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The 2017 Colorado Blueprint of Food and Agriculture



Key assets, emerging
issues, and shared
priorities for future
investments in food
and agriculture
around the state



Dawn Thilmany
Becca Jablonski
Gregory Graff

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The Colorado Agricultural Experiment Station conducts research that addresses the economic viability, environmental sustainability, and social acceptability of activities impacting agriculture, natural resources, and consumers in Colorado.

with support from the following partners:



COLORADO
Department of Agriculture

The Colorado Department of Agriculture works to strengthen and advance Colorado Agriculture; promote a safe and high-quality food supply; protect consumers; and foster responsible stewardship of the environment and natural resource



LiveWell Colorado increases access to healthy eating and active living by removing barriers that inequitably and disproportionately affect low-income communities and people of color.



COLORADO FOOD SYSTEMS
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The Colorado Food Systems Advisory Council works to advance recommendations that strengthen healthy food access for all Coloradans through Colorado agriculture and local food systems and economies.



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The Colorado State University College of Agricultural Sciences speaks to our institution's land-grant mission through its economic impact, cutting-edge research, and innovative education.



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State of Possibilities



FOOD SYSTEMS
COLORADO STATE UNIVERSITY

Colorado State University Extension and Outreach Food System programs engage Colorado communities through county-based agents, regional specialists, and Extension faculty. We support community-based organizations, connect stakeholders to state and federal resources, and assist in developing local and regional supply chains.

Author Profiles

Dawn Thilmany



Dawn Thilmany McFadden is a Professor of Agribusiness and Agribusiness Extension Economist with Colorado State University, and the Associate Director of CSU's Regional Economic Development Institute. Dr. Thilmany McFadden is on the leadership team of the CSU Extension Food Systems work team and has chaired the Colorado Food Systems Advisory Council and has collaborated with several agencies and Boards of the US Dept of Agriculture.

Becca Jablonski



Becca Jablonski is an Assistant Professor and Food Systems Extension Economist in the Department of Agricultural and Resource Economics at Colorado State University. Her research and extension efforts focus on understanding the impacts of strengthened rural-urban linkages on farmers, supply chain participants, and rural/regional economies. Dr. Jablonski holds a PhD from Cornell University.

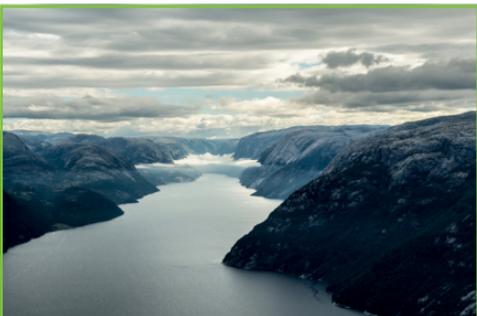
Gregory Graff



Dr. Gregory Graff is an associate professor at Colorado State University in the department of Agricultural and Resource Economics. Dr. Graff's specialty is the economics of innovation and entrepreneurship, and how industry changes in the face of new technologies. At CSU he teaches courses on U.S. agricultural policy, on the global food system, and on technological change in agricultural production. Dr. Graff holds a PhD from the University of California Berkeley.

Contributors:

Libby Christensen
Allie Gunter
Chad Christenson
Chris Goemans
Stephen Koontz
Blake Angelo
Wendy Moschetti
Anders Van Sandt



Executive Summary: The Colorado Blueprint for Food and Agriculture

Agriculture and the broader food system are major contributors to the Colorado economy. Yet, the vibrant commodities, industries, and communities that make up the state's food and agricultural system often do not communicate effectively with one another or the public. The Colorado Blueprint for Food and Agriculture emerged as an opportunity to build bridges and strengthen the food and agricultural sectors through robust data analysis and stakeholder conversations. Ultimately, this project, its process, and its resulting publications are all intended to support community and economic development.



The three parts of the Colorado Blueprint for Food and Agriculture

This project of the 2017 Colorado Blueprint for Food and Agriculture updates the 2013 Value Chain of Colorado Agriculture, expanding its reach to include a broader set of information and stakeholders. Specifically, the 2013 Value Chain of Colorado Agriculture has been expanded to include:

- 1** An update of the economic data and a deeper look at the Value Chain of Colorado Agriculture, including analyses of additional industry subsectors and a broader set of players that have various roles in the value chain of agriculture and food.
- 2** An integration of results and insights from the 2016 survey on Public Attitudes about Agriculture in Colorado led by the Colorado Department of Agriculture (CDA)
- 3** A synthesis of issues identified in a yearlong community engagement exercise of regional and industry town hall meetings, designed to catalyze discussion about how these data align with the opportunities, priorities, and concerns that are top-of-mind for Coloradoans.

