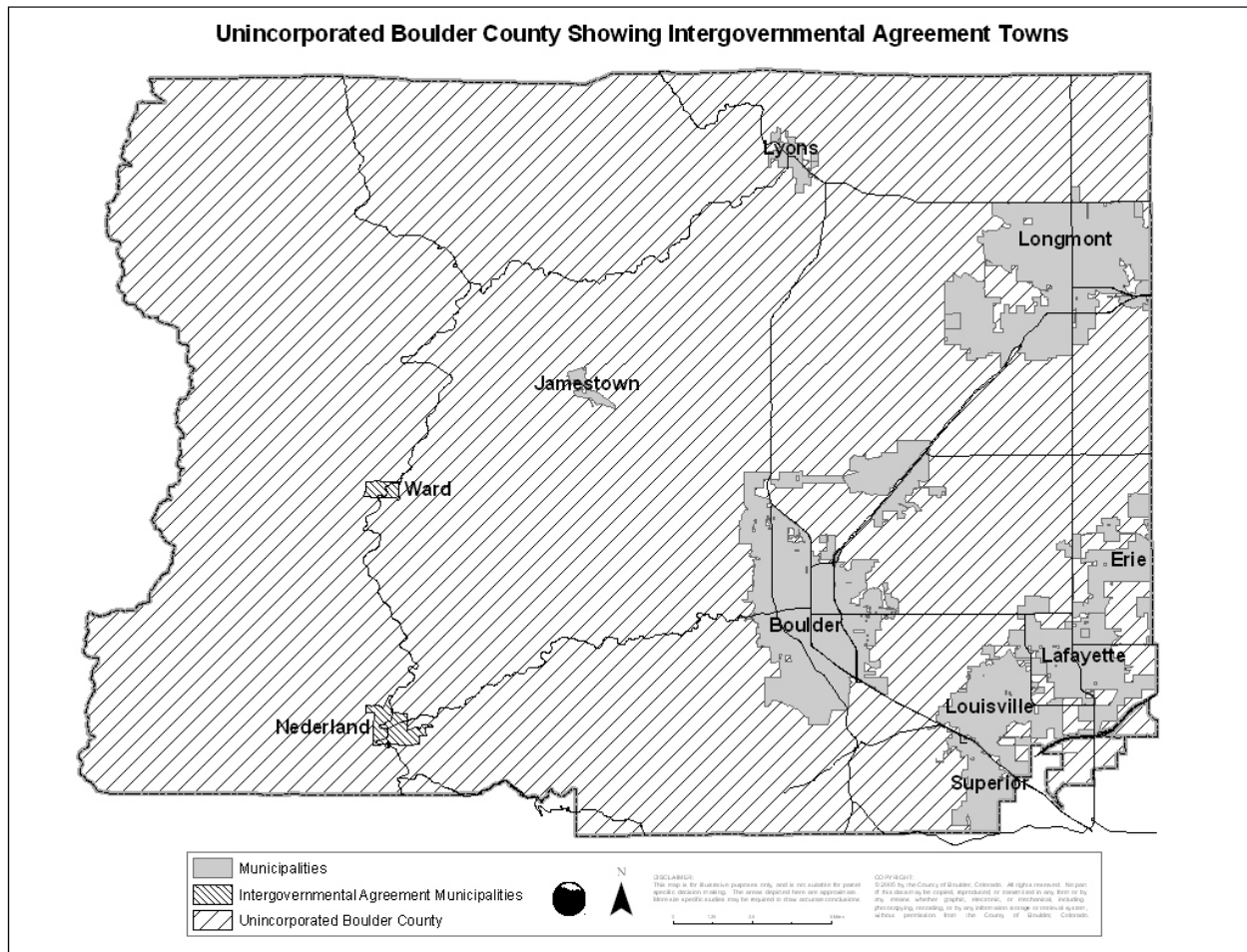


Figure 1: Map of Boulder County, Colorado showing intergovernmental agreement towns.

Boulder County is located northwest of Denver in the north-central part of Colorado. The county is set on the eastern slope of the Rocky Mountains, with the Continental Divide serving as its western border. The western three-fifths of the county is mountainous, while the eastern portion is rolling plains. Elevations within the boundaries of the county range from 14,000 foot peaks in the Rocky Mountains to about 5,000 feet on the plains. The county encompasses 741 square miles and contains diversified settings, both rural and urban. The county population was approximately 214,978 in 2005; about 86,969 of those reside in Boulder, 56,065 in Longmont, 15,995 in Lafayette, 14,356 in Louisville and the remainder in the smaller towns of Lyons, Nederland, Ward, Jamestown, Superior and Erie and unincorporated areas, which include the communities of Niwot, Gunbarrel and Allenspark. Native Americans were the first to inhabit the area; the Utes were long-time residents of the “Shining Mountains,” followed later by the Cheyenne and Arapaho Indians who hunted in the Boulder and St. Vrain valleys prior to the arrival of the first Euro-American settlers. The discovery of gold led to the first town, Boulder City, being laid out in March 1859. The Colorado Territory was created in 1861, and Boulder was one of the first seventeen counties.

Early Settlement/Pioneer Agriculture: 1859-1896

Prior to 1859, the area that would become the Colorado Territory was so sparsely settled that there was little need for agricultural products other than what could be provided by subsistence farming, i.e., the production by residents for their own immediate or seasonal needs. When gold was discovered that year, though, the swarm of prospectors into the area created a demand for green vegetables, flour, beans, and potatoes, as well as pork, beef, mutton, milk, butter and eggs. The first mining districts in Boulder County organized at Gold Hill and Boulder in early 1859 lured thousands of prospectors to the region. The earliest farmers were entrepreneurs who took advantage of the growing markets located in the mountain mining camps. The Wellman brothers, Henry, Luther, and Sylvanus, are credited with being the first farmers of Boulder County. Henry and Luther had searched for gold in California, and like many, did not find their fortunes there. Hearing of a new strike in Colorado, they brought their youngest brother Sylvanus with them. Upon the advice of Horace Greeley while at Fort Laramie, they headed to Gregory and Russell gulches. On August 1, 1859, they reached Boulder valley and “. . . they considered that they had occasion to go no further, either to find gold, or a rich soil, or a beautiful country.”¹ The very next day, they purportedly took up a square mile section of land located two and a half miles east of the mouth of Boulder Creek with Benjamin C. Safford and began to plow an acre for a turnip patch. Although grasshoppers would take this first crop, their later agricultural ventures were more successful. By fall of 1859, they had completed corrals for their animals; by early spring of the next year, the entire section was fenced. As a result, their farm became an early boarding center in the county, and anyone who had stock that needed caring used the Wellmans’ pastures.

The Wellmans’ first triumph in farming was with Mountain June potatoes, which produced nearly 800 bushels per acre in 1861.² Encouraged by this success, that same spring they added garden vegetables and grains to their crops, including wheat, marking them as the first wheat farmers in Boulder County. In addition to aforementioned agricultural “firsts,” the Wellmans were also the first in the county to build a framed barn in 1861. Although they known as successful farmers, the Wellmans were subjected to the same variable fates as all others who toil in the soil – the climate and the whims of the market. Grasshoppers would remain a recurring scourge for farmers in Boulder County throughout the years. Prices would always fluctuate, but especially so in this early period, with seed potatoes bringing in 15 cents per pound one year, and the next spring only yielding a half cent a pound. In general, though, vegetables were greatly valued in the mining camps, and these markets proved profitable for produce growers in the settlement period. In 1865, for example, a single large cabbage could bring ten dollars. In the 1860s, large oxen trains taking loads of vegetables from the valleys of the Boulder and St. Vrain creeks up into the mining towns of the Rocky Mountains were common sights. Sometimes large

¹Sanford Charles Gladden, Boulder Firsts: A Source-Book of Beginnings in Boulder, Colorado (N.p: pre-publication photocopy of manuscript prepared by Boulder Genealogical Society, 1972) 598.

²Ibid., 601.

parties of miners would also come down from Gold Hill and other areas to the Wellmans' farm to get a vegetable dinner.³

Most of the early farmers came to Boulder County for the same reason as the Wellmans – gold. Unlike the Wellmans though, who immediately turned to farming, most of the new arrivals tried their hand for a while at gold mining. Unfortunately not all were able to make a living, and fewer still found their fortunes. Many disappointed “go-backers” eventually packed up and went back to the states. Several others decided to stay, though, and they returned to the type of life and work that they knew best – farming. Some of the other early agrarians in the county during this period included Andrew Douty, who planted wheat and potatoes along South Boulder Creek. Perry White was one of the earliest to plant wheat along the St. Vrain in the northern part of the county, using seed brought from Salt Lake City.⁴

A letter from “Boulder City, Colorado Territory” in 1863 shows the reasons for the change of heart many of the emigrants, who had first come to the area for mining, had towards farming.

jesse farming here pays big. You bet wee Can make money other ways but farming is A shore Shot and A fast way to make money here. . . Wheat is one main point. . . They rased the best wheat here last year I ever see grow. Jesse you would knot know this Country although you was here in 60, you know that wee thought they couldn't be any thing rased here but wee was misstaken.⁵

Vegetables and grain crops were not the only profitable agricultural commodities desired by the residents of the mining camps; fresh meat was also in short supply during the settlement period. One of the earliest ranchers in Boulder County who profited from this market was Anthony Arnett. Born in Alsace-Lorraine in 1819, Arnett was first drawn to the western United States by the gold rush in California. Striking out there, he moved on to Pike's Peak in 1859. Impressed with the mild winter climate in the area around Boulder City, Arnett decided to winter cattle here. He drove nearly one hundred heifers across the plains in the spring of 1860 and began ranching in the area.⁶ Arnett was typical of many early cattle operations which utilized the open grasslands in the winter, and then drove the cattle to mountain pastures every spring for fattening. Other ranchers operated small feedlots instead and used the abundant prairie grasses for hay. In fact, the harvesting of native prairie grasses as hay for the gold camps in the mountains of

³Ibid., 599-602; Anne Dyni, Pioneer Voices of the Boulder Valley: An Oral History (Boulder, CO: Boulder County Parks and Open Space Department, 1999) 1.

⁴Phyllis Smith, A Look at Boulder from Settlement to City (Boulder, CO: Pruett Publishing Company, 1981) 25.

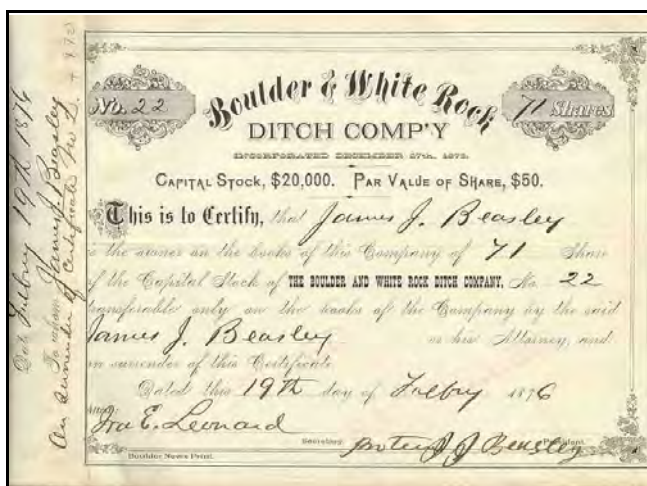
⁵“Letter from Boulder City, Colorado Territory,” Small Documents Collection (Boulder, CO: Carnegie Branch Library for Local History, Boulder Public Library System, 1863). 1863.

⁶Richard Fetter, Frontier Boulder (Boulder, CO: Johnson Publishing Company, 1983) 151.

western Boulder County was likely one of the earliest agricultural activities in the area. The draft animals working in the mines created a ready market for prairie hay. So in spite of its abundance on the plains, hay generally brought extremely high prices in the mountains. Farmers might receive \$25 a ton for hay in the fields down on the plains, but the freighters who delivered it to the mountains made the most profit, sometimes selling a load for as much as \$300-\$500 a ton.⁷

Some of the early attempts in farming in the county were not always successful. Marinus Smith and Joseph Wolff thought that the slopes along the foothills might be right for growing a wide variety of fruits. They experimented with plots of strawberries, raspberries, and blackberries, as well as groves of apple trees and acres of grapevines. Boulder County fruit growers even considered the possibility of vineyards for table wines. When not plagued by the numerous grasshopper infestations, however, the dry winters in Boulder County proved problematic for growing fruit on the Front Range slopes.⁸

While not all of Marinus Smith's early ventures were "fruitful," he did realize that the key for successful agriculture in Boulder County was water. Some parts of the county were fortunate to have relatively reliable water sources, through the two Boulder creeks as well as the St. Vrain, Left Hand, and the Little Thompson. The first agricultural settlements were naturally confined to land near these creeks. After all the watered land was taken up in claims, however, it was clear to newly-arrived farmers that the rainfall in semi-arid Colorado was not adequate for most agricultural activities, particularly in the spring when most crops were started. Taking cues from irrigation systems they learned about while at the California gold strikes, farmers developed a network of irrigating canals in order to provide them with water necessary for their crops and livestock. Smith and Pell dug one of the first irrigation ditches around Boulder in 1859. Following their lead, other ditches were dug throughout the plains to catch the spring runoff from the mountain snows in the Boulder and St. Vrain valleys. In 1860, the Howard and Anderson ditches were dug. By 1862, the Farmers Ditch was seven miles long and had an irrigation capacity of 1,500 acres. Numerous other ditch companies were quickly organized in order to provide water for farmers; a list of Boulder County ditches is found



A stock certificate from the Boulder and White Rock Ditch Company, founded in 1873 to deliver water to Boulder and Weld county farmers. From the Boulder & White Rock Ditch & Reservoir Co. webpage <<http://www.ditchcompany.com>>

⁷Dyni, 59-60.

⁸Smith, 27.

in Appendix A. While many of these ditches involved the cooperation of several farmers, some were developed privately. German immigrant George Zweck came from Omaha in 1860 as part of a 300 ox-team wagon train. After viewing the St. Vrain Valley from Burlington, he decided to take up farming in the lush grassland along the creek. He laid out and dug his farm's irrigation system by hand. Reversing the trend of miner turned farmer, Zweck decided later to prospect for gold in the summers and became Jamestown's first settler. He returned to his first love, agriculture, by investing his mining earnings in land and purebred Hereford cattle.⁹

Towards the end of this period, Colorado's water policy was formalized through a state supreme court case that was settled in 1892. When George Coffin's corn on the St. Vrain Creek died because the Left Hand Ditch Company diverted the upstream water into Left Hand Creek, Coffin took the ditch company to court. The Court ruled in favor of the Left Hand Ditch Company, which had prior water rights, stating that the company's right to divert water was superior to Coffin's claim. More importantly, the Court upheld the ditch company's right to divert water into a different drainage system. This case set a precedent in water law, and became known as the "first in time, first in right" or "prior appropriation" water doctrine.

Although the gold camps would continue to lure new settlers, two developments would make the area around Boulder County more inviting for agriculture. First, the Territory of Colorado was created on February 28, 1861. A year later, President Lincoln signed the Homestead Act. The latter encouraged new settlers to head west to look for new farm lands instead of gold. The Homestead Act allowed any head of household to claim a 160-acre parcel of land if he (or she) was at least 21 years old. A temporary claim was filed at a land office for a small fee and presentation of survey coordinates. Next, the homesteader was required to live on the land for five years and make improvements. "Proving up" ownership required building a home and farming the land. Emigrants from the East and Midwest, who were looking for farm land of their own, took up a majority of the land patents. Occasionally, eastern land developers hired representatives to live on the acreage, later purchasing the land for little cost.

Although many of the new emigrants were individuals looking for a chance to settle down to farming or ranching, some came out west in organized groups. Members of the Dunkard Church in Pella, Iowa, were finding that good farm land was becoming too expensive for their congregation. Tales of free, rich bottomland near the Rocky Mountains lured several to emigrate from Iowa to Boulder County's St. Vrain Valley. They formed a community in 1887 which they named for their hometown in Iowa. The new town of Pella was located on the banks of the St. Vrain, about four miles west of Burlington, and was an early agricultural community in northern Boulder County.¹⁰

⁹Betty Ann Newby, The Longmont Album: History and Folklore of the St. Vrain Valley (Virginia Beach, VA: Donning Company Publishers, 1995) 26.

