

**Federal-State Marketing Improvement Program
Final Performance Report
For the Period of October 1, 2015 – September 30, 2017**

Date: *December 20, 2017*
Recipient Name: *Colorado Department of Agriculture*
Project Title: *Market Channel Assessments for Colorado Fruit and Vegetable Growers*
Grant Number: *15FSMIPCO0001*
Project Location: *Colorado*
Amount Awarded: *\$104,405*
Match Amount: *\$104,633*

Project Contact: *Shaina Knight*

An Outline of the Issue or Problem: Provide enough background information for the reader to understand the importance or context of the project. This section may draw from the background and justification contained in the approved project proposal.

Though the U.S. Department of Agriculture, Farm Credit, and several land grant Universities have long collected data to improve farm performance through benchmarking, information is almost exclusively available by commodity and not by market channel. In other words, benchmark data exist for dairy farms selling through more traditional commodity-oriented markets, but not for the more diversified producers selling through multiple market channels. Yet, there is growing evidence that farms selling through multiple markets require a different mix of inputs per unit of output than more commodity-oriented producers, rendering commodity-oriented benchmarks insufficient. Further, the number of producers participating in local and regional food markets in CO, as well as across the U.S., is proliferating. In 2007, 2,777 farms included direct sales in their marketing portfolio. The number of farmers' markets increased from 106 in 2009 to 159 in 2013. Additionally, in 2007, 214 farms reported having a Community Supported Agriculture marketing arrangement, and 679 included agritourism in their operation.

Goals and Objectives: Describe the goals and objectives of the project and how the work was accomplished.

The goal of this project was to improve the profitability of fruit and vegetable producers in Colorado by assessing and ranking the market channel performance of different, non-commodity, marketing strategies (e.g. wholesale distribution channels, farmers' markets, Community Supported Agriculture, farm-to-school).

Project objectives:

1. Extend the market channel assessment model to Colorado, conducting assessments with at least 50 fruit and vegetable growers who participate in a wide array of non-commodity oriented direct-to-consumer and intermediated market channels;
 - a. We completed 25 MCATs in 2016, and an additional 17 in 2017 (see maps below for location information).

- b. For each of the 2016 and 2017 MCAT participants, we analyzed the data provided and prepared individual, customized metrics for each participant. In addition, we conducted 30 minute one-on-one consulting sessions with each producer (minus 1 in 2016 and 2 in 2017, though they did receive their final reports) so as to have an additional chance to discuss recommendations to improve farm profitability based on market channel selection.