Mission and objectives of the Colorado Blueprint for Food and Agriculture

The mission of this Colorado Blueprint for Food and Agriculture project was to:

- Understand opportunities and challenges resulting from changing public attitudes;
- Assess opportunities for food system policy to address challenges and needs;
- Document, assess and highlight key linkages in the industry supply chain and infrastructure;
- Develop priorities for capacity building, investment and innovation across all of the state's agriculture and food stakeholders;
- Enhance Colorado State University's knowledge of Colorado-specific research and engagement needs, to support opportunities for all research and outreach units of CSU, both on and off campus.



From the perspective of the range of stakeholders in agriculture and food within the state of Colorado a broader set of cross cutting objectives were framed and explored in the Colorado Blueprint for Food and Agriculture:

- 1** Creating, retaining, and recruiting agricultural and food firms
- 2** Developing workforce and youth to support agricultural and food sectors
- 3** Promoting the Colorado brand, ensuring it reflects the unique qualities of the agriculture and food sectors
- 4** Supporting a business- and consumer-friendly regulatory environment
- 5** Addressing how scale impacts market performance, access, and opportunities
- 6** Innovating and supporting new technology for agricultural and food businesses
- 7** Improving access to resources and capital for agriculture and food firms; and,
- 8** Integrating agriculture and food with healthy, vibrant communities.

These broad objectives build upon a core set of six cross-cutting economic development that were laid out by the state's Office of Economic Development and International Trade (OEDIT) in its bottom up economic development plan for the state known as the "Colorado Blueprint" and addressed for the key industry of food and agriculture in the 2013 Value Chain of Colorado Agriculture.

Looking at the value chain of Colorado agriculture in light of these broad economic and community development objectives reveals numerous challenges and opportunities overlapping across various industry subsectors. For example, in many parts of the value chain, the availability and quality of both wage laborers and skilled tradespeople is crucial to the workforce of the future. Colorado also has underexploited areas of excellence and global leadership in agricultural innovation, from applications of scientific research, to new models of business-to-business transactions, to value-based product development in emerging consumer markets. Further, Colorado's agriculture, food, and beverage sectors can play a pivotal role in establishing the state's image as a brand and a destination for healthy and active lifestyles.

Community engagement of the Colorado Blueprint for Food and Agriculture

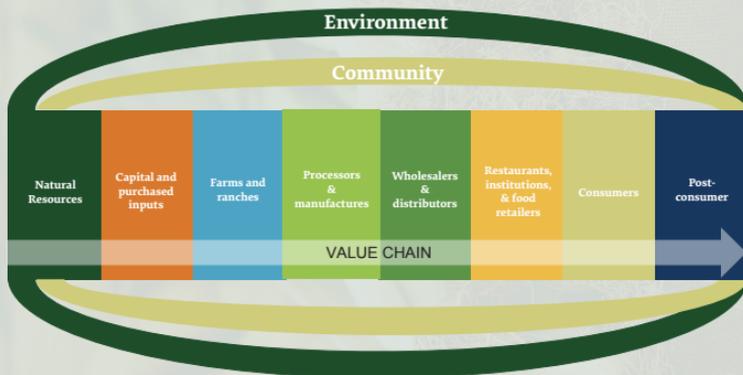
An essential component of the Colorado Blueprint for Food and Agriculture was an extensive community engagement process. In total, across the state, almost 250 people attended 13 regional town hall meetings, representing 158 organizations. In addition, four industry town hall involved over 110 attendees, representing 47 organizations. Throughout 2017, ten public presentations, each of which included 25 to 250 participants, helped to spread the word about the engagement process. As evidence of the interest in the project, 395 individuals asked to stay connected to what was happening with the Blueprint, 1,122 unique page views were recorded on the project website, with a total of 1,553 views between January and August. After the presentation of the draft report was made at the CSU Ag Innovation Summit in September, 554 more views have been recorded, with 74 community members providing feedback on the initial recommendations and priorities.

see: <http://foodsystems.colostate.edu/research/colorado-blueprint/community-engagement/>

Defining the Value Chain of Colorado Agriculture within the Context of Colorado Communities and our Shared Natural Environment

The idea of a value chain refers to the series of steps or linkages that turn raw materials and other inputs into final products or services delivered to end users. To expand on the 2013 Value Chain study, a broader set of linkages was defined for this Blueprint. The agricultural value chain is now defined as the flow of inputs, starting from the natural resources utilized by agricultural producers all the way through consumer household, and beyond, including how food waste is handled or packaging is recycled. This recognizes that agricultural producers and food enterprises are at the core of the value chain, but all are embedded within the communities and the environment of our state, acting as key stewards, employers and community leaders on a variety of public issues (see Figure).

The Agricultural Value Chain



Natural Resources and Inputs to Agricultural Production

Inputs to agricultural production include productive capital—such as labor, land, water, equipment, genetics, and financing—as well as consumable inputs such as fertilizer, pesticides, electricity, and fuel. Annual expenditures by Colorado farms and ranches in each category represent an upper branch of the value chain, businesses and workers who create value by providing inputs to agricultural production.

Colorado's 36,180 farms and ranches work 31,886,676 acres of land (USDA, Census of Agriculture, 2012), which means that 48 percent of the state's total land area of 66,624,000 acres is engaged in some kind of agricultural production. Colorado farms and ranches are large in terms of land by national standards: the average land size of Colorado farms and ranches, at 881 acres (up slightly from 852 from 2007), is more than twice the national average.