¹⁰Diane Goode Benedict, Refuge in the Valley: 1800s Pella, Colorado (Lyons: CO: Applications Plus, 2004) 17-18.

Not only were emigrants from the United States tempted to move to the Colorado Territory, but the Homestead Act was widely promoted abroad as well. Many Europeans were as eager as others to obtain free farmland in Boulder County, and consequently founded several small farm communities in this period. Ryssby was the first Swedish settlement in the Colorado Territory. In 1869, Sven Johan Johnson and others from Sweden's Småland province established claims under the Homestead Act, and were soon joined by their families and other Swedish immigrants. Early farming efforts provided a meager living, so to augment their incomes, many of the men had to hire out or work as miners and lumberjacks.¹¹



Lutheran Church in Ryssby, the first Swedish settlement in the state, ca. 1932-1940. Call number: X-13248; photo by Muriel Sibell Wolle, courtesy of Western History/Genealogy Dept., Denver Public Library.

Not all immigrants founded communities, but many began very successful agricultural enterprises. Some arrived before the Homestead Act of 1862, but took advantage and laid claims later. Swiss immigrants Frederick and Jacob Affolter first arrived in Boulder County in 1860. They decided to sell cheese in the mining camps, and consequently drove a herd of milk cows all the way from Missouri to their Left Hand Creek claim just west of Haystack Mountain in 1862. They opened the first cheese factory in Boulder, and their cabin built in the "Swiss style" became a local gathering place.¹²

Regardless of their origins, the new settlers had to build some type of home and plant crops on their 160-acre homestead. The first task facing settlers in the new territory was to provide shelter for themselves and their families before winter arrived. The lucky ones were able to move an unused cabin from Boulder City out onto the plains, stake their fields, and begin plowing. If wood could be brought down from the mountains, the settlers were able to construct log cabins with various methods of log construction. Small wooden "claim shanties" also served as home for many settlers during their first year or two on their claims. These were constructed from board-and-batten milled lumber with wood shake roofs. Some dwellings were made of native stone, principally sandstone. Settlers on the prairies also dug "bricks" of sod and built sod houses. These "soddies" were warm in winter and cool in summer, but were ridden with spiders and bugs. After rainfall, the family also had to bail water out of the house. Another version of a

¹¹Dyni, 29.

¹²Newby, 29.

sod house was the dugout. This type of shelter was made by digging into a hill or bank, then building up the front and side walls with sod. The roofs were made of poles covered with canvas and sod or lumber.



Early crude agricultural buildings near the settlement of Altona, including a barn and log outbuilding and fences. Photo ca. 1942 by Muriel Sibell Wolle. Call number: X-5412, courtesy of Western History/Genealogy Dept., Denver Public Library.

After shelter, water and food were the next concern. Initially water was hauled from creeks or springs. Muddy runoff, diseases, seasonal low flow, or drought made this an unstable source. Consequently most early settlers dug water wells as soon as possible. The earliest farmers also had to be relatively self-sufficient for their food. Most brought with them a milk cow, a hog or two, and some chickens or turkeys. These families had milk, butter, eggs, lard, and some fresh meat, although wild game also provided meat. The farm garden later provided potatoes, melons, turnips, and cabbage. Associated with this period, then, were typical (if rough) agricultural buildings and structures, such as barns, corn cribs, hog houses, poultry houses, granaries, root cellars, and storage buildings, as well as irrigation ditches and canals. Many of the earliest farm buildings from the settlement period in Boulder County have been lost, in part due to their age, original construction methods, and changing farm sizes and functions; there is little documentation about the layout or arrangement of the buildings on the farms from this era.

Once shelter and the immediate need for food were settled, the homesteaders had to tackle plowing and getting in their crops. The tough prairie grasses with deep root systems and generally substandard plows caused many to take more than two years to clear their land in the

plains, while in the mountains, farmers had to contend with steep topography, rocks and boulders in addition to the shortened growing seasons. These factors led more than a few to conclude that farming in the West was too difficult. In general, though, farmers and ranchers in Boulder County were relatively successful compared to others in Colorado in these early years. By 1870, even though Boulder County was one of the smaller counties in the territory in acreage and had only 1,939 residents, it was ranked second for acres of improved farm land, with 14,365 improved; an additional 28,308 were considered “unimproved.” Furthermore, the value of its farmlands was the highest in the territory in 1870 at \$575,650.¹³ The total estimated value of all farm productions in the county was \$326,313. There was a total of 232 farms recorded in this census, with only a few small farms – 19 farms ranging in size between 3-9 acres. There were 26 farms with 10-19 acres, 80 farms 20-49 acres, 58 farms 50-99 acres, and 49 farms 100-499 acres. No farms larger than 500 acres were recorded in the 1870 census. There were also no recorded values for orchard or other produce market gardens, but a total of \$11,734 of slaughtered animals.¹⁴ By 1880, Boulder County had the largest amount of improved land in farm acreage in the state at 82,990 acres; again, this was in spite of being one of the smaller counties in total acreage, and with much of it encompassed by mountains. The amount of improved acreage increased in 1890 to 93,155 acres, although Boulder was now ranked fourth behind Arapahoe, Larimer, and El Paso counties.¹⁵

The heritage of Boulder County agriculture during this settlement period is illustrated by many successes. Many of the rural agricultural settlements grew into small communities, including Niwot, Pella, Valmont, Ryssby, Altona, and Burlington. Several flour mills were established to process the successful wheat crops of the county. In fact, Boulder County wheat was purportedly responsible for the site selection of the town of Longmont. The Chicago-Colorado Colony, which first organized in Chicago 1870, proposed founding an agricultural community in the Colorado territory. The colony’s belief in the ideals and benefits of agriculture was laid out in a constitution written that year.

Agriculture is the basis of wealth, of power, of morality. It is the conservative element of all national and political and social growth; it steadies, preserves, purifies and elevates.¹⁶

¹³Although Colorado was not admitted to the union until 1876, the federal government still collected agricultural data for the region. The county figures were gathered for the original seventeen Colorado counties.

¹⁴1870 U.S. census, Boulder County, Colorado, agriculture schedule; cited from: University of Virginia Library, Geospatial and Statistical Data Center, [Historical Census Browser](http://fisher.lib.virginia.edu/collections/stats/histcensus/) <<http://fisher.lib.virginia.edu/collections/stats/histcensus/>> cited 10 October 2005.

¹⁵1880 and 1890 U.S. census, Boulder County, Colorado, agriculture schedule; cited from: University of Virginia Library, Geospatial and Statistical Data Center, [Historical Census Browser](http://fisher.lib.virginia.edu/collections/stats/histcensus/) <<http://fisher.lib.virginia.edu/collections/stats/histcensus/>> cited 10 October 2005.

¹⁶Dan Corson and Tom Noel, [Boulder County: An Illustrated History](#) (Carlsbad, CA: Heritage Media Corp., 1999) 82.

The colony sent a committee to look for suitable sites in the land grant area of the Denver Pacific Railway. They happened upon Enoch J. Coffman, who was delivering his Boulder County wheat crop to Denver. Delighted with what they saw, the committee decided to purchase approximately 60,000 acres of land in the county, and subsequently laid out the town of “Longmont” in 1871. About 390 members of the colony moved to Longmont that first year, where they were allowed to purchase two town lots and given access to outlying farm lands. Communal irrigation ditches were built within the town by the members of the colony. Coffman was appointed superintendent of the agricultural operations, where he oversaw 1,000 acres planted in wheat and other crops.¹⁷

With the growing numbers of farmers and their increasing success, agriculture in Boulder County did not remain at the pioneer or “subsistence” level very long. Within a decade, county agrarians realized the need to meet for the purpose of sharing information and working for the betterment of the industry. The Boulder County Agricultural Society was organized on June 12, 1869. Although there was no money in the treasury, the group nonetheless purchased fair grounds and organized a county fair, all within a few months of organizing. They purchased forty acres of land with a note and a loan from the owner, Mrs. Susan Branch, and others. A fence was immediately built around the grounds, and a temporary round house, judges’ stand, stalls, track, and other improvements were made. The first fair was held for four days commencing October 13, 1869.¹⁸ In spite of numerous attractions, including daily races and even a mining exhibit, the first fair lost money. Perhaps more important than the showcasing of agricultural wares during this first county fair was the farmers’ convention that was held at the same time. Farmers from Larimer, Weld, Jefferson, and Arapahoe counties, as well as Boulder County held a farmers’ convention to discuss “the protection of farmers against depreciating prices of farm products by speculators.”¹⁹

Just a few years earlier in 1867, the National Grange movement had organized in Washington, D.C. Officially known as the Patrons of Husbandry, the organization worked to unite farmers and work for their betterment. It was the first fraternal organization to allow women to hold offices, and would soon grow to be as important for its social outlets as for its political activities. In Colorado, though, the grange movement was initiated after the financial panic of 1873 when farmers felt the effects of the depression. Hoping to influence favorable agricultural legislation in the new territory, the Colorado Territorial Grange was organized in January 1874. When the state Board of Agriculture was created in 1876, seven of the eight members were grangers. They worked to prevent a plan to divert state funds away from the new agricultural college in Fort Collins. In order to keep abreast of legislation affecting farmers, the state grange officers formed

¹⁷Ibid., 82, 86.

¹⁸“Records and Correspondence 1872-1873 of Boulder County Agricultural Society,” BHS 328 b043 f01 (Boulder, CO: Carnegie Branch Library for Local History, Boulder Public Library System).

¹⁹Dyni, 55.

a lobbying committee in 1885. They were particularly concerned about potential control of Colorado's rivers and streams, which would affect the water rights of farmers in the state.²⁰

Boulder County was especially active in the earliest grange efforts in Colorado. Just one month after the territorial group formed in January 1874, a special session was held in Boulder City to further hone the organization.²¹ Boulder County and its residents continued to play important roles in early Colorado Grange history, with several residents filling officer positions.²² John L. Brown of the National Grange was sent to Colorado in 1873, where five of the subordinate Granges he formed were in Boulder County: Valmont Grange #5, Washington Grange #8, Left Hand Grange #9, Harmony Grange #14, and St. Vrain Grange #16. Other Boulder County Granges which formed during this early period were: Longmont Grange #27, South Boulder Grange #28, Lower St. Vrain #29, Coal Creek Grange #30, Burlington Grange #31, Haystack Mountain Grange #36, Pleasant View Grange #94, Altona Grange #127, Rocky Mountain Grange #128, Longmont Grange #130, Boulder Valley Grange #131, and the Hygiene Grange #134.²³

Granges were not the only agricultural societies that organized during the settlement period. In 1871, farmers around Longmont formed the Northern Colorado Agricultural Society. They purchased an eighty-acre site at Lake Park to serve as their fairgrounds. This fair was so successful that it soon outgrew Boulder's fair. Eventually, the county fair was moved to the Longmont site.²⁴ The Lower Boulder Farmers' Club was formed in 1873, and was considered the first "club" as opposed to a society.²⁵ The Northern Colorado Horticultural Society was active in the 1880s, although their scope went beyond the boundaries of Boulder County. The Boulder Fruit Growers' Association aims were based on collectivism, where the fruit growers worked together to achieve success. Their incorporation papers, filed on March 4, 1893, stated that the organization was established:

For the purpose of promoting and encouraging the industry of fruit growing, to secure fair prices for said fruit, establish a better market and secure better shipping facilities, to buy, sell and raise the standard of fruit, and have the same reach the customer in the best possible condition, to promote the general welfare and secure the best interest of the fruit-growers of Boulder and vicinity, and to lease, erect,

²⁰Ann Dyni, "The Grange Movement in Boulder County," (prepared for the Boulder Historic Context Project, 1992) 4.

²¹Colorado State Grange, Colorado State Grange History: 1874-1975 (n.p.: Colorado State Grange, 1975) 11.

²²Dyni, "The Grange Movement," 4.

²³Ibid., 11.

²⁴Corson and Noel, 121.

²⁵Dyni, "Pioneer Voices," 55.

acquire by purchase or otherwise a suitable building or buildings and all necessary real estate for the same for the use of the Association.²⁶

Many of these organizations were devoted to cooperative marketing of farm products, although other coops provided supplies or services. In addition to the grange, other farm organizations, including the Farmers Alliance and the Farmers Educational and Cooperative Union of America (known as the National Farmers Union), also began to promote cooperatives. The rise of interest in cooperatives near the end of the nineteenth century coincided with an agricultural recession and drought. This factors threatened not only the livelihood of farmers, but a great many of the small milling companies in Colorado as well. During the recession, only the larger milling companies, such as those owned by J.K. Mullen and Company, seemed able to last through the difficult economic times. Thus the less stable companies began to talk of consolidation. An alliance had been tried in 1877, the Colorado Millers' Association and Miller's Mutual Protective Insurance Company (CMA), but it failed in the recession of the mid-1880s. A new milling association formed in 1885 – the Colorado Milling and Elevator Company (CM&E). Its charter members included the larger, major mills firms in Ft. Collins, Golden, and Greeley, as well as the two largest Longmont milling outfits.²⁷ By working under one management, the milling enterprises were able to reduce the expense of manufacturing and obtain better railroad rates, leading to the long-term recovery of the milling industry in the next period of Boulder County's agricultural development.

Most agrarians and small milling companies were not pleased about the development of the larger commercial milling associations, however. While the larger milling entrepreneurs and associations were able to barter for better transportation rates, they managed to manipulate the system to exclude local farmers from these rates. Furthermore, the CM&E took advantage of regional price variations and inexpensive shipping rates to import cheap grain from other states. With capital to build large elevators, they could also afford to buy wheat when it was cheap and store it for future speculations. Colorado farmers could not afford the higher freight rates offered them, and were forced to sell to local dealers directly from harvest – the time of the year when heavy supply forced down wheat prices.²⁸ As a result, many farmers decided to support a patronage-founded mill in order to show their unhappiness with their treatment by the larger CM&E. The Farmers' Alliance mill, which was suffering during the 1880s, remained profitable for another thirty-five years due to their support. A second agrarian-based cooperative was founded in Longmont in 1886 – the Farmer's Milling and Elevator Company. Rival milling mogul J.K. Mullen even admitted that this mill was “one of the best—if not the best in northern Colorado.”²⁹

²⁶Gladden, 611-612.

²⁷William J. Convery, III, Pride of the Rockies: The Life of Colorado's Premiere Irish Patron, John Kernan Mullen (Boulder, CO: University Press of Colorado, 2000) 100-102.

²⁸Ibid., 105.

²⁹Ibid., 109.

A critical factor in the establishment and later success of agriculture in Boulder County, both for farmers and processors such as mills, was the development of reliable methods of transporting agricultural products. For the earliest farmers who sold produce to the miners in the mountains, the task of getting their goods to these profitable markets was extremely daunting. Unlike the plains, where a farmer could take a plow and grade a simple road for his own use, agricultural entrepreneurs alone could not undertake the construction of roads into the mountains. Although in the early 1860s the federal government financed the building of a military road up Sunshine Canyon, most of the early mountain roads were capital ventures. James P. Maxwell and Clinton M. Tyler capitalized the Boulder Valley and Central City Wagon Road Company of \$50,000, and on March 11, 1864, they received a county building permit for road construction up Boulder Canyon. The Wellman brothers were among the subscribers, as they needed to transport their produce to the miners living in the various camps.³⁰ For the most part, however, these roads were financed by parties with mining interests.