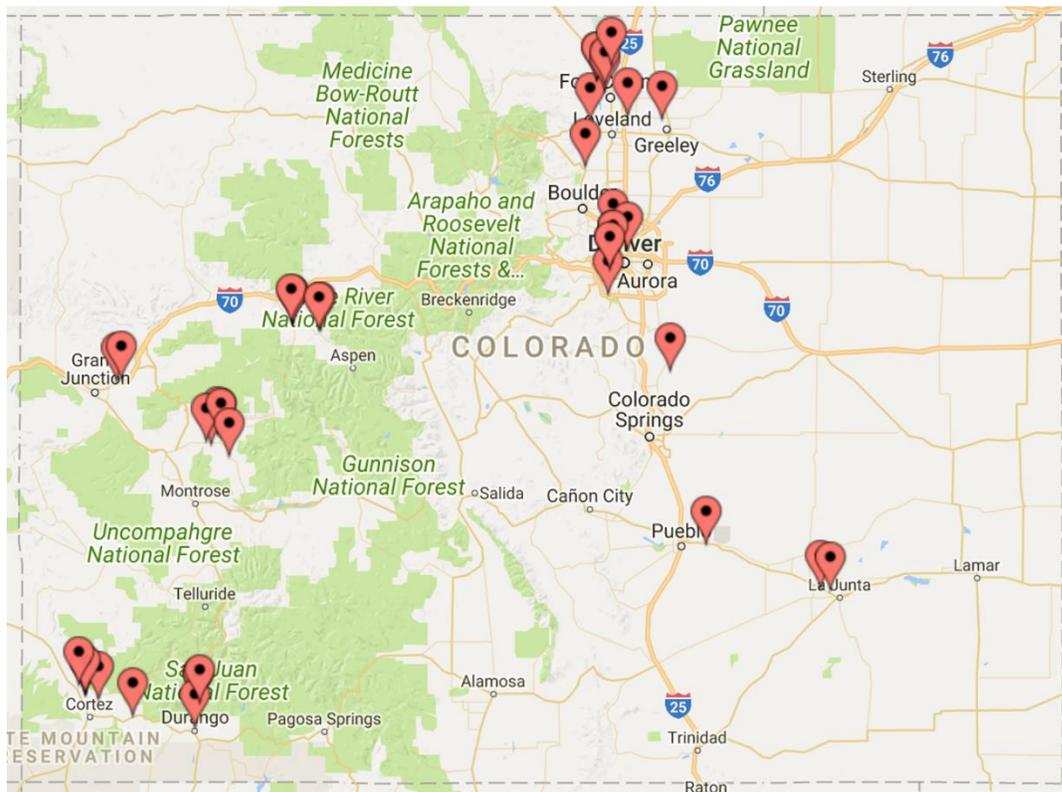


Figure 1 All MCAT Participants from 2016 and 2017

2. Create a database to analyze farm data and compute benchmark performance estimates;
 - a. We have finalized a database with benchmarks based on the 42 market channel assessments conducted in 2016 and 2017 (see attached).
 - b. All of the 2016 and 2017 benchmark information is available on the foodsystems.colostate.edu website, on the CO Fruit and Vegetable Growers Association website, and has been disseminated to many producers throughout the state through the below-listed meetings and webinars. Additionally, findings have been integrated into the Colorado Building Farmers curriculum and the MarketReady training curriculum.
3. Identify the predictors of successful markets through a survey of at least 200 fruit and vegetable growers in Colorado who sell at least a portion of their output through non-commodity markets;
 - c. Colorado State University, in conjunction with the CO Department of Agriculture, the CO Fruit and Vegetable Growers Association, the CO Farmers' Market Association, the Northern CO Food Cluster and Building Farmers in the West drafted and sent out a CO Farm Benchmark Survey intended to capture basic benchmark information from fruit and vegetable growers in CO that sell at least a portion of their output through non-commodity channels. Between December 2015 and June 1, 70 farmers responded to the survey. The last 18 responses that we received were due to efforts of Jeremy Christensen (graduate research assistant) calling fruit and vegetable growers identified via the state's MarketMaker list (see: <https://co.foodmarketmaker.com/>). Unfortunately we were not as successful in obtaining the

requisite sample size as we hoped. We would not recommend pursuing online benchmarking surveys in the future as this does not seem to be an effective method to get farm-level data.

- d. Despite the challenges with the online survey, as part of his graduate thesis Jeremy Christensen led an analysis of predictors of best practice. Overall, his findings included:
 - i. Top performing farms use more of their total labor on harvest and less on marketing labor.
 - ii. Diversity of markets improved profitability while diversity of products reduced profitability.
 - iii. Tradeoffs exist between lifestyle compatibility and business profitability.
4. Disseminate these research results and managerial recommendations to fruit and vegetable growers in Colorado, through Extension and practitioner networks, agricultural lenders, and to the broader academic community of researchers;
 - e. We have made substantial efforts to disseminate results. A complete list of the substantial number of statewide and national presentations is provided below. In addition, the Colorado State University webpage that includes the benchmarks has received 429 pageviews as of October 31, 2017.
5. Create a white paper based on the research findings to share with the National Farm Credit Council, independent bank professionals in the Western region, and Extension technical assistance providers.
 - f. Though this objective is still ongoing, we have made substantial progress. First, we are hosting a webinar in conjunction with the Farm Credit Council on January 24th, 2018. We have completed a draft of the white paper and plan to make final edits before that date. Second, we presented preliminary results at the joint USDA Agricultural Marketing Service and George Washington University Local Food Metrics conference (April 2017). At the meeting we presented the benchmarks to a national audience and discussed the framing of a white paper to maximize utility across the U.S. We are also planning meeting on Feb 14, 15, and 16 with a number of USDA agencies, food system nonprofits, policymakers, and the Farm Credit Council. Lastly, we are working to integrate results online through our national community of practice on the economics of local food systems: <https://localfoodeconomics.com/benchmarks/> This site is part of eXtension's Community Local and Regional Food System Community of Practice. Thilmany and Jablonski co-lead a sub group of this eCoP on the economics of local food systems.

