ADAPTING TO THE LAND

A HISTORY OF AGRICULTURE IN COLORADO

John F. Freeman
WITH
Mark E. Uchanski

UNIVERSITY PRESS OF COLORADO
Louisville

Published by University Press of Colorado
245 Century Circle, Suite 202
Louisville, Colorado 80027

Manufactured in the United States of America

The University Press of Colorado is a proud member of the Association of University Presses.

The University Press of Colorado is a cooperative publishing enterprise supported, in part, by Adams State University, Colorado State University, Fort Lewis College, Metropolitan State University of Denver, Regis University, University of Alaska, University of Colorado, University of Denver, University of Northern Colorado, University of Wyoming, Utah State University, and Western Colorado University.

∞ This paper meets the requirements of the ANSI/NISO Z39.48–1992 (Permanence of Paper)

ISBN: 978-1-64642-204-3 (hardcover)
ISBN: 978-1-64642-205-0 (ebook)
DOI: 10.5876/9781646422050

Library of Congress Cataloging-in-Publication Data

Names: Freeman, John F. (John Francis), 1940– author. | Uchanski, Mark E., 1980– author.
Title: Adapting to the land : a history of agriculture in Colorado / John F. Freeman, Mark E. Uchanski.
Description: Louisville : University Press of Colorado, [2021] | Includes bibliographical references and index.
Identifiers: LCCN 2021036657 (print) | LCCN 2021036658 (ebook) | ISBN 9781646422043 (hardcover) | ISBN 9781646422050 (ebook)
Subjects: LCSH: Agriculture—Colorado—History. | Agriculture—Environmental aspects—Colorado. | Agriculture—Economic aspects—Colorado—History. | Irrigation farming—Colorado—History. | Organic farming—Colorado. | Sustainable agriculture—Colorado. | Water rights—Colorado—History.
Classification: LCC S451.C6 F74 2021 (print) | LCC S451.C6 (ebook) | DDC 338.109788—dc23
LC record available at https://lccn.loc.gov/2021036657
LC ebook record available at https://lccn.loc.gov/2021036658

Front-cover photograph: Irrigating potatoes, 1900–1920. Courtesy, Denver Public Library, Western History Collection, MCC 1847.

Contents

Introduction

In 1883, pioneer publicist William E. Pabor prepared *Colorado as an Agricultural State: Its Farms, Fields, and Garden Lands*, which he intended as a practical guide for prospective farmers. He warned his readers that "those who reach Colorado with certain ideas of society, soil, climate, and country, based upon what they have left behind them, are likely to be disappointed." But once the intelligent, systematic farmer understands the methods for properly and judiciously cultivating the soil under irrigation, then nature would take care of the rest.[1] One would like to believe that Pabor, a friend of Horace Greeley and one of the founding members of the Union Colony in 1870, understood that the final measure of good farming was that one could farm again: in contemporary parlance, sustainable agriculture.

Since Pabor's book, much has been written about how to farm, raise livestock, grow fruit, and cultivate gardens in Colorado, but little has been written from a historical perspective. Alvin T. Steinel, an extension specialist at Colorado State University (CSU) in Fort Collins, did write a *History of Agriculture in Colorado* (1926) to commemorate the state's fiftieth anniversary.

https://doi.org/10.5876/9781646422050.c000

Robert G. Dunbar, while a history professor at CSU, contributed a fine essay on Colorado agriculture to Leroy Hafen's *Colorado and Its People* (1948). Later, for its cultural resources series on Colorado, the US Bureau of Land Management commissioned Frederic J. Athearn, Steven F. Mehls, and Paul M. O'Rourke to prepare four regional monographs (1980s). Each monograph contained substantial sections on agricultural history and mentioned the shift away from traditional agriculture using natural soil amendments to synthetic fertilizers, herbicides, and pesticides. Yet to come was a more deliberate shift meant to protect the ecological values that make those yields possible. The results of that latter shift may not be readily observable to the casual visitor over fields of commodity crops or miles of rangeland, but they are reflected in the burgeoning popularity of natural and organic foods and the resulting global organic food processing and distribution industry. The extent to which Colorado agriculturists adapted to or stretched beyond the limits of the land, all within the context of an increasingly urban society, is the subject of this book.