Farmers on the plains generally worked on their own roads, following property boundaries based on the federal township and range system. Citizens could later petition the County Commissioners to establish a route as a free county road. The very first county road (now Pearl Street in Boulder) was likely developed to support agriculture, as it led from an intersection in the fledgling town of Boulder City to Valmont, which was the area's major agricultural center at the time. Known then as County Road #1, it was established on April 10, 1862.³¹ County Road #9 also appears to have been laid out for the benefit of farmers, as it started at Peter Housel's flour mill in Valmont and extended east to Louisville. Indeed, Valmont's prominence in agriculture made it the center of several of the earliest county roads, including County Road #10, which today is 63rd Street north of Valmont. County Road #8 extended from just north of the town of Valmont to today's Colorado 52 and on to Burlington.³² This was called the "gunbarrel" route because of its straightness; although this route no longer exists, the area still retains the name Gunbarrel.

For the areas without a county road, travel in the plains often involved a dizzying array of zig-zag routes around the boundaries of varying sized farm fields. In 1866, a *New York Tribune* correspondent traveling from Marshall to Valmont wrote:

We were full two hours in reaching Valmont, on account of the very independent habits of the Colorado farmers. The second bottoms being devoted to grazing purposes, they have found it necessary to fence the outer edge of the farm land; and, in so doing, they cut off the road with the most utter disregard of the public. .

³⁰Smith, 33-36.

³¹Silvia Pettem, "Roads of the Mountains and Plains," (Boulder, CO: Boulder Planning Department, 1996) 13-14.

³²Ibid., 18.

. . In spite of the tedious zigzags we were forced to make, the views of the broad, prosperous, and thickly-settled Boulder region, made our ride very enjoyable.³³

As a *Longmont Press* editorial in 1874 noted, however,

The farmers are not wholly to blame for fencing up the roads and making people zig-zag around two miles, to go a distance of one mile; the most blamable parties are the County Commissioners.

The newspaper reported of an attempt to build a road from Longmont to Boulder. The route was laid out, but when a farmer along the route would have suffered “damages,” the Commissioners decided to abandon the project rather than pay the damages. As a result, it took over eighty years for the “Diagonal” route to finally be built connecting the two towns.³⁴

Although several early Boulder County farmers drove their products into Denver via horse-drawn wagon, many would eventually rely on the railroad for the transportation of their goods. Rail service came to the county in 1873 when two lines were built to serve Boulder City and the Erie coal mines: the Colorado Central and the Denver and Boulder Valley line. That same year the Colorado Central completed a branch line across Coal Creek to the coal mines near Marshall. The coal mines here were also served by the Boulder Valley Railroad line and the Union Pacific Railroad.³⁵ Indeed, many of the railroads were initially developed for the mining communities, but would later serve to transport agricultural commodities. The rail lines between the mountain and plains differed in their construction as well as their original purpose. Narrow gauge tracks with rails three feet apart were better able to accommodate the sharp turns in the mountains, while the standard gauge of four feet, eight and a half inches was typically found on the plains.³⁶

Although always susceptible to climatic and economic factors, by and large agriculture in the county was very successful up until the 1890s. The settlement period in agriculture provided virtually all the ingredients needed to make farming successful in Boulder County. Water, the most necessary and precious commodity in Colorado, was obtained through the development of irrigation companies. Other important developments in the period included the establishment of several rail lines in the county, which opened up far away markets for Boulder County agricultural products. Farmers organized and worked to influence farm legislation in the young Colorado Territory. Fairs displayed their crops, livestock, and farm implements, to encourage others to continue to try their hands at agriculture in Boulder County. Farm communities were settled and growing; while not all would survive through the next period of agricultural

³³Ibid., 19.

³⁴Ibid., 20.

³⁵Lara, Juliusson, “Boulder County Colorado Major Transportation Routes, Pre 1860 to 1920” (Boulder, CO: Boulder Planning Department, May 1992) 5.

³⁶Smith, 127.

development in Boulder County, they provided needed social, religious, and economic outlets for the agrarian settlers. By 1891, wheat was the most profitable cash crop in Boulder County, although other crops including corn and potatoes were important to the area as well. Farm technology was improving slowly through this period, but the impact of these improvements remained relatively minimal. However, the mid-1890s brought hard times due to a severe drought, low market prices, and a national economic recession. This difficult period persisted through much of the decade. By the end of the nineteenth century, though, the drought broke, wheat yields rebounded, and prices rose, signaling a new era in agriculture.



A farm near Middle Boulder Creek and Barker Meadow in Nederland. Photo by William Henry Jackson, between 1873 and ca. 1892. Call number: CHS.J2205, courtesy of Colorado Historical Society William Henry Jackson Collection.

Growth in Agriculture: 1897-1919



Profits increased when farmers began to specialize in agricultural production, such as this dairy herd on the Rough & Ready ditch. Photo ca. 1900, from the Joy Buster collection, courtesy of Diane Benedict.

Several factors combined to help agriculture rebound after the slump experienced in the mid-1890s. Some of these were evident prior to 1890, but they combined around the turn of the century to result in a spectacular recovery. These factors included increased specialization, mechanization, the introduction of new or improved crops, improved methods of animal husbandry, and innovations in farm building construction.

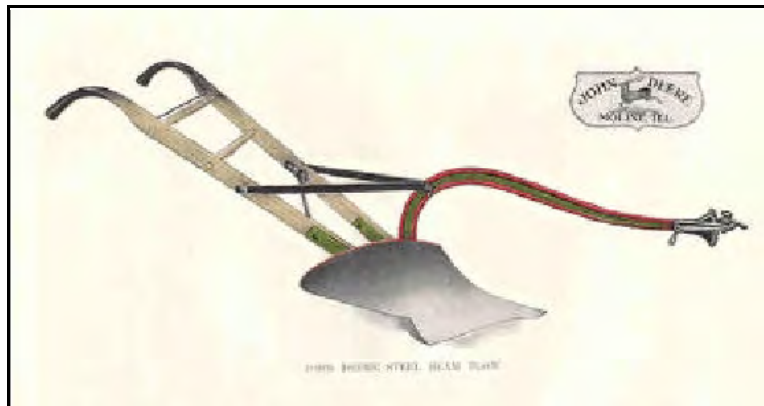


Illustration of a steel beam John Deere walking plow around 1900, but more typically used in the mid to late 1800s. Courtesy of John Deere Company.



Even with increased mechanization, wheat threshing was very labor-intensive. Shown here is a steam-powered threshing machine, three horse/mule drawn wagons loaded with sheaves, and one horse-drawn water tank. Photo by L.C. McClure, ca. 1925 and 1930. Call number: MCC-3045; courtesy of Western History/Genealogy Dept., Denver Public Library.

One of the most significant changes in agriculture in Boulder County and the rest of the country was the improvement of existing and development of new mechanized farm equipment. In the settlement era, most Boulder County farmers relied on the primitive hand tools and equipment they brought with them to the territory, including the use of draft animals for the field work. Two-horse walking plows were used to prepare the earth for row crops. Farmers then sowed grain by hand or hand-operated broadcasting seeders. Harvesting was also by hand with a scythe, and wheat was threshed in a horse-powered separator. By 1900, horse drawn mechanical seeders or “drills” were common, as were grain binders for cutting the ripe wheat or oats. Steam engines were used by the mid-1890s to power threshing machines. These were not self-propelled, however, and had to be pulled from location to location by horses. By 1900 self-propelled steam engines for threshers were introduced, although most Boulder County farmers continued to use stationary steam engines until smaller and more affordable combines were introduced. Pull combines were introduced by the mid-1910s, but these early combines were pulled by teams of

horses, with the forward motion of the machine operating the combine. These were used mainly in the larger grain fields in the eastern sections of the county.³⁷ By 1920, combines with engines to run the threshing mechanism were available, but the self-propelled combine was not developed until the 1930s and was not common until the 1940s.

In addition to new machines for sowing and threshing, mechanization for plowing the wheat fields for planting preparation was also introduced during this period. By the mid-1890s, slow-moving steam engines began to replace teams of horses, mules, or oxen. Gasoline-powered tractors then came into general use ca. 1915, in part due to the loss of farm labor to military service during World War I. The tractor was probably one of the most important innovations in farm machinery, particularly for the cultivation of grain and hay. It pulled a variety of equipment including plows, discs, drills, and combines. To service all this new farm equipment, the number of implement stores in Boulder County increased dramatically from the 1890s through 1920. While a few Boulder County farmers stubbornly held out and continued to use draft animals, eventually most switched over to machinery as they realized that their neighbors were able to operate larger farms, till more acreage, and earn greater profits. Thus in spite of the already high percentage of land already under cultivation, the total amount of acreage in farmland continued to increase in Boulder County throughout this period, rising dramatically from 93,155 acres in 1890 to 191,373 acres in 1900 and 221,202 acres in 1920. A far more spectacular increase in the value of farm equipment occurred in the same period, nearly doubling from \$121,670 in 1890 to \$216,340 in 1900 and increasing by 700 percent in 1920 to \$1,517,998.³⁸

In addition to advances in farm machinery in this period, new or improved crops were introduced. At the beginning of the twentieth century, wheat continued to dominate grain production in Boulder County. Before the arrival of the Russian Mennonites, most wheat farmers tilled small acreage and were limited to the soft wheat varieties. Partly due to the efforts of the Santa Fe Railroad Company to entice immigrants to the United States, an agricultural “revolution” occurred in the late 1870s and 1880s. Russian-Germans, and in particular the Mennonites, are generally credited with bringing “hard red winter wheat” with them when they immigrated. The promotion and testing of hard wheat varieties were conducted in cooperation with Mark Carleton of the Kansas State Agricultural College and the U. S. Department of Agriculture. Together with some Mennonite millers, they proved the adaptability of the “Russian” hard wheat to the plains states in the early 1880s. This hard wheat better survived the winters on the Great Plains, and because it was harvested earlier in the summer, there were fewer problems with insects and plant disease than the soft wheat varieties.³⁹ The new varieties of hard

³⁷Dyni, "Pioneer Voices," 71.

³⁸1890, 1900 and 1920 U.S. census, Boulder County, Colorado, agriculture schedule; cited from: University of Virginia Library, Geospatial and Statistical Data Center, [Historical Census Browser](http://fisher.lib.virginia.edu/collections/stats/histcensus/) <<http://fisher.lib.virginia.edu/collections/stats/histcensus/>> cited 10 October 2005.

³⁹Norman E. Saul, “Mill Town Kansas in the Age of Turkey Red,” [Kansas History: A Journal of the Central Plains](#) 23 (Spring-Summer 2000): 29.

red winter wheat were so hard that at first millers found them difficult to grind. However, the qualities of this wheat, not the least of which were its high yield, were so superior that it propelled Boulder County to new heights in wheat production after its introduction. Wheat production grew even more dramatically during the 1910s, when the outbreak of World War I caused a surge in wheat prices from 76 cents to \$4.10 a bushel from 1913 to 1919. Acreage increased from 1910 to 1920, and production rose as well. As the grain center of Boulder County, Longmont in particular benefited from the success of surrounding wheat farmers. To keep up with the area's production, Longmont had six mills after the turn of the century, and was proud to be known as the "Minneapolis of the Rockies."⁴⁰

Longmont was also the center of many other agricultural enterprises, and benefited from the introduction of several other crops that were new to Boulder County; one of the more significant was sugar beets. Sugar beets had been grown in northern Colorado since the 1890s, but after the turn of the century they became one of the most predominate irrigated crops in the region. They were relatively easy to grow, in that they were well suited to the climate and managed to produce well even in adverse weather. The sugar companies succeeded in promoting of the crop and persuading Boulder County farmers to switch from wheat to sugar beets. Soon there were enough farmers in the area to justify the construction of a refinery for the Longmont Sugar Company in 1903, which was acquired just a year later by the Great Western Sugar Beet Company.



Plains wheat fields with the Flatirons in the background. Photo by L.C. McClure, ca. 1925 and 1930. Call number: MCC-3048; courtesy of Western History/Genealogy Dept., Denver Public Library.



Great Western Sugar Company Beet Factory, Longmont. Photo by L.C. McClure, ca. 1905-1910. Call number: MCC-349; courtesy of Western History/Genealogy Dept., Denver Public Library.

⁴⁰Corson and Noel, 88.

In spite of this crop's appeal to farmers, beet production required irrigated fields and was very labor intensive. Farmers in Boulder County needed more workers for this new crop, and immigrant labor answered the need. German-Russian, Mexican, and Japanese immigrants comprised a majority of the sugar beet labor force. "Beet shacks" and camps were constructed to house Hispanic laborers, who moved to the area during the season and returned home after harvest. Japanese immigrants also worked the beet fields, but several of these families saved money, bought farm land in Boulder County, and began their own agricultural businesses. The Tanaka, Nishida, and Kanemoto families all became successful vegetable and market produce farmers in Boulder County.⁴¹

With the growing prominence of the Japanese immigrants' truck farms and other agri-business entrepreneurs, vegetables and market produce crops greatly expanded after the turn of the century in Boulder County. Again, Longmont was the center of this growth, particularly in processing. John H. Empson and his daughter, Lida, were among those responsible for promoting the production of vegetables in Boulder County. They came to Longmont for John's health, and opened a fruit and vegetable cannery in 1886. The business was so successful that they acquired or built canneries in several other locations, and even hired renowned plant breeder Luther Burbank to develop a smaller, sweeter pea suitable for the area's cool, snowy springs. The crop was so successful that by 1905, the Empsons' pea cannery was the largest in the world. They were not limited to just peas, but also specialized in asparagus, green beans, red beets, and pumpkins.⁴²

The increasing specialization in agriculture differed throughout the various regions of the county. In the northeast plains, there were large farms that planted wheat, sugar beets, and vegetables, as well as several truck farms. The southeast portion of the county, around the towns of Marshall, Superior and Louisville, was better known for its coal mines. However, mining work was often cyclical, and the miners' families turned to agriculture in the summer months. Although these farms may not have been as specialized as their counterparts closer to Longmont, their agricultural heritage is still evident today.

Agriculture also underwent a transformation in the mountain regions of Boulder County. Whereas in the early settlement period, miners purchased agricultural products from farmers on the plains, as the mining industry experienced a number of "boom and bust" cycles, some mountain residents decided that it might be easier to homestead. Beginning in the late nineteenth century and continuing on up through the early twentieth century, many areas in the mountains not only had mining, but farming and ranching activities as well. Charles Pughe turned to farming when his partner was killed in 1892 in the Dinah shaft in Long Gulch. In 1909, he applied for a 160-acre homestead on the land where he had lived for more than twenty-five years. This angered the nearby Gold Hill miners, who claimed that the homestead was in the heart of

⁴¹Ibid., 90.

⁴²Ibid., 88-89.

the “richest mining district of the region.” A protest was filed in court, and eventually the federal grand jury found Charles guilty of giving false testimony that the land did not have any mineral deposits.⁴³

This conflict between mining claims and homesteaders made it more difficult to establish large farms in the mountains. Nonetheless, the mountains did see an increase in farming activities during this period. A review of the county directories at the turn of the century reveals several mountain communities with residents engaged in either farming or ranching in addition to mining, including Altona (farming, stock raising, and fruit growing), Nederland (farming, stock raising), Sugar Loaf (stock raising, mountain farming), and Allenspark. The county directory noted that at Sugar Loaf, “Farming is made easier than in the valley, owing to the numerous and gentle rain-falls in necessary seasons,” and in Allenspark, “Owing to an abundant supply of rain in proper season and the infallible mountain spring, the native grasses fare well, and are consequently very productive. Stock raisers are thus enabled to rear cattle at small cost, with an active demand for their beef.”⁴⁴

Ernie Betasso’s family history was typical of the development of agriculture in the mountains. Ernie’s father came from Italy to the Pennsylvania coal mines, then onto the coal fields in Boulder County. In the summer when coal consumption was low and the mines were not operating, Ernie's father prospected in the mountains in quartz, gold, and silver mines. In 1915, his father purchased 160 acres on Sugar Loaf which had been homesteaded by Larry Blanchard, and the family continued farming and ranching activities until the 1960s.⁴⁵ A more unusual example of the mining/agriculture relationship in the mountains occurred on Sugar Loaf in 1905, when a farmer harvesting potatoes discovered what would later become the Livingstone mine. Known as the “potato patch strike of 1905,” it is likely the only instance in Boulder County where farming activities resulted in an increase in mining.