Contribution of Project Partners: Identify the project partners and briefly describe their contributions to the project.

Colorado Fruit and Vegetable Growers Association: Supported advertisement of the opportunity to participate in the MCAT and MarketReady training through membership's weekly newsletter. Created a web page to host information on statewide benchmarks (member's only content), and supported dissemination of the benchmarks through incorporating presentations at their annual meetings, CO Produce Day at the Farm Show in Greeley, and 'lunch-n-learn' webinars.

The Colorado Farmers' Market Association: Worked to advertise the opportunity to participate in the MCATs through their farmers' market manager members. Additionally, supported dissemination of the results at their annual market manager meeting.

The Northern Colorado Food Cluster: Worked to recruit member farmers. Participated in MarketReady training and is interested in using the curriculum moving forward to support its members.

Valley Food Partnership: Supported advertisement of the opportunity to participate in the MCAT through their membership, and supported dissemination of the benchmarks by incorporating presentations at their annual meetings (January 2015 and January 2016).

Colorado Building Farmers: Helped to solicit farmers who participated in either their introductory or advanced course to participate in market channel assessments. In fact, several of the MCAT participants came from this relationship. In addition, they helped to advertise the MarketReady training to their participants, and supported integration of the benchmark results into their curriculum.

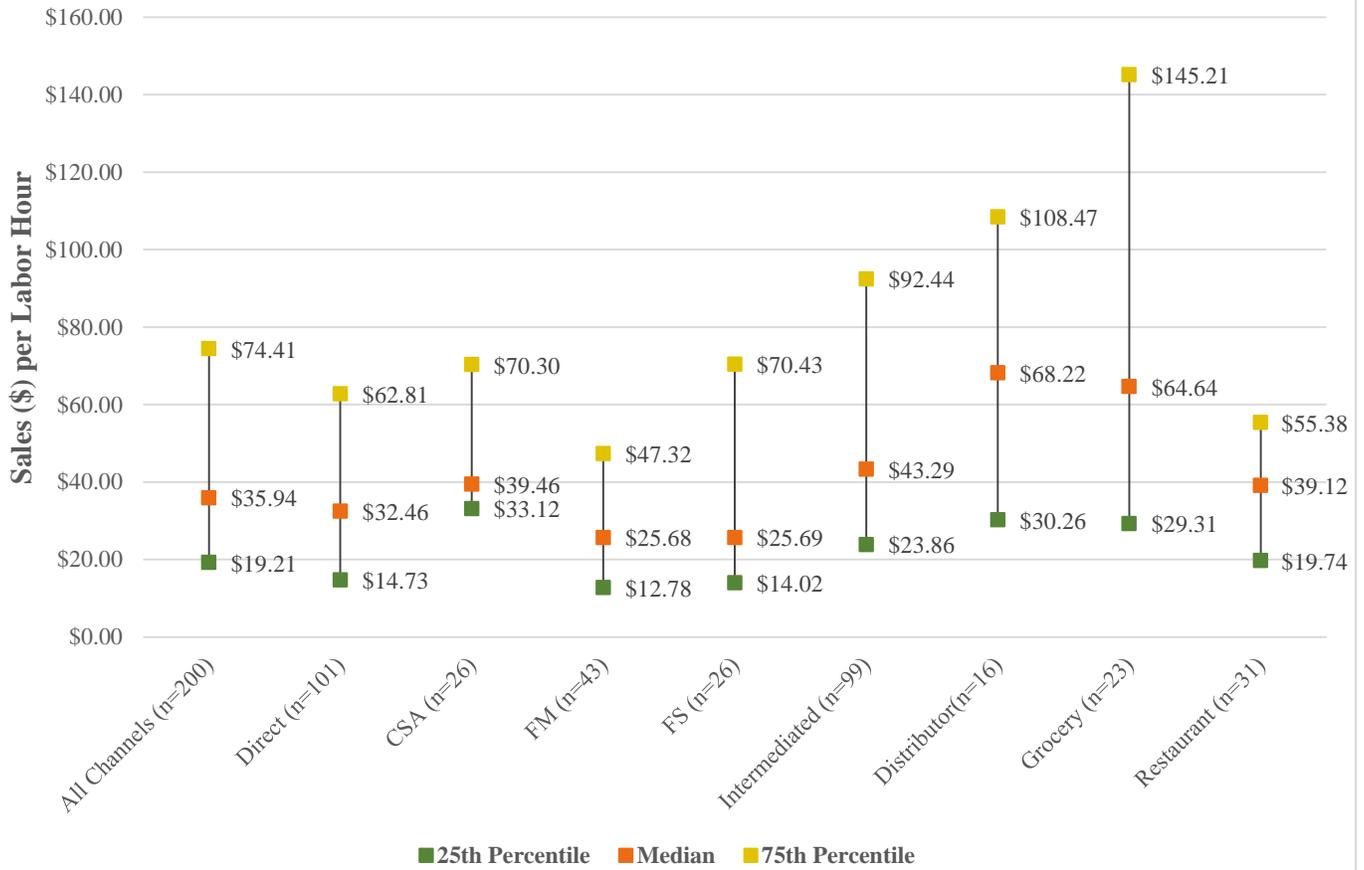
Colorado Department of Agriculture: Promoted the MCAT opportunity to their network of farmers. Also, supported the Market Ready training by providing advertising, recruiting and organizing buyer participation and assisted in finding speakers for the round table discussions. Support was also provided with registration service and support with catering.