My own interest in agricultural history stems from my training in medieval and early modern European history, when the connection between villages and cities and their agricultural surroundings was far tighter than it is today. Since my real job made it impractical for me to spend significant amounts of time in Europe, I turned to relatively untouched archival collections close by. My first book concerned the civilizing role of horticulture, making life on the High Plains more livable. A peer reviewer suggested in passing that I prepare a complementary history of crop production on the High Plains. Because of my longtime fascination with Colorado, its varied topography, its climatic regions, and especially its demographic trends, I came to believe that an agricultural history of that single state would encompass continuities and changes throughout the region. Not only that, despite or perhaps because of what I see along the Front Range, I remain convinced that Colorado still has a chance to slow and even reverse seemingly unrestrained growth, accommodate nature's limits, and create a vibrant, earth-friendly society in which agriculture in all its aspects plays an increasingly significant part.

For a period of twenty years, I had the privilege of cultivating my own garden consisting of vegetables, small fruits, and a few orchard fruits. As in most of Colorado, my soils were grossly deficient in organic matter, which warranted continual experimentation with rotations, legumes, and green

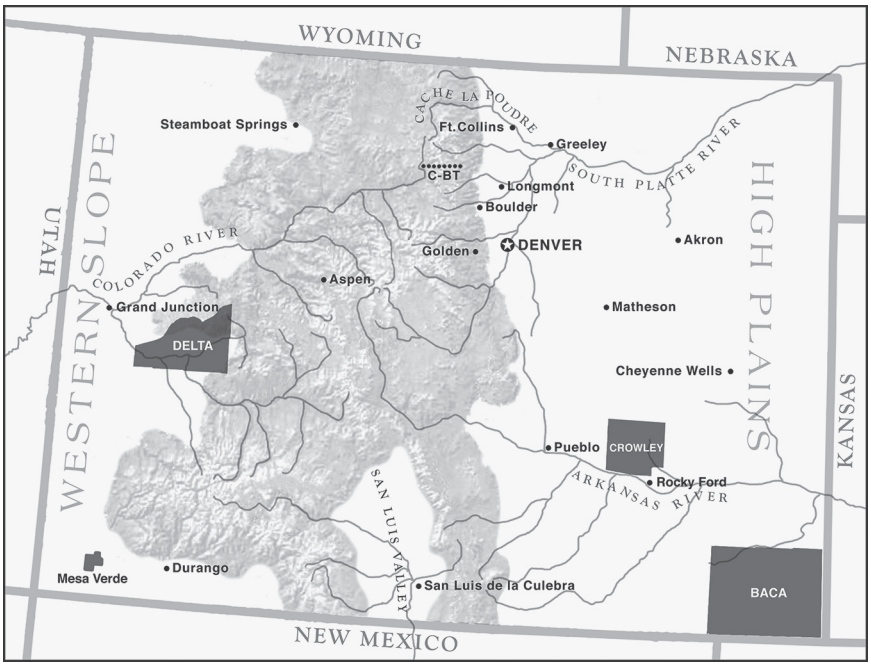

FIGURE 0.1. Colorado. *Courtesy*, Ronald K. Hansen.

manures. Playing at organic farming is recreational, good for mind, body, and soul. Farming to earn a modest living is quite another matter, as I discovered while preparing a history of the Rocky Mountain Farmers Union—longtime advocate on behalf of the family farmer, cooperative enterprise, and social democracy. In 2016 I attended the second annual High Plains Organic Farming Conference, co-sponsored by the agricultural extension services of Colorado State University and the University of Wyoming, where by chance I met Mark Uchanski, recently arrived from New Mexico State University to take the position of CSU's Specialty Crops Program coordinator. As Mark puts it, raised in Chicago's far western suburbs, where urban meets rural, he fell in love with farming and food systems, having earned his first few dollars picking strawberries on a nearby family farm, observing his grandfather's backyard garden, and tending to his own. He now directs a covey of graduate students, oversees his research at the CSU horticultural farm, and works cooperatively with specialty crop producers throughout the state.