Virtually all aspects of agriculture in the county prospered during the first two decades of the twentieth century. Due to the wide variety of its agricultural products, the Boulder Daily Camera newspaper did not believe it was exaggeration to call Boulder Valley “The Garden Spot of Colorado,” and the Boulder Commercial Association surely felt the following commentary on Boulder County agriculture was no mere boosterism, but a simple recital of the conditions.⁴⁶

The farmer is like a king in his own realm, nowhere is this more nearly true than on the irrigated farms of Boulder County where a failure of crops is almost unknown and nowhere is the farmer in a position to be more independent. To

⁴³M. M. Anderson, The Mining Camps: Salina & Summerville (Boulder, CO: Junction House, 2005), 287.

⁴⁴Boulder County Directory, 1896.

⁴⁵Ernie Betasso, “Oral history interview with Ernie Betasso,” interviewed by John Hess, 15 January 1983. At Carnegie Branch Library for Local History, Boulder Public Library System, OH0225, Boulder, CO.

⁴⁶“Boulder Valley, ‘The Garden Spot of Colorado,’” The Daily Camera Industrial Number (8 January 1910).

those who imagine Colorado as sort of semi-desert, whose people depend almost wholly upon the mines for support, it may be somewhat of a revelation to learn that the value of Colorado’s agricultural products is greater than her minerals. Boulder County’s agricultural and horticultural products in 1906 amounted to \$2,510,839, out of a grand total of \$6,497,786 for her combined products To the farmers of the east and middle west, our untilled soils seems poor and unproductive, but with the magic touch of water and Colorado sunshine, they become the most productive in the world.⁴⁷

Indeed, the statistics of the period seem to support the preceding claims of agricultural paradise. Nearly all facets of agricultural production increased in yield and value, as shown in the table below, which in turn stimulated the cash value of the farms in Boulder County to \$27,649,829 by 1920.

Value of Agricultural Products in Boulder County		
	1910	1920
Produce of market gardens	\$87,985	\$201,952
Other grains & seeds	\$1,246	\$45,464
Hay & forage	\$607,087	\$1,369,686
Fruit & nuts	\$149,044	\$178,603
Cereals	\$926,640	\$1,410,627
<i>Total all crops</i>	\$2,093,365	\$3,834,693⁴⁸

The cattle industry in Boulder County was also undergoing some changes at the turn of the century. The drought of 1891-1893 forced many Boulder County cattle ranchers to reorganize and take a new approach to cattle raising. Ranching was already beginning to evolve from the open range as more individual homesteaders moved into the county. Coupled with the drought, ranchers looked to other sources for feed. With the expansion of alfalfa and sugar beets as crops in the 1890s, cattle operators switched over to livestock feeding. Sugar beet tops, beet pulp, and hay cut from alfalfa fields provided a ready source of feed for commercial or “farmer-feeders.”⁴⁹

⁴⁷Boulder Commercial Association, “Agricultural Possibilities of Boulder County,”(n.p.: Boulder Commercial Association, n.d. [ca. 1907]. At Carnegie Branch Library for Local History, 300 b01 f12, Boulder, CO.

⁴⁸1910 and 1920 U.S. census, Boulder County, Colorado, agriculture schedule; cited from: University of Virginia Library, Geospatial and Statistical Data Center, [Historical Census Browser](http://fisher.lib.virginia.edu/collections/stats/histcensus/) <<http://fisher.lib.virginia.edu/collections/stats/histcensus/>> cited 10 October 2005.

⁴⁹Century in the Saddle: The 100 Year History of the Colorado Cattlemen’s Association, (Boulder, CO: Johnson Publishing Co., 1967) 272-273.

Changes in feeding livestock practices occurred at about the same time new markets were opened by the transcontinental railroads. In previous decades, ranchers often just focused on raising and feeding the greatest number of cattle for slaughter; now, however, consumers were demanding a higher grade of beef. This resulted in ranchers turning to more breed specialization in order get superior beef. Ranchers were also experimenting with different techniques, finding that by spaying cows the animals fattened quicker and as a result, the herds were more quickly culled. The drought and the recession, however, led several ranchers to cut back the size of their herds in the 1890s and instead slowly make capital improvements to their ranches by building water tanks and fences. By limiting the number of cattle and investing in the land, they created favorable conditions for a gradual expansion in the next few decades. Stock raising in Boulder County definitely moved into the twentieth century as a modern business enterprise. The benefits of modern animal husbandry methods were reflected in the value of livestock, which steadily increased in Boulder County during this period, rising from \$647,860 in 1890 to \$789,626 in 1900. There was a more dramatic increase by 1920, with livestock values reaching \$2,788,680.⁵⁰

By the turn of the century, the physical character of Boulder County's farms and ranches were changing as farmers had moved from their dugouts, soddies and log cabins into more permanent, comfortable homes. Specialization of farm operations required new farm outbuildings. As noted, they also were investing in better farm machinery and expand their acreage under cultivation. The new and often expensive machinery, for example, needed protection from the elements, and machinery sheds or barn designs that included room for tractors were developed and built. New building materials, such as concrete and hollow clay tiles, were introduced and incorporated into farm buildings. All of this led to significant innovations in the construction of barns and outbuildings. Barn plans became more standardized in the early 1900s, and were designed and distributed by land grant universities. Prefabricated barns and outbuildings were even available through the mail-order catalog businesses such as Sears & Roebuck.

One of the most visually distinctive changes in barn construction in this period was the introduction of the gambrel or double-sloped roof. It presented not only a substantially different appearance from barns of the previous era, but it incorporated significant changes in the building system as well. Gambrel roof barns were built with standardized, lightweight, machine-sawn structural members into an advanced truss configuration with nail construction. Other barn types, auxiliary buildings, and agricultural structures built in this period also show the influence of standardized construction systems, mass-produced building materials, mail-order planning and distribution, and national barn-building traditions. Not only the types of outbuildings changed but the numbers of buildings increased on Boulder County's farms. The value of farm buildings in the county also increased from \$892,875 in 1900 to \$3,578,103 in 1920.⁵¹

⁵⁰1890, 1900, and 1920 U.S. census.

⁵¹1900 & 1920 U.S. census, Boulder County, Colorado, agriculture schedule; cited from: University of Virginia Library, Geospatial and Statistical Data Center, [Historical Census Browser](http://fisher.lib.virginia.edu/collections/stats/histcensus/) <<http://fisher.lib.virginia.edu/collections/stats/histcensus/>> cited 10 October 2005.

Granges and farm organizations continued to grow in strength and popularity during this period, and reached their peak in membership and participation. Seven more granges were organized in Boulder County by 1914 with only one more grange founded in the county after this period – in 1940.⁵² Many granges, which originally held meeting in houses, churches, and commercial buildings, were able to construct their own buildings during this period. The marketing and milling cooperatives founded by agrarians flourished through World War I, and even up to the start of the Depression. By the early 1900s, the federal government passed laws that provided a favorable environment for cooperative development. Also, a commission established in 1908 by President Roosevelt noted the lack of adequate credit for the agriculture sector. These findings helped lead to the passing of the Federal Farm Loan Act in 1916, legislation that led to the creation of the Farm Credit System. Colorado agrarians thus had many sources of support, both through cooperatives and new laws supporting agriculture, in the early twentieth century.

Agriculture in Boulder County around the turn of the century was thus marked by increased specialization and improvements in farming techniques, machinery, housing and agricultural buildings, and profits. It reached a zenith during World War I, but then suffered from a combination of disasters from which few individual farmers had the power to recover on their own.

⁵²Dyni, "The Grange Movement," 11-12.

Retrenching and New Directions in Agriculture: 1920-1967

Agriculture in general, and the wheat and beet industries in particular, had thrived during the first two decades of the twentieth century in Boulder County, peaking during World War I. Many farmers and ranchers were encouraged to overproduce in order to meet the demands of the European markets. When the war ended, agricultural price supports were removed and overseas demand declined as European nations rebuilt their agricultural economy. The huge demand for American-grown products ceased; consequently agricultural prices fell dramatically. Wheat prices dropped from the 1919 peak of over \$4.00 a bushel to \$1.42 a bushel in 1920; a year later the price for a bushel dropped to 85 cents. Cattle prices dropped as well, declining from forty-five to sixty percent in 1921 and 1922. Throughout the remainder of the 1920s, prices for agricultural products would fluctuate and occasionally increase, but all farmers were finding it increasingly difficult to sustain their cash flow and pay for all the improvements and machinery purchased in the previous decades. The answer seemed to lie in expansion of their acreage and cultivation; thus the average size of Boulder County farms increased between 1920 and 1930. Still, in spite of increased farm size, cooperative weather and high crops yields during the 1920s, prices generally stayed too low to make a profit. Although Colorado and Boulder County farmers were producing greater quality and quantities of agricultural products, they were receiving less for their efforts than during the boom years of the previous decade. Boulder County's agricultural economy was suffering along with the rest of the nation when farm prices took another drop in 1930. Farmers were unable to repay loans for their land, machinery, and even their seeds; farm bankruptcies began to rise, and bank closures became common.

As if the agricultural depression of the 1920s wasn't enough, a worldwide economic depression made matters worse. The onset of the Great Depression is often associated with the collapse of the nation's stock market on October 29, 1929, historically referred to as "Black Tuesday." Coinciding with the plummeting stock market was a dramatic increase in unemployment in the United States. In January 1930, almost 4,000,000 Americans were jobless; that number almost doubled by December of that year, rising to 7,000,000. By the early part of 1933, the number of jobless doubled again when more than one in four Americans was out of work. Unemployed families did not have as much money to spend on food, which in turn hurt farmers and ranchers even more. As a result, agriculture in Colorado and Boulder County suffered along with the rest of the nation.⁵³ Although the average size of farms increased during the 1920s, the total amount of farmland acreage in Boulder County dropped from 221,202 acres in 1920 to 203,313 acres in 1930, a possible indication that a number of agricultural operations had failed even before the onset of the Great Depression. Boulder County did not recover in terms of acres of farmland until 1950, when the number rose to 265,619.⁵⁴

⁵³Stephen J. Leonard, Trials and Triumphs: A Colorado Portrait of the Great Depression, with FSA Photographs (Niwot, CO: University Press of Colorado, 1993) 26.

⁵⁴1920, 1930, 1940 & 1950 U.S. census, Boulder County, Colorado, agriculture schedule; cited from: University of Virginia Library, Geospatial and Statistical Data Center, Historical Census Browser <<http://fisher.lib.virginia.edu/collections/stats/histcensus/>> cited 10 October 2005.

It did not seem possible that the agricultural situation could get any worse, but it did. A severe and persistent drought began in 1931 and lasted nearly a decade, serving as a key factor in the collapse of Colorado's agricultural economy during the 1930s. Many fields throughout the state laid barren from the hot sun and lack of water, and the farmers that did have crops often had to leave them rotting in the fields because it cost more to harvest them than they would receive in payment. This drought exacerbated the dust storms that were common in the semi-arid regions of Colorado when the high plains' winds blew. By 1933, the dust storms were so intense on the Great Plains that life became difficult for both the people and livestock of the region. These black blizzards in the 1930s differed from those of previous years, though; they were more intense, lasted for days, and returned nearly every year during the "dirty thirties." During this period of blowing dust, called by some the worst ecological disaster in the history of the United States, an ever-changing area of more than fifty million acres encompassing primarily southeastern Colorado, western Kansas, northeastern New Mexico, and the panhandles of Texas and Oklahoma became known as the Dust Bowl. Boulder County suffered during this period, although not as badly as other areas in Colorado. Rocky Mountain National Park, the western boundary of the county, was also considered the western edge of the Dust Bowl region, and often the snow in the park would take on a pink color from the dust that settled there.

Formerly independent farmers and their families looked for assistance in these desperate times, and found a response from the federal government in the form of President Franklin Roosevelt's New Deal. During his first one hundred days of office, Roosevelt worked with Congress to enact fifteen major pieces of legislation, more than any other period of American history. This action created an unprecedented number of bureaus, agencies, and programs that were designed not only to assist victims of the Depression and to stimulate economic recovery, but to also guarantee minimum living standards and prevent future economic crises. At first, Roosevelt's New Deal was chiefly concerned with relief for the millions of Americans out of work, but it later grew to include regulation, relief, and reform in numerous areas of both public and private enterprise. Most importantly for the farmers of Boulder County, agriculture was one of the key areas of focus for the New Deal. President Roosevelt also took a keen personal interest in natural resource conservation, and many of the programs of the New Deal reflected this interest. The Soil Erosion Service (later the Soil Conservation Service, or SCS) was created in 1933 in order to provide federal assistance for soil improvement programs on federal and private lands. Although Boulder County did not have any relief work camps led by the SCS, the new conservation techniques were promoted through extension services by pamphlets, meetings, and extension agents.

The New Deal developed several other programs that aimed to restore prosperity to the agricultural sector and balance to the natural environment. One of these programs became the Agricultural Adjustment Act of 1933 (AAA). This act was based on the premise that overproduction was a major contributor to the problems facing the nation's farmers. Many commodities, such as cotton, corn, and wheat, had built up tremendous surpluses over the years, which in turn contributed to the collapse of crop prices in the early 1930s. Although aspects of this plan were later declared unconstitutional, the program was modified several times and

continues in some form through the present. The AAA implemented a program of production limitations called the domestic allotment plan. The program did not apply only to crops; the AAA also believed that most livestock had exceeded the optimal capacity of the land. Initially, cattlemen successfully lobbied to exclude cattle from production limitations in 1933. They did not oppose government aid, however, and in fact sought it out in the form of tariff restrictions on beef imports, livestock loans, and the purchases of beef by the Federal Surplus Relief Corporation. As the Depression and drought continued to worsen in 1934, the AAA added cattle to the list of basic commodities and also planned for a surplus reduction program. The government implemented a drought purchase program, which resulted in cattlemen receiving money, reducing the surplus, raising prices, and protecting the land from overgrazing. The federal government further assisted cattle ranchers by negotiating reduced shipping rates with the railroads for livestock coming from drought areas, relaxing crop reduction contracts to allow planting of forage crops, and using relief funds to provide stock feed and seed to needy families.

For some Boulder County farmers, the New Deal programs did not solve their problems. With the severe drought and the continued economic depression of the 1930s, even with federal assistance the small wheat farmers could not survive. Nonetheless, for many in agriculture, the New Deal helped them through this difficult decade and set them up for the growth years that would come in World War II and beyond. One of the New Deal agencies that would have a profound affect on rural life was the Rural Electrification Administration (REA). In the early 1930s, the United States could almost be characterized as two nations: urban dwellers, and rural residents. The latter group toiled in nineteenth century conditions. Farm wives in particular suffered from the lack of electricity, handling all their farm chores and housework with no refrigerators, vacuum cleaners, or washing machines. In 1935, only one out of nine farm homes in Colorado had electricity. Private companies had no intention of expanding into rural areas due to the cost of extending lines, and in fact, would often fight attempts by the REA to establish power in those areas that were without. The REA was established on May 11, 1935 with a goal to provide farms and rural areas with inexpensive electric power. In addition to providing electricity, it was also conceived as a work relief program, and provided much needed jobs during the Depression. A lack of sufficient funds to actually undertake this program, however, resulted in the REA becoming an independent agency which provided loans to rural residents who were organize electric cooperatives. It was later reorganized in 1939 as a division of the Department of Agriculture. Nonetheless, through the REA's long-term, self-liquidating loans to state and local governments, to farmers' cooperatives, and to nonprofit organizations, by 1940 one in four Colorado farm homes had power. By 1950, that ratio increased to nine out of ten.⁵⁵ Due to the lack of funding, the REA started out slowly in Boulder County. By 1938, committees were organized in the non-electrified sections of the county in order to conduct surveys and study

⁵⁵James F. Wickens, Colorado in the Great Depression (New York: Garland Publishing, Inc, 1979) 270-271.

the problems of electrification.⁵⁶ It would not be until the late 1940s and early 1950s that electricity became available to a majority of the county's rural residents.