Results, Conclusions, and Lessons Learned: Summarize the project results and conclusions. Lessons learned during the project may have influenced the direction/decisions, helped to improve the process, and/or optimized the results. Sharing these experiences may be helpful to other states seeking to learn from your experience. If applicable, some questions to consider when discussing lessons learned include:

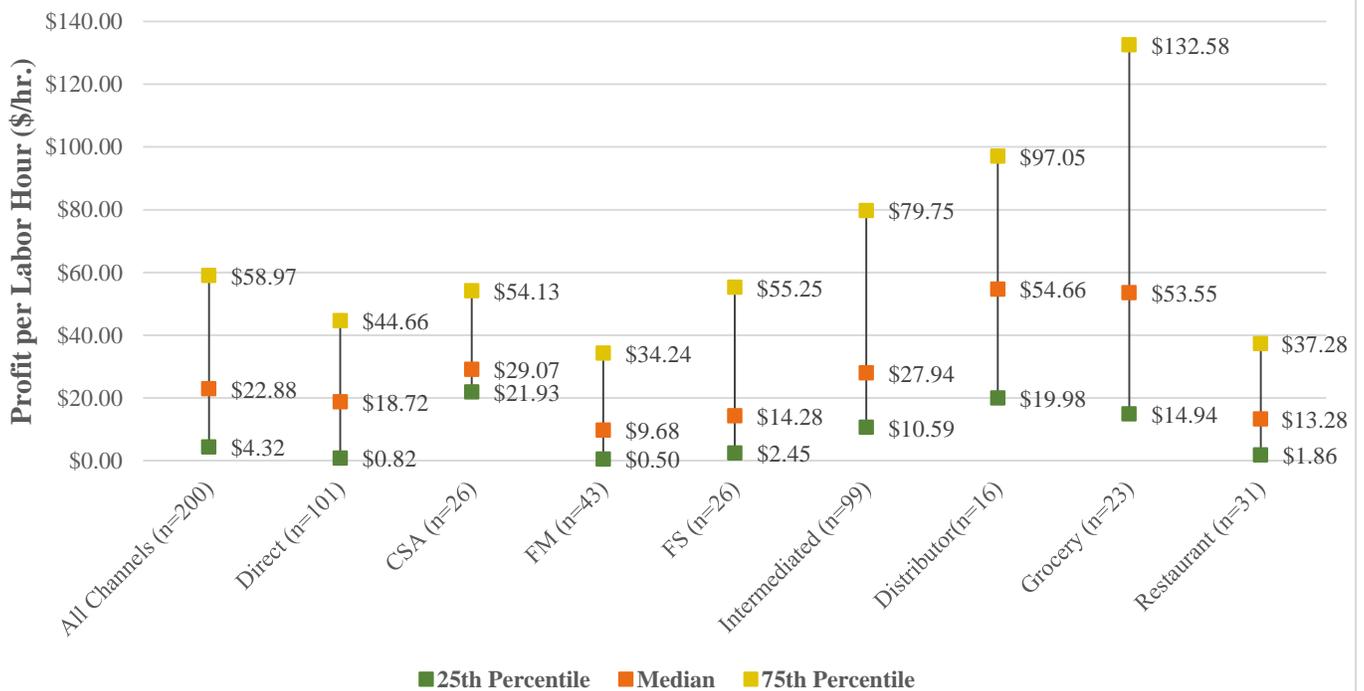
- What unanticipated challenges were encountered?
- What unexpected positive results occurred?
- “If I had it to do over, I would have...”
- What advice do you have for others taking on a similar project work?