He continues research that combines his interests in horticulture, ecology, and new and innovative approaches to maintainable cropping systems. I am especially grateful to Mark as an agricultural scientist for agreeing to help complete the present book.

Our story begins with Ancestral Puebloans, who had populated areas in today's southwestern Colorado. Archaeological evidence reveals that the Puebloans moved their settlements from time to time, perhaps to abandon deteriorated soils in favor of virgin soils. They did cultivate their crops under irrigation more than a millennium before Hispanic settlers introduced a system of communal irrigation to south-central Colorado. The 1859 gold rush created a market for food supplies that provided opportunity for farmers in the San Luis Valley to extend their primarily subsistence operations to commercial crops and attracted the first wave of farmers from the eastern states to establish market gardens along the Front Range and stock growers to move their livestock to the High Plains. During those early decades when soils were new to cultivation, farmers did not have to worry about conserving soil fertility; but as most Colorado soils tend to be alkaline, salty, clayey, or all three, they acknowledged the need to amend or "reclaim" their soils. Stock growers took advantage of free grazing for more than 1 million cattle and sheep spread over the vast rangelands that cover most of the state as well as the mountainous forestlands. By 1900, due in part to the advent of the railroads, Colorado agriculturists had established patterns of farming and livestock production (chapter 1).

As publicist, William Pabor featured those regions that could be irrigated by rivers and streams, pretty much ignoring grazing and forestry, which, in his opinion, had little to do with the economics of farming. Only with the administration of President Theodore Roosevelt did the term *agriculture* come to encompass grazing, forestry, gardening, and the culture of rural living as well as cultivating crops. While trying not to neglect any of those aspects, our book deals primarily with the cultivation of market produce and commodity crops.

Dry-land farming is perhaps the riskiest and most vulnerable method of cultivation when conducted without regard for the limits of land and water. With population growth nationwide, combined with the wartime (World War I) urgency to supply food overseas, federal policymakers pushed all farmers to vastly increase crop yields. The federal government financed

basic research in the agricultural sciences, the application of that research through the experiment stations, and the dissemination of "useful knowledge" through the extension service—placing agents in counties to work directly with growers. Federal munificence positioned Colorado Agricultural College, the state's land-grant college, as the principal source of information on agriculture and related matters. As an active participant in the implementation of federal agricultural policy, the college generally responded to the needs of bigger farms and those efficiencies that produced higher yields and greater profits, although some voices cautioned against despoliation of land and water (chapter 2).

To retain high profits postwar, farmers borrowed heavily to purchase labor-saving machinery and expand land under cultivation. Turning to the exclusive use of pure seeds helped reduce weeds and increase yields, although certification contributed to reductions in the diversity of crops grown and to the cultivation of single-crop species to the exclusion of others. That, in turn, led to the increased use of chemicals against weeds and pests and to the introduction of manufactured inorganic fertilizers. Unprecedented drought exacerbated the downward spiral into the economic depression of the 1930s, a lesson yet to be fully learned on what happens when we seek to push nature beyond its limits (chapter 3). The impact of New Deal legislation on agricultural practices and rural living cannot be overstated. County agents were empowered to administer emergency relief and aid with temporary recovery. In the name of job creation and to protect against another economic disaster, the New Deal inaugurated broad reforms to conserve land and water. The Soil Conservation Act of 1935 provided the framework for soil restoration and other conservation activities—including the establishment of self-governing conservation districts to allay rural suspicion of federal intrusion—and for setting the foundation for future efforts to address the more pernicious aspects of industrialized agriculture. Taking advantage of federal funding for massive work projects, northern Colorado irrigators and municipalities lobbied successfully for the Colorado–Big Thompson Project (chapter 4).