Not all of the assistance to farmers during the difficult decades of the 1920s and '30s came directly from federal aid; agricultural cooperatives were at their height during this period, as agrarians banded together to provide each other support during this period of crisis. However, cooperatives did receive the highest level of government encouragement during the 1920s and 1930s, evidenced by a flourish of legislation supporting the cooperative movement. Most state legislatures established agricultural cooperative acts during this time, and Presidents Harding, Coolidge, and Hoover all strongly endorsed the use of agricultural cooperatives. The Capper-Volstead Act of 1922 provided limited antitrust immunity for farmers and ranchers who joined together in cooperative marketing associations, and the Agricultural Marketing Act of 1929 included the establishment of a fund for cooperative loans. According to the United States Department of Agriculture (USDA), the largest number of agricultural cooperatives was recorded during 1929-30. At that time, the USDA listed 12,000 farmer cooperatives with an estimated 3.1 million memberships.⁵⁷

Relatively few county residents involved in agriculture prospered during the 1930s. However, Ernie Betasso and his brother Dick were able to acquire additional mountain ranches during the Depression. They ran about 100 head of cattle, while also working in Boulder. Once truck hauling was well established, they used mountain meadows for pasture, which were not suffering as badly from the drought as the fields on the plains. The Betasso's utilized Forest Service range in the summer, including Mammoth Basin. In order to be eligible for a permit, a rancher had to own so much private land, which gave them an advantage over speculators.⁵⁸

In spite of the difficult times for agriculture during the 1930s, a few new enterprises in Boulder County were actually created in this period. Raising turkeys was one example; this venture was possibly started as a sideline to tide a farm family over while waiting out the drought and Depression. There was also less risk in starting a flock than in putting a crop in the ground, and the initial capital investment was small. Two turkey breeding pioneers in the county that got their start in the 1930s were Victor Twiggs and W.F. McQuigg. At this time, flocks of 440 to 500 were considered large operations. Some of the breeders kept a small processing and refrigeration plant on-site, and sold most of their flocks to local markets. Mass production with flocks numbering in the several thousands began during World War II. The introduction of antibiotics, sulfa drugs, and other medications, combined with increased automation such as self-

⁵⁶Colorado Agricultural College, Extension Service, "Cooperative Extension Work in Agricultural and Home Economics," (n.p.: Colorado Agricultural College, U.S. Department of Agriculture, and Boulder County Cooperating Extension Service, 29 December 1928) 3.

⁵⁷U.S. Department of Agriculture, Rural Development, "Farm Marketing, Supply, and Service Cooperative Historical Statistics," Cooperative Information Report 1, Section 26, revised August 2004, cited from <<http://www.rurdev.usda.gov/rbs/pub/cir1s26.pdf>> cited 20 March 2006.

⁵⁸Betasso.

feeders and waterers, made these larger flocks possible. By 1960, there were more than twenty-five growers in the county, with flocks ranging in size from 2,000 to 75,000 and the average running from 8,000 to 15,000 turkeys. That year, Boulder County turkey growers raised almost 300,000 of the two million turkeys in Colorado – nearly 15 percent.⁵⁹ The county was not only one the leading centers in the number of turkeys raised, but two out of the three processing plants in the state were located here, in Longmont and Broomfield.⁶⁰ The Longmont Foods plant was founded in 1951 and went on to become Colorado's largest turkey processor. Con-Agra purchased the company in 1987, but still sells the products under Longmont Foods name.⁶¹

Both the drought and the economic depression alleviated at the start of World War II, and demand for agricultural products grew tremendously during the war. Continuing immediately afterwards, most agricultural ventures in Boulder County continued to benefit from good markets, prices, and at least a few good years of weather. In 1945, wheat acreage in the county was approximately 15,000. There were 19,000 acres of alfalfa, 16,500 acres of barley, 12,300 acres of corn, and 4,000 acres of oats. Other crop acreage included 1,200 acres in truck crops, 1,000 acres of field peas for canning, and 6,000 acres of sugar beets. Added to this total were 8,000 Victory Gardens planted throughout the county, which supplied farm families with 98 percent of their vegetables, and 85 percent of the needs of city and town residents.⁶²

Although there were good market and climate conditions during the war years, there was also a critical shortage of farm labor, both experienced and inexperienced. The Boulder County Farm Improvement Association worked with farmers to arrange for the importation of “outside labor” in 1945, they brought in 268 Mexican migrant workers to the county. The Association also arranged for 130 Jamaicans to be brought into the county, “but they were of little use to the beet industry and were shipped out in a very short time.” The group that seemed to help the beet industry the most in Boulder County were German prisoners of war. In June 1945, 403 prisoners were brought into the Longmont area and were put to work in the beet fields. Later in August of that year, the Longmont company Kuner Empson contracted for another 150 prisoners to pick beans, tomatoes and other field work. The prisoners also weeded 1,500 acres of beets and put 3,000 acres of corn into silage. Another 419 “effectives,” as prisoners of war were called, were brought into the Longmont area in October 1945. Many were housed in the county garage and the Great Western Hotel. Nonetheless, in spite of the imported labor, farmers in Boulder County

⁵⁹“Boulder County Remains a Major Turkey Center, But Raiser Hit by Low Prices,” Daily Camera (29 September 1961). In folder 328 B132 F03, Carnegie Branch Library for Local History, Boulder, CO.

⁶⁰Broomfield became a separate county in 2001.

⁶¹Corson and Noel, 91.

⁶²“Boulder County Farmers Had Successful Year During 1945,” Boulder Daily Camera (31 December 1945).

were required to put in longer hours than before to keep up with the demands of farming during the war years.⁶³

The cattle industry also benefited from the boom period of World War II and postwar years. Nationwide, the number of cattle sold live increased as did the value of those cattle. In 1946, there were 1,600 head of cattle fed within the county, netting a return of slightly over three million dollars. This was a record number of beef cattle and of gross income in the beef cattle production industry in Boulder County.⁶⁴ There were changes in cattle marketing practices in the postwar years as well. Most Boulder County cattle were now shipped to terminal markets such as Denver, although other major terminal markets included Los Angeles, Kansas City, and Omaha. Except for the Depression and war years, the general trend for slaughter on the farm was downward, as there was now a price disadvantage to sell directly to local or “country” markets. Cattle raising also began to appeal to non-traditional agricultural sectors of society, as some wealthy people were attracted to the industry by using ranches as tax shelters. Other areas of livestock production also grew during the war and postwar boom years. The number of hogs more than doubled in 1946 from the previous five years, for example – up to 12,500. Producing dairy cows in that same year were totaled at 5,600 in the county. Sheep were the only livestock that declined slightly during the 1940s.⁶⁵ Another industry’s decline during the post-war years resulted in an increase in year-round agricultural activity. Coal mining became less profitable after World War II, and when Superior’s Industrial Mine closed in 1945, and the last mine in Louisville closed in 1952, many of the locals that remained turned to farming and ranching full time.

As is always typical for agricultural production that relies on climate, good years were followed by times of hardship. Historians have characterized farming in the dry lands of Colorado as “a serialized adventure in which the same disaster occurred at the end of each episode.”⁶⁶ Thus the 1930s were not the only decade when drought threatened or ruined crops. Many felt the “filthy fifties” were as bad as the “dirty thirties,” but with conservation efforts in place, soil losses were significantly reduced from that of the earlier decade. Drought struck Boulder County again in the early 1960s, which was promptly dubbed the “worst since the 1930s.”⁶⁷ For three years beginning in 1961, Boulder County wheat farmers suffered from some of the poorest yields on records. In 1963, one farmer harvested only eight bushels per acre, followed by fourteen the next summer. This contrasts with the yields recorded in 1958 of forty-three bushels an acre for

⁶³Ibid.

⁶⁴“County Agent Surveys 1946 Yield of Farms and Dairying Business,” Boulder Daily Camera (1 January 1947).

⁶⁵Ibid.

⁶⁶Carl Abbott, Stephen J. Leonard, and David McComb, Colorado: A History of the Centennial State, 3rd ed. (Niwot: University Press of Colorado, 1994), 173.

⁶⁷“Without Water, Winter Wheat Withers,” Boulder Daily Camera (15 November 1964). In folder 328 B132 F03, Carnegie Branch Library for Local History, Boulder, CO.

irrigated fields, and thirty-seven bushels for non-irrigated winter wheat. It was estimated that a poor performance in wheat alone for a year would result in the loss of several hundred thousand dollars for the county, an indication that agriculture still played an important role in the county's economy.⁶⁸ Although these losses were significant, by this time federal subsidy programs conceived during the 1930s were in place and ready to assist Boulder County farmers through the difficult times. As about eighty percent of the county's 11,000 wheat acres were dryland (not irrigated) in the 1960s, these farmers were eligible for relief through the government's wheat diversion program.

The built environment of farms and ranches in Boulder County experienced changes after World War II as well. When Quonset huts were first introduced as military housing, a few farmers looked to this building as a replacement for traditional barns. They were faster, easier, and less expensive to build. Quonset huts were developed at a time when agricultural practices were changing. Tractors had virtually supplanted horses, so stalls and feed storage were no longer needed. However, tractors required more storage space, which Quonset barns could provide. The Quonset barns were short-lived and soon supplanted by "Morton" buildings. They were based on the same principle – metal sheets covering a wood frame – except that their shapes were different; Morton buildings reverted back to the traditional “boxy” shape. These were followed by pole barns, which were even cheaper to construct. Pole barns also responded to changes in hay baler technology. With their metal roof supported by poles, pole barns could store massive quantities of bales that were easily moved with machines. They have since become common sights in farms across the plains, including Boulder County. Barns such as these which were constructed in the latter part of the twentieth-century generally have a concrete floor, pre-manufactured truss roof, and a metal roof and walls.

Another change to the cultural landscapes of farms and ranches in Boulder County was the promotion and development of recreational opportunities on farm land. After World War II and continuing up through the 1960s, the Soil Conservation Service offered advice and planning for changing gravel pits to fishing lakes to increasing cover for wild game. The farmers could then rent to private fishing or hunting clubs or use the ponds for raising fish.⁶⁹ Some of these could serve a dual purpose of watering stock as well, and federal assistance was often available for their construction.

Not only were the physical appearance and types of buildings and structures on farms and ranches changing during this period, but the amount of farmland and size of farms were changing as well. By 1950, 55.1 percent of the area of Boulder County was in farms and ranches, or 216,619 acres. The average size of farms and ranches at this time was 201 acres. There were 328 farms under five acres, 166 from 10 to 20 acres; 195 from 50 to 99 acres; 229 from 100-179 acres; 107 from 180 to 259 acres; 124 from 260-499 acres; 52 from 500-999 acres; and 41 with

⁶⁸Ibid.

⁶⁹“Rural Recreation: New Opportunities on Private Land,” Soil Conservation Service of Boulder Valley Soil Conservation District Newsletter (Boulder, CO: July 1964), 2.

1,000 acres or more. Of these 1,320 farms, 96 were cash grain; 13 other field crops; 18 vegetable; 13 fruit; 255 dairy farms; 143 poultry farms; 239 livestock farms; 156 general farms; and 387 miscellaneous and unclassified farms.⁷⁰



Aerial view of the Marlatt Farm, 1955, showing a number of small lakes and ponds serving both agricultural and recreational uses. Photo from the Marlatt family collection, courtesy of Diane Benedict.

With the federal government providing payments, loans, and assistance for farmers, and the increase in diversification of agricultural production, it would seem that Boulder County agriculture was in good shape for the latter half of the twentieth century. However, tremendous population growth in the county and the larger Denver metropolitan area would soon threaten the future of agriculture in the county. By the end of the 1950s, the number of farms and ranches in the county had dropped from 1,320 to 990, and the acreage of land fell to 48.1 percent of Boulder County's total. The average size of the farm grew slightly, however, up to 234 acres.⁷¹ Nonetheless, alarmed at the increasing loss of farm land and open space to new development, citizens and politicians in Boulder County initiated a series of policies, plans, and programs

⁷⁰"22,794,588 Value of Farm-Ranch Products of Boulder County in 1950," Boulder Daily Camera (23 October 1952).

⁷¹"Corn, Hay, Winter Wheat Among County's Top Value Farm Products," Boulder Daily Camera (1 June 1960).

which aimed to halt, or at least slow the loss of open space. Beginning in 1960 with the report *Preserving Open Space* prepared by Trafton Bean & Associates for the Boulder County Regional Planning Commission, the county began taking a hard look at the growth and development changes that were taking place in the county. In 1967, the Boulder County Commissioners appointed the first Parks and Open Space Advisory Committee (POSAC), and the City of Boulder started their Open Space program. The next year, POSAC recommended the establishment of a Parks and Open Space District to acquire and preserve parkland, and the county began work on the “St. Vrain River” study.

Agricultural lands and farming lifestyles would continue to be threatened throughout the remainder of the twentieth century, but 1967 may be viewed as a turning point in the opinions of Boulder County citizens. Through the programs established this year, several thousand acres of agricultural properties in the county would later be protected through the purchase and lease of farm and ranch lands. These purchases have also changed farm and ranching operations in Boulder County, though, as family-owned farms continue to decrease in numbers and lease arrangements or natural resource conservation activities take their place. Nonetheless, farmers and ranchers are no longer the only segment of the population worried about the future of agriculture in Boulder County; it remains a matter of concern for all citizens.

HISTORIC AGRICULTURAL PROPERTY TYPES

The following property types include buildings, structures, objects, sites or districts associated with agricultural activities that occurred in unincorporated Boulder County from 1859 through 1967. The property types are primarily based on historic function of individual resource, although the first property type, “*Farms, Ranches, Agricultural Districts and Rural Cultural Landscapes*,” is comprised of numerous resources which may have varied functions. When evaluating agricultural resources in Boulder County, it is important first to look at farms and ranches as integrated agricultural complexes. The individual resources may have historically had very specific and limited functions, but all of buildings and structures worked together as a “whole” to produce the agricultural products of the complex.

This all-encompassing property type is followed by property types defining specific buildings, structures, or landscape features classified by the historic use of the resource, even if that use has changed throughout the years. In some instances, there are very few extant representatives of these property types left in the county. Just as Boulder County’s economy has always been diversified, from the initial emphasis on mining through the development of the state university and up to its present prominence in scientific research and high-tech industry, historic agricultural activities in Boulder County have also been diversified. Unlike some other Colorado counties, no one type of agriculture dominated throughout the entire historic period. For example, even though the county experienced a brief period of open cattle ranges, this later evolved into the use of feedlots as well as mountain pastures for fattening. In addition to cattle, sheep, hogs, breeding stock, and poultry were raised in Boulder County. Grain crops such as wheat and oats, as well as hay, fruits, market produce, and dairy products also played a part in Boulder County’s agricultural heritage. This variety, coupled with subsequent residential growth and destruction of agricultural land, has unfortunately led to few remaining examples of some of these various types of agricultural activities in the county.

Farms, Ranches, Agricultural Districts and Rural Cultural Landscapes

A farm or ranch includes a grouping of individual buildings, structures, and objects, as well as associated cultural landscape features including roads, drives, trees, and fences. If enough features are present (generally more than three contributing resources), the farms or ranches may be considered agricultural districts. Rural cultural landscapes might consist of a single large farm or ranch, but more typically contain several farms set within a larger rural context.

As noted, historically farms or ranches featured a number of individual buildings, structures, objects, and associated cultural landscape features. This grouping generally sited the buildings far enough apart to avoid objectionable odors in the house, reduce fire risk, and improve sanitary conditions. However, they were located closely enough to reduce the required labor to a minimum. Most farms arranged the outbuildings somewhat to the rear of the house and/or to one side. The main residence was generally the most prominent building within the group, followed by the main barn. The farm or ranch house was generally visible from and oriented to the public road, with a lawn in front. The main house was set back some distance in order to avoid dust from the road.