Results: Based on the data collected from the 2016 and 2017 market channel assessments, the most interesting and profound result is how much better, on average, intermediated channels perform compared to direct channels. Across all metrics (sales per labor hour, marketing profit per labor hour, and marketing profit margin) intermediated markets perform better than direct channels, except for sales to restaurants which are considered intermediated channels (see below).

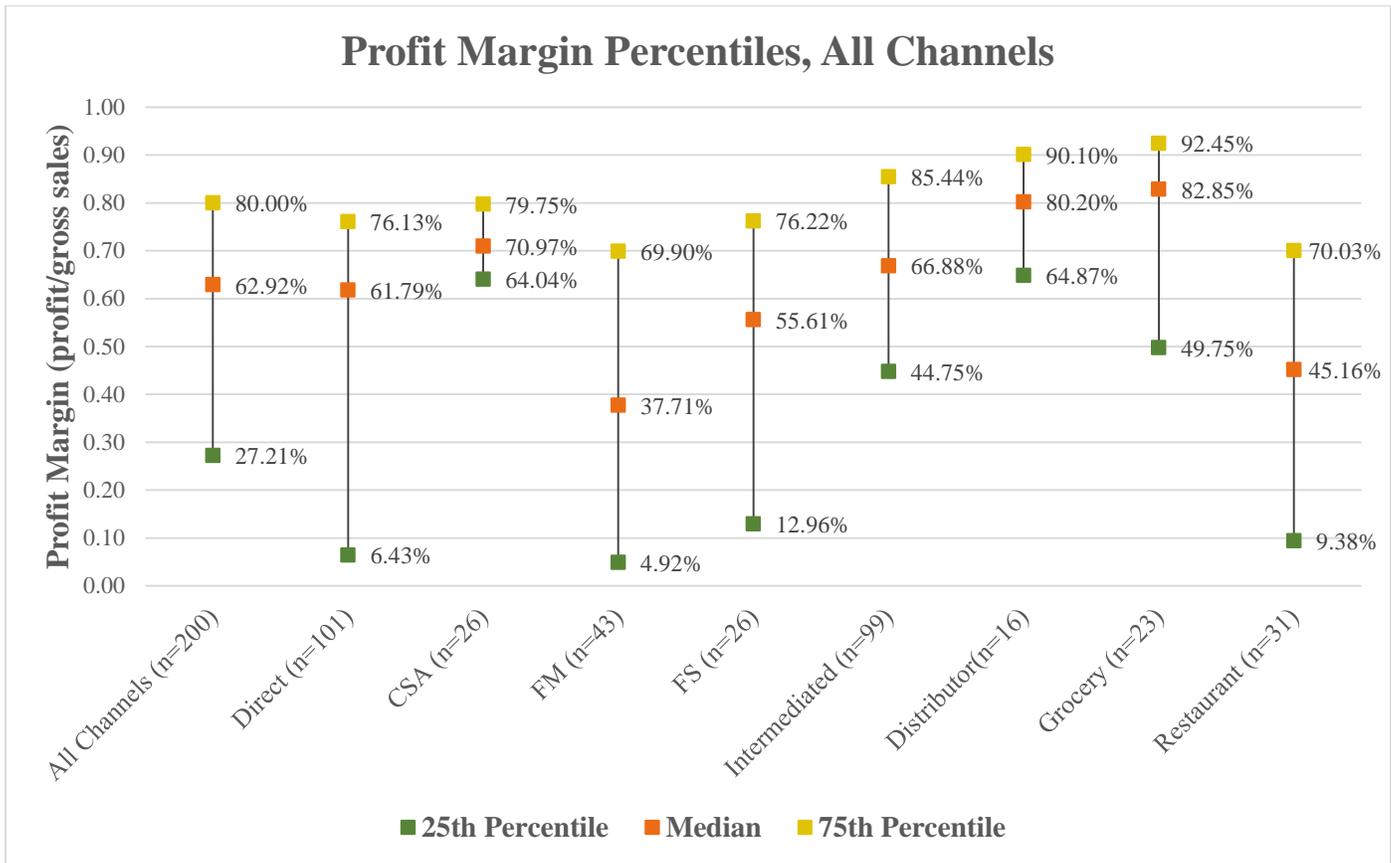
Sales per Labor Hour Percentiles, All Channels