Down the Value Chain: The Outputs of Agricultural Production

Sources of revenue for Colorado farms and ranches totaled more than \$7.78 billion in 2015, with \$2.4 billion from crop sales and \$5.3 from livestock sales. The 931 largest farms, those reporting over \$1 million in annual sales each, make up just 2.5% of Colorado's farms and ranches, yet together they accounted for \$6 billion, or 75%, of total agricultural sales. The 22,551 smallest operations, reporting less than \$10,000 in annual sales each, make up 62% of Colorado's farms and ranches, together accounted for just \$80 million, or 1% percent, of total agricultural sales.

According to the Census of Agriculture, of the 36,180 farms and ranches in Colorado, 9,059 hired at least one employee and 4,738 hired contract labor in 2012. Machine hire and custom work, repair and maintenance, and veterinary services all represent services provided under contract. Those farm workers would be counted in their primary occupation elsewhere. Finally, no data were found regarding the numbers working as contract labor on Colorado farms and ranches.

According to USDA data (NETS, 2013), in Colorado there were 15,598 businesses in 21 sectors beyond the farm gate, including food manufacturing, wholesaling, retailing, and food service. Collectively, these businesses employed 250,915 in Colorado.

The Retail End of the Value Chain

Colorado consumers' retail food and beverage expenditures were \$28.9 billion in 2015, split among three broad categories: \$12.8 billion on food consumed at home, \$13.0 billion on food away from home, and \$3.1 billion on alcoholic beverages (both at home and away from home). The five largest food retailers nationwide—Walmart, Kroger (King Sooper and City Market stores), SuperValu (Albertsons and Safeway stores), Target, and Whole Foods—accounted for \$320 billion in food sales, or 60 percent of the total \$532 billion spent by U.S. households on food in 2015. We can expect that share of retail by these big five holds for the state of Colorado as well. Given that these retailers source their food products from all over the country and even the world, it is only reasonable that, in most product categories, the majority of goods sold in Colorado originate outside of Colorado.

To explore these numbers in more detail, we can consider the most recent data available on average food expenditures per household in Colorado. These data show that food expenditures, both at home and away from home, went down between 2000 and 2010, but it is important to realize that, the average household size in Colorado is going down over time. That may explain the small decline in expenditures for most categories. Expenditures on food eaten at home is declining faster than food consumed away from home, with the result being that the restaurant and food service sector is increasing in relative importance.

Colorado's green industry reported \$1.7 billion in sales 2015. Since 2011, the industry has grown by 24%, outpacing the economic growth of the state during the same time period by 8%. Nursery, garden center and farm supply stores have a contribution of \$980 million in sales, followed by landscaping services contributing \$716 million in sales, and golf courses and country clubs contributing \$525 million. Nursery, garden center, and farm supply stores and landscaping services comprise over half of all green industry sales, representing 30% and 22% of total sales, respectively.

Mapping Opportunities for Colorado Food and Agriculture Stakeholders

Based on the combined findings from the updated Value Chain of Colorado Agriculture as presented in this report, the survey of Public Attitudes about Agriculture in Colorado, and the community and industry town hall meetings summarized in this report, several key themes and opportunities have emerged. A rich set of industry, community, government, non-profit and academic partners are engaging in both

- Historically strong agricultural production activities
- Innovative and emerging markets that seek to integrate technology, consumer preferences, and strategies to ensure that quality of life continues to be enhanced by the presence of a strong natural resource base, agricultural sector, and food environment.



However, to maintain this strong position as a national leader in agriculture and food markets, policy and development, there are remaining opportunities to invest further in moving the sector forward in the future:

- 1** The Colorado ag and food economy will best thrive with targeted investments and innovative models of workforce and youth development that recognizes the strong employment and entrepreneurial opportunities that will demand high skill workers and managers.
- 2** A growing, engaged urban consumer base creates new opportunities throughout the industry's value chain for new businesses to pilot emerging market concepts while anchor agribusiness players pivot into additional segments for which Coloradans and export partners signal growing demand.
- 3** Part of the opportunity to secure new markets and provide opportunities for future entrepreneurs (including the next generation of agriculture) is to assure there is adequate infrastructure to attain the efficiency and performance to compete in competitive global and local markets.
- 4** New models and markets for agriculture and food will continue to require scientifically sound translational research and commercially competitive technology transfer to address the grand challenges of providing a healthful, bountiful, and safe supply of food to growing populations of local and global consumers, all with a limited set of natural resources.
- 5** Given the myriad opportunities presented by changing markets and given Colorado's unique position in several key sectors of the industry, it will only become more essential that there is collaboration and communication across the food system with respect for the varying needs of stakeholders, regardless of location, size, product focus, or values. No longer can the players in the agricultural and food value chain stay within their historically defined silos if we are to leverage the shared opportunities that the entire system offers.



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