World War II mobilization brought the "military-industrial complex" and an influx of population to Colorado. Jefferson County epitomized the transition from agricultural to urban development. The scientific and technical innovations that had been adopted to meet heightened wartime demand for

food and fiber contributed postwar to further industrialization of agriculture: new plant cultivars and livestock breeds, advances in mechanization supported by computerization, and adoption of synthetic fertilizers, herbicides, and insecticides. The center-pivot system, invented by a Colorado farmer, greatly benefited crops under irrigation; combined with groundwater pumps, the system enabled the irrigation of dry lands from finite, previously untapped belowground resources. The scientific documentation and publicizing of the deleterious impact of toxic chemicals used in agriculture aroused public awareness of environmental despoliation generally, which led to the passage of landmark federal legislation. Widespread confidence expressed by most agriculturists that technology would allow people to overcome nature's limits was not universally shared. It kindled a conviction within academe and beyond that the resources of land, water, and all living systems are finite. Scientists and ethicists shed new light on stewardship of the "holy earth" and even encouraged a few farmers to challenge the economic, social, and ecological benefits of industrial agriculture (chapter 5).

On the public square, Colorado governor Dick Lamm espoused a broad understanding of stewardship as a balance between people and nature; he also advocated for planned rather than unfettered development and for conserving those values that make Colorado an exceptionally attractive place to live and work. An integral part of his plan for limiting economic development was the preservation of farmland and ranchland and making it more difficult to transfer irrigation water for municipal purposes. Starting in the late 1970s, the influx of affluent, well-educated professionals to the Front Range and the mountain towns contributed to passage of county-wide land-use regulations, supportive taxes, and increased use of tools such as conservation easements. Despite notable local efforts to bring about a balance of people and nature, continued growth in population and economic development compelled cities to redouble their efforts to secure more water and incentivized agriculturalists to sell their land and accompanying water rights to municipalities (chapter 6).

Changing consumer preferences nationwide moved the US Congress to begin supporting research, instruction, and extension activities in what became known as low-input sustainable agriculture—its purest form yet known being organic agriculture. Not coincidentally, the influx of urbanites to Colorado helped create a market niche for natural and organic foods

locally grown. That, in turn, helped spur incremental changes in conventional farming; drew younger, often inexperienced idealists to experiment with intensive, small-scale farming; and attracted socially minded entrepreneurs. Boulder is considered the county of origin for the nation's organic and natural food distribution systems. Controversy over bioengineered crops placed Boulder at the epicenter of debate over ecologically acceptable agricultural practices and, more generally, over what makes for a healthy, vibrant, and enduring community and, by extension, a more livable world (chapter 7).

At the outset, a word about the use of the terms *organic farming* and *sustainable agriculture*. Prior to the twentieth century, nearly all farming was organic by necessity. As organically grown foods became a consumer choice, organic farmers wanted to differentiate their products from natural and conventionally grown foods and to assure consumers that their products started with organic seed or organic transplants and were grown without synthetic amendments and without antibiotics and growth hormones in the case of animal products. The 1989 Colorado legislature authorized an organic foods certification program; this program was later adjusted to comply with rules made as a result of federal legislation and is brought up to date on a regular basis.

Sustainable agriculture, alas, has become one of those fashionable catchwords with little precise meaning, with no federally approved certification program. The National Academy of Science, however, has defined the term to mean "an integrated system of plant and animal production practices" that over the long term satisfies human food and fiber needs, enhances environmental quality, makes efficient use of nonrenewable resources, sustains the economic viability of agriculture, and improves the quality of life for agriculturists and society in general.

To be sure, at least since ancient Rome, agricultural writers have expressed some understanding of farming and grazing to meet current needs without diminishing the ability of future generations to meet their needs. In Colorado beginning with the Greeley colonists, outspoken farmers have advocated for agriculture that is enduring, economically profitable, and socially responsible. The closer we get to the present, the greater the emphasis on what agricultural scientists would call regenerative agriculture—preserving and improving soils and waters; in sum, the overall ecology—although economic and social factors remain essential. Sustainable agriculture has become a goal as well as a system.