As noted, historically farms or ranches featured a number of individual buildings, structures, objects, and associated cultural landscape features. This grouping generally located the buildings far enough apart to prevent objectionable odors from reaching the house, reduce fire risk among buildings, and improve sanitary conditions. However, they were situated closely enough to reduce labor to a minimum. Most farms arranged the outbuildings to the rear of the house and/or to one side. The main residence was generally the most prominent building within the group, followed by the main barn. The farm or ranch house was typically visible from and oriented to the public road with a lawn in front. These houses were set back some distance in order to avoid dust from the road. Mountain farms, however, were arranged as the topography would allow, which sometimes caused buildings to be situated more closely than would typically be desired.

The grouping of outbuildings on a farm or ranch was optimally planned in such a manner that all could be entered without passing through gates. Any feed lots were located to the rear of the barns and away from the house. Other outbuildings were often grouped according to their uses. The tool shed, machine shelter, and garage shared similar uses and were therefore situated near each other. Grain and hay storage were most likely adjacent to the animal enclosures and shelter for convenience in feeding. Larger stock barns were set to form a protection for a sheltered enclosure, and if possible, were located in the direction away from the prevailing summer winds. Hog barns in particular were located the greatest distance from the house, but still near cribs for feeding. Privies or outhouses were also separated from the main house away from prevailing winds to protect against odor, yet were still close enough for convenience. Poultry houses were located nearer to the main house than most other outbuildings, since most farm wives duties included care of the chickens; this also provided quick access for fresh eggs and meat for meals. Most generally faced south to take advantage of solar gain for warming the building.

Windbreaks to the north and west of the buildings were also typical features, although many of these may today be nearing the end of their natural life. Fruit trees and shade trees may also be present, in addition to flowering plants and shrubs. Family gardens were located near the house. In addition to a lawn, a show pasture or field may be located in front of the main residence or to the side of the farm, in order to display the best animals and prove a clean, permanent pasture visible from the house. Mountain pastures or fields may be marked by piles of stones or even stone walls to one side or the edge, and serve as evidence of fields having been cleared for agricultural use.

A historic farm or ranch may have encompassed eighty acres, or even several hundred or thousands of acres, and some individual buildings and structures may have been isolated. Development and growth in Boulder County, particularly after World War II, have severely impacted the size and nature of agricultural operations. Many properties have since been redeveloped, resulting in the loss of fields, pastures, orchards and “unimproved” farm land. In many instances, only a small proportion of the farm or ranch remains. However, this is often the most intensely developed section that contained the majority of buildings and structures. Other isolated agricultural landscapes give the appearance of being undeveloped, with only stock tanks,



Scates Ranch on upper Magnolia.

fences and cattle guards to provide evidence that the land had agricultural associations. Although this land may have a natural appearance, virtually none is in a natural state. Grazing or other agricultural activities for over a century have altered the landscape in fundamental ways; therefore, many of these fields or pastures may be classified as rural historic or cultural landscapes. A rural *cultural landscape* is a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein) that is associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values. There are four general types of cultural landscapes, not mutually exclusive; the one that is more typically associated with rural historic districts and agricultural landscapes in Boulder County is a *historic vernacular landscape*, which is a landscape that evolved through use by the people whose activities or occupancy shaped it. Through social or cultural attitudes of an individual, a family, or a community, the landscape reflects the physical, biological, and cultural character of everyday lives. In this instance, an agricultural function played a significant role in vernacular landscapes. An agricultural cultural landscape may be significant as the site of an important event or activity, reflect cultural traditions, or other patterns of settlement or land use.

Farm house, ranch house, or worker housing

A farm or ranch house typically served as the primary residence of the owner or operator, although smaller residences may also have been present for hired hands. The primary residence not only served as the family house, it also typically served as the business office. These dual functions made it the focal point of the farm or ranch. These houses were often the most substantial building on the property in terms of size, workmanship, and style, although the early settlement dugouts, sod houses, or log cabins were quite crude. Migrant or worker housing were simple buildings that were constructed with a minimum of expense and time.



*Walker Ranch log house, with squared log construction.
Photo by Carol Beam, Boulder County Parks & Open Space
Department (BCPOS).*

A wide variety of forms and styles characterize the main houses, most of which generally reflect the popular or vernacular trends of the period in which they were constructed. Those constructed in the late nineteenth and the first decade of the twentieth century were generally examples of *National Folk* forms.⁷² These often employed local materials and simple workmanship, with occasional details or architectural influences from the late Victorian styles. An example of a “gable-front-and-wing” house is the one-and-a-half story wood frame, clapboard farm house located at 3285 N. 95th Street. A few examples are relatively ostentatious displays of wealth. Farm or ranch houses built in the early to mid-twentieth century were typical of those constructed from plan or pattern books, and were examples of American movements, such as the Craftsman or Prairie styles, or revival styles, such as variants of the Dutch or Colonial revival.



*A gable-front-and-wing farm house with Late Victorian details
at 3285 N. 95th Street.*

⁷²Virginia & Lee McAlester, *A Field Guide to American Houses* (New York: Alfred A. Knopf, 1984) 89.



Farm house at the Montgomery Farm at 5486 Ute Road, a Colorado Centennial Farm. A basic I-house form, with additions and architectural detailing from both the Late Victorian and Early Twentieth Century revival periods.

It was common for owners to update the appearance of their residences in the mid-twentieth century. In fact, after World War II the United States Department of Agriculture (USDA) published pamphlets and developed a financing program to encourage farmers to do so. Title I of the National Housing Act encouraged the use of private money to “recondition and preserve and renew the Nation’s buildings.”

For several years past, farm homes and farm buildings all over America have been steadily “going down hill” for lack of normal care and attention. Many farmers and farm owners have not provided for necessary alterations, repairs and improvements to their buildings, because of hesitation to spend their own funds, or because the sources of farm credit were “frozen.” The National Housing Act was designed to “thaw out” frozen credit.⁷³

⁷³U. S. Federal Housing Authority, “Open this Door to Farm Property Improvement,” FHA 136, 1st Edition, (Washington, D.C.: Federal Housing Administration, Washington D.C., n.d.) 5.

Some of the suggestions from the FHA were strictly maintenance, such as repairing the foundation and roof. Other examples shown in the pamphlet significantly changed the architectural character of the building, such as residing a Victorian era house, removing jig-sawn features, and enclosing a porch. These alterations, if present during the historic period of significance, are representative of the myriad federal programs that were developed in the 1930s and beyond. Designed to aid farmers and agriculture, many of these programs had their origins in the New Deal programs of Franklin Roosevelt.

Individual housing for agricultural workers, such as migrant beet laborers, was generally less substantial in terms of size, quality of materials and workmanship, and lacked stylistic details and ornamentation. There were also buildings that housed either multiple workers or their families. These, too, were built economically, and therefore lack the quality of materials and architectural features found on other types of housing. The majority of migrant worker housing was frame construction.



Migrant worker housing on the Herman Wagner farm near Longmont, 1971. Call number Z-800, photo courtesy of Western History/Genealogy Dept., Denver Public Library.

Barns and secondary outbuildings

A working farm or ranch required a number of auxiliary buildings and structures, such as barns, corrals, and sheds. These buildings provided shelter for livestock, storage space for equipment, and machinery, and specialized structures for the management of feeding of livestock. Few of these buildings or structures were likely to exhibit elements of style, or even necessarily of quality workmanship or materials. They were typically buildings of simple materials with a minimum of decoration, with utility or function clearly dictating the form. Some, particularly those built in the late nineteenth century, may show local vernacular characteristics, such as use of local materials and methods of construction. These resources tended to be concentrated around the main house so that owner or operator could maintain control over the primary agricultural operations with a minimum of effort. Examples of subtypes of this property type include barns, both general purpose and dairy, animal structures (hog and poultry houses), implement and machine sheds, garages, storm cellars, privies, and wood or coal sheds.

General purpose barns are sometimes the largest building and most prominent building on an agricultural property. They may be classified by form, roof shape, number of stories, and size, all of which reflect their historic purpose; some are classified by their location and construction method, such as bank barns; others reflect the ethnic heritage of their owners. Most have concrete or stone foundations, and are frame construction with horizontal or vertical wood siding. The roofs, most commonly gable or gambrel, are steeply pitched in order to provide storage for hay in the upper loft. Consequently, many barns also have gable end hay hoods and doors on the upper levels. The majority of extant barns in Boulder County are rectangular and feature a central passage with sliding or swinging doors.



General purpose barn at Monteau Geer farm. View of the lower stable level. Photo by Carol Beam, BCPOS.

Alan Noble has summarized past studies of historic barns in his book *Wood, Brick and Stone: The North American Settlement Landscape, Volume 2: Barns and Farms Structures* (1984). While most of the studies have been focused on the eastern portion of the United States, this book nonetheless provides a background for understanding the evolution of barns and method for categorizing basic barn forms. The simplest and often earliest barns were single-crib barns.⁷⁴

⁷⁴The term *crib* can be confusing because it is applied to agricultural buildings in two ways. Here it refers to a pen composed of logs that is used for crop, equipment storage or animal shelter. It is also used for a more specialized structure used to store corn (see page 23).

Lean-to sheds were often added to either side in order to expand the usefulness of the barn. Double crib and drive-in crib barns were later evolutions, and featured a central passage. A four-crib barn has cross aisles or passages, with doors on all four sides. This later evolved into a transverse-frame barn, which saw the side aisle openings boarded over and frame cribs constructed on the sides between the four corner cribs. The gable to gable aisle remained open for passage. A Midwest three-portal barn is a transverse-frame barn with the addition of a row of cribs on either side, as well as two more interior aisles. Some of these barns were planned with three aisles from the outset, while others were originally transverse-frame barns with later shed-roof additions on either side.



*The Henning Farm barn – a Midwest three-portal barn formed by shed additions to the side.
Photo by Carol Beam, BCPOS.*

Additional barn classifications are based on the ethnic origins of their plan. An English barn, for example, is a small rectangular barn with a central floor runway flanked by two roughly equal sized spaces on either side, with a loft above for hay. The passage doors are on the side, rather than the gable ends. Originally brought to New England, it moved westward to the grasslands with relatively little change. Bank barns were introduced by the Germans in Pennsylvania. The design of a bank barn allowed it to combine the functions of crop storage, threshing, and animal shelter into one building. The barn was built with its long side parallel and into the side of a hill, providing entry on two different levels. The lower level housed animals, while the upper levels served for threshing and storage. The upper hillside entrance was used by wheat or hay wagons, and fodder could be dropped through openings in the floor to the stable below. Where a hill was lacking, a "bank" was created by building up an earthen ramp to the second level.



Hall Ranch bank barn. Photo by Carol Beam, BCPOS.

Barns were also sometimes categorized by their use, particularly if it was specialized. Dairy barns, for example, usually required greater care in design and construction than most other farm

outbuildings. The location and size of stalls, mangers, gutters, alleys, pens and milk rooms all posed specific design requirements, yet also had to be individualized for the size of the owner's operations. After about 1910, hollow concrete tiles were popular construction materials for dairy barns due to the ease of sanitizing the material. For the same reason, most dairy barn floors were concrete.

In addition to general purpose barns, there may be several other outbuildings that served to house and protect livestock. Hog houses, chicken coops or poultry houses, feeding barns, and loafing sheds are examples of this subtype. Hog houses could be moveable or community, and are generally rare in Boulder County. Poultry houses can also be divided into two categories – the colony (small) or community (permanent) house. Colony houses are usually built on sill, which serve as runners to the house can be moved. They typically have shed or gable roofs. Community poultry houses may have shed, gable, combination, or half-monitor roofs. The buildings generally face south, and are most typically simple wood frame buildings.

Loafing sheds are long, rectangular structures with siding on three elevations, to provide some protection from the elements, and a long opening on one elevation to provide access for shelter and feed. They have shed roofs, wood post supports, and vertical wood siding. They generally are set at one end of a corral or fenced lot.

Implement and machine sheds were necessary storage facilities because equipment needed care and housing. This was particularly true in the twentieth century when machinery became larger and more expensive. If left constantly exposed to the weather, the equipment lost value rapidly. According to a USDA report in 1922, the annual loss in depreciation of farm equipment due to lack of shelter was more than 100 million dollars. A cheaply built shelter was estimated to increase the life of farm implements by five years or more – a savings that paid for the cost of the shelter in a short time. These buildings were designed to afford protection and convenience in storage and provide plenty of space. Therefore, most were tightly enclosed on all sides as well as the roof. If a wide opening was



*Chicken house on the Barrett Farm.
Photo by Carol Beam, BCPOS.*



*Harney Lastoka loafing shed.
Photo by Carol Beam, BSPOS.*

necessary, continuous doors along one side were preferable to an open shed building, which although cheaper to construct did not provide as much protection. Windows were included to provide light by which to work. Prior to the 1920s, ten feet was generally the maximum height that was required to meet the needs of most farm machinery; later, larger metal ready-made buildings were developed to house the increased size of machinery after World War II. Wood frame construction was typical prior to WWII, with some buildings featuring hollow clay tile or concrete wall construction. Roofs were either shed, gable, gambrel, or a combination.

Garages associated with agricultural properties in Boulder County are generally simple, rectangular buildings with gable roofs, wood siding, and (originally) wood doors. They are located near the main residence off of the drive leading from the road. Storm cellars were designed for protection from severe weather, and were often mounded up from level ground. In Boulder County, it is likely that these were incorporated into root and fruit cellars, serving dual purposes. Privies or outhouses were once common features on farms and ranches, and are still found in relatively high numbers in unincorporated Boulder County.⁷⁵ Most were small, wood frame with a shed roof. These were located away from the house to protect the latter from the odor, yet were still close enough for convenience.

⁷⁵Ibid.

Feed storage and processing resources

Nearly as critical as buildings associated with the care and feeding of livestock on a farm or ranch are the buildings and structures which were devoted to the processing or storage of field crops (including small grains, corn, or hay) for the purpose of feeding livestock. Granaries, cribs, silos, hay derricks, barracks or stacker, and elevators and other feed sales buildings were built to preserve and store crops until they could be sold or used.

Corn cribs were among the earliest of the crop storage structures built in Boulder County, but were later supplanted by metal storage bins in the twentieth century. Consequently, there are few extant examples in the county, and the remaining are in poor condition. Corn cribs were designed to allow newly harvested ears of corn to dry slowly in order to reduce losses. Some had slats which were widely spaced in order to provide air circulation, while others had a central passage. Cribs were also comparatively narrow buildings, although here in the arid West cribs could be constructed wider than their counterparts in the East.



A rare studs-out granary with dormers, which were used for filling the building with grain. Photo by Carol Beam, BCPOS.



Stacked plank granary on Ute Road

Granaries were used for the storage of small grains, and were tightly constructed with strong walls and heavy floors. They were generally wood frame, often with the “studs out” in order to provide a smooth interior wall. This method of construction provided ease in emptying out the grain, as well as prevented the weight of the grain from pushing out the boards of the exterior wall. There were also stacked plank granaries, although these are more rare in Boulder County and in general throughout Colorado. Also called “plank-on-plank,” they were built of milled planks that were stacked and nailed on top of each other on their narrow horizontal ends. This was another sturdy method of construction which provided a solid wall. Granaries were also characterized by a lack of windows and a raised foundation. All of these features served to make the structure as weather and animal-proof as possible. The interior of the granary was usually

divided into a series of bins or compartments for ease of grain holding, and to permit storage of more than one grain if necessary.

Grain bins were also used to store crops prior to sale or use. These were small, easily built structures, and at first were constructed of wood frame with siding. Federal aid became available for granaries after the 1930s in order to encourage storage on farms in case of shortages. Prefabricated metal bins were developed in order to meet the huge numbers of farmers applying for the aid. These bins were low cost and easy to assemble on-site. Improved designs have made these popular up through the present time. Most are circular and have conical roofs.



An evolution of grain storage structures can be found at 7016 N. 73rd Street, including a granary, concrete stave silos, and prefabricated metal bins.