Profit per Labor Hour Percentiles, All Channels



Profit Margin Percentiles, All Channels



Digging deeper into direct channels, CSAs were both the top performing direct channel, and had little variability in performance across farms. This means that those operating CSAs, tend to have similar levels of performance and there are not as many ways to gain efficiency or improve this channel relative to other channels. Farmers markets, on the other hand, had tremendous variability across producers. Top performing producers found innovative ways to maximize labor hours associated with farmers market sales, for example adding a CSA pick up site at the farmers market or making a restaurant delivery on the same trip. The bottom line is that these alternative markets have tremendous heterogeneity in performance, but there are top performing producers across all channels.

Having the 2016 benchmark data in place allowed us to host a Market Ready training in February 2017. The first part of this 2-day event was for trainers only and Tim Woods from the University of Kentucky taught eight trainees on how to deliver the Market Ready curriculum. The immediate result of this train-the-trainer session was that Rocky Mountain Farmers Union staff who participated in the TOT used the materials to conduct 4 additional training workshops with food hub managers around the state. The second day of training focused on directly teaching producers the skills needed to be successful in retail and wholesale market development. The benchmarks provided critical information about the value of analyzing marketing profitability and considering growth to enter retail and wholesale markets, beyond the direct to consumer markets with which producers usually begin. Thirty-six produce and livestock growers attended the one-day training at which they learned about the MCATs and benchmarking information, listened to a panel discussion with buyers interested in local purchasing, and attended roundtable discussions on egg grading; meat production, processing and marketing; produce quality and marketing; and business financing.

Lessons learned:

1. The online benchmarking survey was not an effective method to reach producers. Despite significant social capital with producers in the state, as well as substantial support and collaboration from key industry associations, Extension, and others with close connections to specialty crop producers, we found the online survey an ineffective means to glean information for this project.
2. Given that the market channel assessments must be conducted in the summer, it was very difficult to recruit farmers to participate. Given interest from other states in replicating this study, Jeremy Christensen (graduate research assistant) led the writing of a publication on best practices for recruiting producers. He found that having strong relationships with growers, as well as respected partners (such as CSU Extension and the CO Fruit and Vegetable Growers) was key in recruiting participants. Additionally, we used ‘nontraditional’ partners to support recruitment, including food hubs like SW Farm Fresh. We found that it benefitted SW Farm Fresh to be able to demonstrate to their members the profitability impacts of sales through this intermediated channel compared to some of their direct channels (where often farmers perceived they were getting higher prices, but not calculating the costs of serving that channel).
3. Substantial opportunity exists to improve record keeping by market channel, especially for small, mid-scale and beginning farmers. Our team is actively considering how to facilitate additional market channel assessments (indeed at national presentations many other states expressed interest in continuing this work) without the level of the producer burden involved in the current methodological approach. Part of this consideration includes putting the market channel assessment tool online, in a format in which producers can enter information via their smart phone. We have had some preliminary conversations with web developers to this end, as well as with Matt LeRoux, and will continue to contemplate how to move ahead with this approach.
4. As evidenced from the quotes in the evaluation section of this report, producers who did participate found the results very useful, and report making changes to their market channel selection based on the results. In fact, we had a number of producers who participated both years of the project, and we look forward to having numbers demonstrating improved profitability outcomes. For the CSU research team that led the consulting sessions, the interest and appreciation of the producers was incredibly rewarding. In the coming months, we plan to do a feature article noting market changes on one farm based on the 2016 MCAT results, and the improved marketing profit outcomes that were a result.
5. Having a hands-on, facilitated training after the first benchmarks were developed provided an important way of disseminating the benchmarks, as well as a means of teaching producers the value of building in an ongoing assessment of market channel profitability from the beginning of their business. We were able to intercept some producers who were just launching their farm businesses and the materials in the Market Ready training addressed essential core business functions that they need to develop: 1) communications, packaging, labeling, pricing; 2) logistics (supply, delivery, storage), business-to-business (invoicing, insurance); and 3) quality assurance, working cooperatively, marketing, farm to school. As the evaluation results do indicate, however, although critical information, this was like too much for one training and may have been better conveyed on a day and a half, as opposed to one day.