Silos were used to preserve green forage, and were a critical structure on farms. Construction materials were either wood or masonry; wood silos are rare in Boulder County, although a stacked plank octagon silo is located at 8556 Arapahoe Road. Masonry silos could be constructed of brick, hollow tile, and concrete. Concrete construction varied from concrete block, cement staves, or monolithic concrete. There is even a silo constructed of ornamental concrete block at 11229 N. 75th Street in Boulder County. Brick silos relied on paving brick, but needed proper horizontal reinforcing and narrow mortar joints. The interior was plastered with a cement mortar to insure a smooth, tight wall. Hollow tile or clay blocks were first used in silos around 1908, but were more typically used from the 1920s through the 1950s.⁷⁶ The blocks were

⁷⁶Allen G. Noble and Richard K. Cleek, The Old Barn Book: A Field Guide to North American Barns and Other Farm Structures (New Brunswick, NJ: Rutgers University Press, 1995) 161.

between 4-6" thick. Some blocks were grooved to receive reinforcing, and were curved to the form of the silo wall. Reinforcing was steel wire embedded in mortar joints. Reinforcing concrete jambs were also used, and were tied across at intervals to prevent spreading. A variety



*Concrete stave silo adjacent to barn at Lohr/
McIntosh Farm*



Hollow glazed clay tile silo

of patented blocks were used for concrete block silos; some were curved. Reinforcing was either embedded in the block or placed in the mortar joint. Stucco was sometimes applied to the exterior surface for appearances and to fill up the pores, while a cement wash was applied to the interior. Cement-stave silos first appeared around 1906.⁷⁷ There were various patented staves that differed, among other things, in their end joints. The staves were bound with steel hoops and required special door spreaders. Their interiors were also given a cement wash. Monolithic silos are solid concrete and were constructed with standard forms on-site. The reinforcing was embedded in the wall. Doors for silos were individual or continuous. Chutes were used to cover the doors, and allow silage to be thrown down without trouble from the wind. Based on field observation, roofs were rare in Boulder County silos. The few extant roofs are low conical and round gambrel. Instead of roofs, many silos in the county had wire extensions on the top to allow for settling after the initial loading. Most silos are located immediately adjacent to barns for convenience, but a few are located in feed lots. Trench or pit (below ground) silos were dug into the ground, and were geared to grass ensilage. Bunker silos were built after World War II.

⁷⁷Ibid.

Similar to trench silos, concrete bunker silos were built above ground and featured three walls with an open top. The open end was designed for easy access by mechanical harvesters of grass ensilage, and sometimes for self-feeding of the livestock. The top was sealed when necessary by plastic sheets held in place, often with old tires. Harvestore silos are rare in Boulder County due to their original costs, although a few still remain. They were used for large herds of dairy cows. These easily recognized blue silos were invented by the A.O. Smith Company of Wisconsin after World War II, and are made of fiberglass and metal panels. These silos empty automatically from the bottom.⁷⁸



Two Harvestore silos and a cement stave silo, located west of Nelson Road near Table Mountain.



Harney Lastoka pit/trench silo. Photo by Carol Beam, BCPOS.

Hay barracks, stackers and derricks are very rare in Boulder County, although a few have been identified in previous surveys. Hay barracks were used for storage, and were simply four poles with a roof above. Hay derricks and stackers were also of wood pole construction, but were used to stack hay in a manner to reduce spoilage. Baskets or racks on stackers were sometimes at angles, and cables and pulleys raised the hay basket.

⁷⁸Ibid.

Food storage and processing resources

Whereas “feed” storage and processing resources are concerned with the feeding of livestock, “food” storage and processing resources are those buildings and structures associated with the production and/or storage of agricultural products for human consumption. Examples include beet shacks, milk houses, produce processing buildings, produce sales stands, root and fruit cellars, icehouses, smokehouses, and summer kitchens.

Milk was originally stored in spring houses on early homesteads, but later government regulations required specific cooling methods to prevent bacterial growth; milk now had to be cooled to 50 degrees or lower within a few hours of milking. Milk houses were required to be separated from the barn for sanitary reasons, but for convenience they were often located as close to the barn as possible. Some milk houses were consequently even attached to the barn.⁷⁹ These were usually small buildings with gable roofs, and were often constructed of concrete or concrete block for ease of sanitation. There are a number of examples still extant in Boulder County, such as the concrete block milk house at 6430 N. 55th Street.

Summer kitchens were detached buildings that were used for the cooking of meals at farm or ranch houses. They were sometimes converted from an early crude residential building once a larger house was constructed. If built separately, summer kitchens were generally simple rectangular buildings located near to the main house’s kitchen. Extant examples of summer kitchens are rare in Boulder County, but a simple clapboard example with gable roof is located at 1021 N. 111th Street. Also rare are extant examples of smokehouses, which were small outbuildings used to smoke and therefore preserve meat. There was a small door, but no windows; instead there were small flue openings under the eaves or in the gable ends for ventilation.

Root and fruit cellars were rooms excavated below ground in order to provide insulation for the storage of root crops, fruits, and other food items. The walls are usually constructed of concrete or stone, such as the one at 10167 Arapahoe Road. The doors are generally sloping, with steps leading down to the cellar and a ventilation pipe extends through the ceiling/roof. Sometimes these structures were also used as storm cellars. Over thirty extant root and fruit cellars have been recorded to date in Boulder County.⁸⁰



Root cellar at the Montgomery Farm, 5486 Ute Road.

⁷⁹Ibid., 140.

⁸⁰McWilliams, 39.

Ice houses, although technically used for frozen water storage, are categorized with this sub-type due to their associative function with food storage. Ice houses were barn-like wood structures, generally unpainted, with smooth interior wood wall construction (like granaries) in order to maximize storage space. They often had a large, full-height door. As the ice was cut from ponds and stacked inside, the lower portion of the door was closed down with boards. There are less than ten extant examples remaining in the county.

Watering facilities, windmills, and irrigation resources

Watering facilities include those structures and sites where water is taken from the ground for storage and use by livestock or people. At natural springs, water comes to the surface without the aid of pumps. In the early settlement of Boulder County, the location of springs often determined the location of farms and ranches. It was not unusual to make improvements around a spring in order to minimize water loss and protect the water quality, such as a spring house, or to transfer water to tanks or concrete channels. A well is a dug or drilled hole where water is drawn up from the ground for use. Most wells have some sort of pump to draw up the water. Originally hand pumps or windmills, these were sometimes changed to electric or gas-powered pumps in the twentieth century. Windmills are common devices for pumping water out of the ground, especially in isolated areas. They are structures with large fan blades that are turned by the wind. This rotational energy is transmitted through gears and shafts to the pump that in turn draws up the water. Ponds in Boulder County were usually man-made for storage purposes.



*Windmill at the Lohr/McIntosh Farm.
Photo by Carol Beam, BCPOS.*

Spring houses were small buildings designed to protect the spring water source, as well as to provide a cool storage space for perishable farm products. Constructed of masonry (at least the foundation), they were sometimes also built into slopes in order to provide additional insulation. External water openings to channel water to other areas of the farm are often evident. Well houses are structures built over a well to protect it from the elements; they sometimes also function as a storage shed. Water tanks are structures that hold water drawn from wells to make it available for livestock to drink. These tanks may be constructed of concrete,



Concrete block springhouse built into the hillside at Scates Ranch, with a pipe leading to a stock tank.

metal, wood, or other materials. A stock tank is generally much larger, and gets its water from sources other than a well.

An irrigation system may have several components, including dams, headgates, drop structures, division boxes, pumphouses, ditches, canals, laterals, pipelines, ponds or reservoirs. An irrigation system is used to distribute water to fields, pastures, and orchards. A ditch or canal is an open, built waterway for carrying water from a water source. Pipelines are another system for moving water from a source to a tank or field. Many Boulder County agricultural operations developed extensive irrigation systems in order to support their crops and livestock. These resources represent the heritage of water use in the West, which has evolved into a complex system of water rights involving not only agriculture and private individuals, but the ditch companies, industry, and federal, state, and local governments as well.

Agricultural landscape features

This property type includes crop fields, orchards, irrigated and dry pastures, fences, corrals, loading chutes, wind breaks and hedgerows, and cemeteries or burial plots. Crop fields may represent the main function of a specialized farm, or they might have been used in a diversified operation to raise feed for the livestock, such as alfalfa. This was particularly important for the early settlement farms or for smaller family-owned operations, where self-sufficiency was more typical than economic specialization. In the semi-arid climate of Boulder County, there may have been limited irrigated field for horses, cattle, or other animals, and more extensive fields for dryland grazing. Orchards and other agricultural fields may also represent a diversification of the farm's production. Some of these resources may cover many acres, although the irrigated land was more likely to be in relatively close proximity to the main farm or ranch complex.



Corrals at the Walker Ranch. Photo by Carol Beam, BCPOS.



Loading chute at Lohr/McIntosh Farm

A fence is a structure built to demarcate a boundary and to limit movement from one area to another. Fences define grazing areas, boundaries to other land jurisdictions, or limit livestock access to other agricultural properties such as fields or homes. The most common fencing associated with livestock is the 4-strand barbed wire fence, which features barbed wire strung between metal or wooden poles. Closer to the main residence, fences may be wood, stone, wire mesh, or other materials. Such fences are usually more costly and are limited to the domestic area; they also serve a decorative purpose. Cattle guards are structures that prevent passage by cattle, yet allow vehicles and people access to fenced areas. Since cattle are afraid of pits, they were designed with pits of varying depths covered by a grill or lattice of wood, piping, rails, or concrete. They are integral parts of fencing, and are effective in preventing cattle from leaving the fenced area, making gates unnecessary. Corrals are fenced enclosures which congregate livestock for the purpose of feeding, working, or preparation for loading. Pens are extensions of

corrals which allow the rancher to perform duties such as routine health functions. Holding pens are used to keep cattle contained while waiting for other functions. A subcategory of a holding pen is a crowding area, which is a specialized pen used to funnel cattle into loading chutes. Loading chutes are ramped structures which are used to load cattle, one at a time, into a truck or rail car. They are narrow and have a ramp and enclosed sides (historically fenced).

Other landscape features of a farm or ranch in Boulder County may include crop fields, pastures, and orchards. Most crop land was irrigated; pasture land was also sometimes irrigated in order to supplement the natural grass ranges. Crop fields may be small, typically representing a diversification of the farm's output, or large for specialized production. Dryland range or pastures were large areas, with fencing generally representative of ownership boundaries. Fields in the plains were usually rectangular or square, while those located in the mountains of Boulder County were often irregular in shape, conforming to the steeper topography and rock outcroppings. These fields may also have stone piles or fences on one side as evidence of clearing for agricultural use. Orchards in Boulder County were comparatively small, with the fruit trees planted in straight rows at set intervals, allowing for ease in mowing and spraying.

Cemeteries, burial grounds or grave sites are other examples of agricultural landscape features. It was not uncommon for rural families to bury deceased on their home property. Especially from the settlement period, formal cemeteries are rare and are more likely graves, sometimes lacking even markers. These may occur as small family plots located a short distance from the main house, but not as close as gardens.

Although perhaps the broadest category of property types, agricultural landscapes are clearly among the most significant. Without the land, the "industry" of agriculture would not exist. Agricultural landscape features are most likely to be eligible as contributing resources within a larger agricultural district. Without any other associated property types, it would be difficult for landscape features by themselves to convey the historic contexts.



Wagon wheels mark the family plot at Scates Ranch.

Granges and agricultural society buildings

Most granges in Boulder County were simple rectangular buildings constructed specifically to house the organization. They were frame or brick construction, and had flat, hip, or gable roofs. A few were located in buildings that were constructed for additional uses, such as the upstairs of a commercial block building, or were located in former residential buildings. Although their extant numbers are few, granges and other agricultural societies played a key role in the transition from a simple agrarian society to modern agribusiness. The Patrons of Husbandry, founded in Washington D.C. in December 1867, was a fraternal organization that provided a political voice for farmers after the Civil War.



Left Hand Grange in Niwot. Photo by Carol Beam, BCPOS.

Boulder County agriculture has faced many challenges through the years -- from grasshoppers to growth and drought to development. New challenges are undoubtedly ahead for those historic agricultural properties which remain. In order to preserve some of these properties for the benefit of future generations, it is necessary to evaluate their historic and architectural significance. A proper evaluation can occur only when they are referenced against broad patterns of the historical agricultural development within the county. It is hoped that this report presents the important links for Boulder County's agricultural properties to local, state, or even national themes in agricultural history. Only through an understanding of the past can informed planning decisions be made for the future of these historic agricultural properties



Barn on St. Vrain Road.

Appendix A

Early Ditch Decrees for Division 1, District No. 6. Taken from Anne Dyni, Pioneer Voices of Boulder County, published by Boulder County Parks & Open Space Department.

Irrigation Ditch Decrees, District No.6, Boulder Creek

Name of Ditch	Date of Fee Appropriation
Lower Boulder Ditch	Oct. 1, 1859
Smith & Goss Ditch	Nov. 15,1859
Howel Ditch	Dec. 1, 1859
Anderson Ditch	Oct. 1, 1860
Godding, Dailey, Plumb	Mar. 1, 1861
Houck #2 Ditch	Apr. 1, 1861
Martha H.Mathews Ditch	June 1,1861
N.K.Smith & Tyler Ditch (Reduced by decree)	June 1,1861 May 16,1913
Plumb Ditch	Apr. 1, 1862
David H. Nichol Ditch	
Dry Creek Ditch	June 1,1862
M.G. Smith	June 1,1862
G. Berkley Ditch	June 1,1862
Wellman, Nichols, Hahn	June 1,1862
Harden Ditch, heirs of Eliz.Harden & S.Wellman	June 1,1862
McCarty Ditch	June 1,1862
William Breach Ditch	June 1,1862
North Boulder Farmers Ditch	June 1,1862
Rural Ditch	May 10,1862
Green Ditch	Sep. 15,1862

Farmers Ditch	Oct. 1, 1862
Rural Ditch 1st enlg.	Mar. 10, 1863
Houck #1 Ditch (Reduced by decree)	Apr. 1, 1863 Dec. 8, 1910
Smith & Emmons Ditch	June 1, 1863
North Boulder Farmers Ditch: 1st enlg	June 1, 1863
Carr & Tyler Ditch	June 1, 1864
North Boulder Farmers Ditch, 2nd Enlg.	June 1, 1864
Butte Mill Ditch	Mar. 1, 1865
Howell & Beasley Ditch	Mar. 1, 1865
Delehant Ditch	May 1, 1865
Godding, Dailey & Plumb 1st Enlg.	Apr. 1, 1865
Highland Ditch South side	June 1, 1865
Leggett Ditch	May 1, 1868
Highland Ditch South side, 1st Enlg.	June 1, 1868
Taylor Ditch	Apr. 1, 1870
Lower Boulder, 1st Enlg	June 1, 1870
Idaho Ditch (Idaho Creek)	Oct. 30, 1870
Como #1 (Fisher Creek)	Jan. 2, 1871
Como #2 (Como Creek)	Jan. 3, 1871
Como #3 (Como Creek)	Jan. 4, 1871
Young Ditch (Rothrock Slough)	Apr. 1, 1871
Boulder & Weld County	May 1, 1871
Como #4 (North Boulder Creek)	Apr. 1, 1873
Boulder & White Rock	Nov. 1, 1873
Boulder & Left Hand Ditch Sec. #38 Enlg.	Dec. 1, 1873
Town of Boulder Ditch & Reservoir #1	June 17, 1875

Boulder & Left Hand 1st Enlg.	Apr. 1, 1876
Wellman Ditch	May 1, 1878
Mathews Ditch	Feb. 13, 1879
Revolution Ditch	Dec. 7, 1881
Silver Lake Ditch	Feb. 28, 1888
Silver Lake, 1st Enlg.	Nov. 1, 1900

Irrigation Ditch Decrees, District No.6, South Boulder Creek

Name of Ditch	Date of Fee Appropriation
Howard Ditch	Apr. 1, 1860
McGinn Ditch #2	May 1, 1860
Jones & Donnelly Ditch	May 1, 1860
Schearer Ditch	June 1, 1860
East Boulder	Apr. 1, 1862
S.Boulder & Bear Creek	May 25,1862
Cottonwood Ditch #2	Apr. 15,1863
Dry Creek Ditch (Davidson)	May 1, 1863
Dry Creek Ditch #2	May 1, 1864
McGinn Ditch, 1st Enlg.	May 1, 1864
Andrews & Farwell Ditch	June 1, 1864
Enterprise Ditch	Feb. 1, 1865
Leyner Ditch Reduced by decree in	Apr. 1, 1865
S.Boulder & Bear Creek 1st Enlg.	May 9, 1865
Marshalville Ditch	June 1, 1865
McGinn Ditch, 2nd Enlg.	June 1, 1865
Cottonwood Ditch #1	Apr. 1, 1866
Enterprise Ditch 1st Enlg.	May 1, 1866
Central Ditch Reduced to 2 2/3ft. at Lower Boulder cutoff	May 15, 1866
South Ditch Reduced to 1 ft. at Lower Boulder cutoff	June 1, 1866
S. Boulder & Bear Creek 2nd Enlg.	May 15,1868
South Boulder Canon	May 15,1870

Cottonwood Ditch #1 1st Enlg.	Oct. 1, 1870
Andrew & Farwell Ditch 1st Enlg.	Apr. 1, 1871
S.Boulder & Bear Creek 3rd Enlg.	May 15,1871
South Boulder Canon 1st Enlg.	May 15,1871
Davidson Ditch	Apr. 15,1872
East Boulder,1st Enlg.	June 1, 1872
South Boulder and Coal Creek	June 1, 1872
Hower Ditch (Slack Creek)	Nov. 1, 1872
Goodhue Ditch & Reservoir	June 1, 1873
S.Boulder & Rock Creek	June 1, 1873
Davidson Ditch,1st Enlg.	May 10,1875
Marshalville, 1st Enlg.	June 30,1878
Enterprise, 2nd Enlg.	June 1, 1881
Community Ditch	June 6, 1885
Cottonwood Ditch	Apr. 19,1904

Appendix B
List of Boulder County Landmarks with agricultural associations

Site Name/Approval Date	Location
Sandersen House/January 19, 1995	5973 Nelson Rd.
Affolter House/September 11, 1997	9595 Nelson Rd, Longmont
Distel Farm/October 23, 1997	2203 N 111 th St., Lafayette
McIntosh Lohr Homestead/January 27, 1998	8348 Ute Highway
Stroh-Dickens Barn/January 27, 1998	8348 Ute Highway
Hall Ranch Complex/April 21, 1998	31271 S St. Vrain Drive
Rock Creek Farm Cultural Landscape/June 18, 1998	2005 S. 112th St., Broomfield
McCaslin Homestead/ Leonard Property/April 13, 1999	11666 Crane Hollow Dr., Longmont
Altona Grange #127/April 13, 1999	9386 N. 39th St., Longmont
Betasso Ranch Complex and Site/May 27, 1999	390 Betasso Rd.
Monteau/ Geer Homestead Complex/ May 27, 1999	48013 Peak to Peak Highway
Carlson Silo/September 16, 1999	10050 Plateau Rd
Dickens Homestead and Lashley Barn/ December 16, 1999	136 South Main Street, Longmont
Shannon Farm (Manchester)/March 14, 2000	1341 N. 95th, Lafayette
Ludlow Farm Site (Spurgeon/Gaynor Lake Farm)/ June 6, 2001	10145 Oxford Road
Kluck Residence/ June 28, 2001	5035 N. 51st Street
Harney/Lastoka Farm/ October 16, 2001	9681 Empire Rd., Louisville
Martindale Granary/July 25, 2002	1819 North 119th Street, Lafayette
Swanson Farmhouse/August 27, 2002	8591 N. 119 th St. Longmont, CO
Dodd Farmhouse/August 7, 2002	10323 Monarch Rd., Longmont
Allen Farm/April 15, 2003	9417 N. Foothills Highway
Longfellow-Pace Farm/October 21, 2003	9108 N. 119 th St.
Montgomery Farm/December 16, 2003	5435 Ute Highway, Longmont
Stengel/King Farm Site/April 15, 2004	1121 75 th Street, Boulder, NE 1/4 SW 1/4 36-1N -70W

Site Name/Approval Date	Location
Dodd Granary/July 13, 2004	10323 Monarch Rd., Longmont, 34-T2N-R69W
Thronson Farm/February 15, 2005	6374 N. 107th
Forbess/Marlatt Farm/February 15, 2005	11229 N. 75 th Street
Dannels Homestead/March 15, 2005	863 (aka 757) County Rd. 101
Boyle Homestead/Woodley Farm/November 15, 2005	7957 Arapahoe Rd., 30-1N -69

Appendix C
Centennial Farms/Ranches in Boulder County

The Colorado Centennial Farms program designates farms and ranches that have been owned and operated by the same family for 100 years or more. It was established to honor the significant role that these families have had in settling and shaping the State of Colorado. Nominees must meet the following requirements: a) farms or ranches must have remained in the same family continuously for 100 years or more; b) property must be a working farm or ranch; c) property must have a minimum of 160 acres -- however, properties with fewer than 160 acres can qualify if they gross at least \$1,000 in annual sales; d) properties that have four or more well-maintained structures -- which are at least 50 years old -- are also eligible for a Historic Structures Award.

Name	Town	Year Settled	Year Awarded	Historic Structure Award
Faivre Ranch	Boulder	1881	1989	no
Steele's Flying Triangle Ranch	Longmont	1870	1989	no
Caldwell Farms	Longmont	1881	2001/2	no
Leyner Farm	Lafayette	1864	1986	no
Montgomery Homestead	Lafayette	1883	1986	yes
Zweck Farm	Longmont	1866	1986	no
Chuck Waneka Farm	Lafayette	1883	1987	yes
Ewing Farm	Boulder	1883	1987	no
Dodd Farm	Longmont	1884	1988	yes
McCaslin Farm	Longmont	1877	1988	yes
Gould Farm	Boulder	1881	1990	no
Madison Farm	Longmont	1890	1990	no
Mayhoffer Farm	Lafayette	1870	1990	yes
Moll Bauernhof/Gould Farm	Boulder	1881	1990	no
Montgomery Farm	Longmont	1880	1990	yes
Hycrest Farm	Longmont	1876	1991	yes
John Aken Laughlin Farm	Lafayette	1885	1991	yes
Seal-Scates Homestead	Nederland	1885	1993	yes
Prince Farm	Lafayette	1870	1994/5	yes
Rice Rundle	Longmont	1870	1997/8	yes
Hogan Ranch	Boulder	1876	1999	no
Los Lagos Ranch (also in Gilpin)	Rollinsville	1894	2005	yes

Bibliography

- Abbott, Carl; Leonard, Stephen J., and McComb, David. Colorado: A History of the Centennial State 3rd ed. Niwot: University Press of Colorado, 1994.
- Anderson, M. M. The Mining Camps: Salina & Summerville. Boulder, CO: Junction House, 2005.
- Benedict, Diane Goode. Refuge in the Valley: 1800s Pella, Colorado. Lyons: CO: Applications Plus, 2004.
- Betasso, Ernie. "Oral history interview with Ernie Betasso." Interviewed by John Hess, 15 January 1983. At Carnegie Branch Library for Local History, Boulder Public Library System, OH0225, Boulder, CO.
- Boulder Commercial Association. "Agricultural Possibilities of Boulder County." N.p.: Boulder Commercial Association, n.d. [ca. 1907]. At Carnegie Branch Library for Local History, Boulder Public Library System, folder 300 b01 f12, Boulder, CO.
- "Boulder County Farmers Had Successful Year During 1945." Boulder Daily Camera, 31 December 1945.
- "Boulder County Remains a Major Turkey Center, But Raiser Hit by Low Prices." Daily Camera (29 September 1961). In folder 328 B132 F03, Carnegie Branch Library for Local History, Boulder, CO.
- "Boulder Valley, 'The Garden Spot of Colorado.'" The Daily Camera Industrial Number (8 January 1910).
- Colorado. Boulder County. 1870 U.S. Census, agriculture schedule. Cited from: University of Virginia Library, Geospatial and Statistical Data Center. Historical Census Browser. <<http://fisher.lib.virginia.edu/collections/stats/histcensus/>> cited 10 October 2005.
- Colorado. Boulder County. 1890 U.S. Census, agriculture schedule. Cited from: University of Virginia Library, Geospatial and Statistical Data Center. Historical Census Browser. <<http://fisher.lib.virginia.edu/collections/stats/histcensus/>> cited 10 October 2005.
- Colorado. Boulder County. 1900 U.S. Census, agriculture schedule. Cited from: University of Virginia Library, Geospatial and Statistical Data Center. Historical Census Browser. <<http://fisher.lib.virginia.edu/collections/stats/histcensus/>> cited 10 October 2005.
- Colorado. Boulder County. 1920 U.S. Census, agriculture schedule. Cited from: University of Virginia Library, Geospatial and Statistical Data Center. Historical Census Browser. <<http://fisher.lib.virginia.edu/collections/stats/histcensus/>> cited 10 October 2005.

- Colorado. Boulder County. 1930 U.S. Census, agriculture schedule. Cited from: University of Virginia Library, Geospatial and Statistical Data Center. Historical Census Browser. <<http://fisher.lib.virginia.edu/collections/stats/histcensus/>> cited 10 October 2005.
- Colorado. Boulder County. 1940 U.S. Census, agriculture schedule. Cited from: University of Virginia Library, Geospatial and Statistical Data Center. Historical Census Browser. <<http://fisher.lib.virginia.edu/collections/stats/histcensus/>> cited 10 October 2005.
- Colorado. Boulder County. 1950 U.S. Census, agriculture schedule. Cited from: University of Virginia Library, Geospatial and Statistical Data Center. Historical Census Browser. <<http://fisher.lib.virginia.edu/collections/stats/histcensus/>> cited 10 October 2005.
- Colorado Agricultural College, Extension Service. "Cooperative Extension Work in Agricultural and Home Economics." N.p.: Colorado Agricultural College, U.S. Department of Agriculture, and Boulder County Cooperating Extension Service, 29 December 1928.
- Colorado State Grange. Colorado State Grange History: 1874-1975. N.p.: Colorado State Grange, 1975.
- Convery, William J. III. Pride of the Rockies: The Life of Colorado's Premiere Irish Patron, John Kernan Mullen. Boulder, CO: University Press of Colorado, 2000.
- "Corn, Hay, Winter Wheat Among County's Top Value Farm Products." Boulder Daily Camera, 1 June 1960.
- Corson, Dan, and Noel, Tom. Boulder County: An Illustrated History. Carlsbad, CA: Heritage Media Corp., 1999.
- "County Agent Surveys 1946 Yield of Farms and Dairying Business." Boulder Daily Camera, 1 January 1947.
- Dyni, Anne. "The Grange Movement in Boulder County." Prepared for the Boulder Historic Context Project, 1992.
- Dyni, Anne. Pioneer Voices of the Boulder Valley: An Oral History. Boulder, CO: Boulder County Parks and Open Space Department, 1999.
- Fetter, Richard. Frontier Boulder. Boulder, CO: Johnson Publishing Company, 1983.
- Gladden, Sanford Charles. Boulder Firsts: A Source-Book of Beginnings in Boulder, Colorado. N.p.: pre-publication photocopy of manuscript prepared by Boulder Genealogical Society, 1972.
- Julusson, Lara. "Boulder County Colorado Major Transportation Routes, Pre 1860 to 1920." Boulder, CO: Boulder Planning Department, May 1992.

- Large, Dorothy. Old Burlington: First Town on the St. Vrain 1860-1871. Longmont, CO: St. Vrain Publishing Co., 1984.
- Leonard, Stephen J. Trials and Triumphs: A Colorado Portrait of the Great Depression, with FSA Photographs. Niwot, CO: University Press of Colorado, 1993.
- McAlester, Lee, and Virginia McAlester. A Field Guide to American Houses. New York: Alfred A. Knopf, 1984.
- McWilliams, Carl. "Unincorporated Boulder County Historic Sites Survey Report." Prepared for Boulder County Parks and Open Space Department. February 2000.
- McWilliams, Carl. "Unincorporated Boulder County Historic Sites Survey Report." Prepared for Boulder County Parks and Open Space Department. February 2003.
- Native Cultural Services and Paragon Archaeological Consultants, Inc. "Results of an Archaeological and Historical Inventory of Southern Rabbit Mountain & North Foothills Open Space. Boulder County, Colorado." Prepared for Boulder County Parks and Open Space Department. 16 December 1996.
- Newby, Betty Ann. The Longmont Album: History and Folklore of the St. Vrain Valley. Virginia Beach, VA: Donning Company Publishers, 1995.
- Noble, Allen G., and Richard K. Cleek. The Old Barn Book: A Field Guide to North American Barns and Other Farm Structures. New Brunswick, NJ: Rutgers University Press, 1995.
- Noble, Allen G. Wood, Brick and Stone: The North American Settlement Landscape, Volume 2: Barns and Farms Structures. Amherst, MA: University of Massachusetts Press, 1984.
- Pettem, Silvia. "Roads of the Mountains and Plains." Boulder, CO: Boulder Planning Department, 1996.
- "Records and Correspondence 1872-1873 of Boulder County Agricultural Society." Folder BHS 328 b043 f01. Boulder, CO: Carnegie Branch Library for Local History, Boulder Public Library System.
- Saul, Norman E. "Mill Town Kansas in the Age of Turkey Red," Kansas History: A Journal of the Central Plains 23 (Spring-Summer 2000).
- Schooland, J.B. Boulder, Then and Now: Picturesque Boulder and Gems of Boulder County. Boulder, CO: Pruett Press, Inc., 1967.
- Smith, Phyllis. A Look at Boulder from Settlement to City. Boulder, CO: Pruett Publishing Company, 1981.

Soil Conservation Service of Boulder Valley Soil Conservation District . “Rural Recreation: New Opportunities on Private Land.” Soil Conservation Service of Boulder Valley Soil Conservation District Newsletter. Boulder, CO: July 1964.

“22,794,588 Value of Farm-Ranch Products of Boulder County in 1950.” Boulder Daily Camera, 23 October 1952.

U.S. Department of Agriculture, Rural Development. “Farm Marketing, Supply, and Service Cooperative Historical Statistics.” Cooperative Information Report 1, Section 26. Revised August 2004. Cited from <<http://www.rurdev.usda.gov/rbs/pub/cir1s26.pdf> > cited 20 March 2006.

U. S. Federal Housing Authority. “Open this Door to Farm Property Improvement.” FHA 136, 1st Edition. Washington, D.C.: Federal Housing Administration, n.d.

Wickens, James F. Colorado in the Great Depression. New York: Garland Publishing, 1979.

“Without Water, Winter Wheat Withers.” Boulder Daily Camera (15 November 1964). At Carnegie Branch Library for Local History, Boulder Public Library System, folder 328 B132 F03, Boulder, CO.

Additional information about specific property types and their listing in the National Register can be found in relevant National Register bulletins, or National Register Multiple Property Documentation forms relating to their history in Colorado.

National Register Bulletins

U.S. Department of the Interior, National Park Service, National Register, History and Education. Guidelines for Evaluating and Documenting Rural Historic Landscapes (#30). Washington, D.C.: U.S. Department of the Interior, 1989; Revised 1999.

U.S. Department of the Interior, National Park Service, National Register, History and Education. Guidelines for Evaluating and Registering Cemeteries and Burial Places (#41). Washington, D.C.: U.S. Department of the Interior, 1992.

U.S. Department of the Interior, National Park Service, National Register, History and Education. How to Apply the National Register Criteria for Evaluation (#15). Washington, D.C.: U.S. Department of the Interior, 1990; Revised 1991, 1995, 1997; Revised for Internet 1995, 2001, 2002.