Evaluation: Include a discussion of how the project was evaluated and whether or not it met project objectives. To the extent possible, include measurable results. If applicable, include at least one quantifiable metric that reflects the change in status of the project from initiation to completion.

Evaluation results from the February 16 MarketReady training showed that producers gained a lot of information, networking and business contacts, and that it complemented our Colorado Building Farmers materials very well.

Evaluation results (1- not very useful, 9 – very useful)

Overall material in the MR restaurant training will be	7.06
Overall material in the MR grocery/wholesale/foodservice will be	7.53
The Colorado resources will be	7.94
The buyer forum was	7.38
The roundtables were	7.13
Overall, this workshop was	7.79
Time allotted	5.81

Things I liked most

- Actual one-to-one contact with other producers
- various viewpoints that were presented
- buyers' panel input
- Learned good marketing info
- Good follow-up to Beginning Farmers program
- Round table
- Kept it moving, varied stimuli, good variety
- Information
- This was what I needed to know. I got a lot of good ideas about avenues to pursue. I liked the suggestions about best marketing practices.
- buyer forum
- Connections

Selected producer quotes from the 2016 and 2017 MCAT consulting sessions:

- “This report gives me concrete information on the hours I’m spending, and will be really helpful for developing my business plan.”
- “We know restaurants are not a productive avenue for us, and this report accurately reflected this.”
- “It is good to see that benchmark to help us set a goal to be above that 50th percentile.”
- “This report really got me thinking about why I am selling in certain areas.”
- “What I noticed with the farmers’ market is that it takes a lot more out of me. It makes the day after pretty rough. It is tiring, but it is also rewarding.”
- “The information you’ve given me is helpful to try and sort out differently. It gives me an idea of where I can put more effort and tweak things.”
- “It is pretty enlightening and very interesting. It wasn’t what I expected, and we learned something here.”
- “This will help me think of it [the market] differently or better.”
- “The work you’re doing really validates what we are doing as farmers.”
- “Thank you so much, this is really valuable! It is nice to understand what our costs are if we pay all workers for their time.”
- “For us, this is a pretty great snapshot.”
- “This is really helpful and very nice to look at.”
- “I would love to this again the next summer.”
- “It makes me feel better. Sometimes you think you are just spinning your wheels.”
- “This will help a lot.”
- “This study gives me good information to make the argument for why I need to make changes.”
- “Now I have this to refer to, I can adjust my business plan with realistic numbers.”
- “This is super valuable and I feel really good about being able to present this to my next partner, we’re forming a coop.”
- “After the MCAT last year, we negotiated with XX Bakery to pick up directly from the farm. This has increased the profitability of this channel substantially.”
- “With this kind of information I know we can make good decisions.”
- One farm indicated that the conversation from last year’s consulting session caused them to reevaluate their participation in the farmers market and decide to maximize returns through their CSA and not sell at the farmers market at all for 2018, due to the latter’s lower profitability.

Current or Future Benefits/Recommendations for Future Research: Describe the current and/or future benefits resulting from this project. If applicable, outline next steps or recommend new research ideas that might advance the project goals.

This project resulted in many direct benefits:

- The adaptation of the MarketReady curriculum for Colorado, including integrating benchmarks from the project.
- Additional and highly relevant information integrated into the Colorado Building Farmers curriculum. This is the first time that data have been available to provide critical analysis of marketing profit by market channel, including accounting for paid and unpaid labor.
- Data to support improved farm decision making around market channel selection.
- Increased collaboration between key groups supports diversified specialty crop producers (CFVGA, CSU Extension, CSU, CDA, CFMA, etc.).

As mentioned above, as a next step our team is thinking about building an online tool to facilitate data

compilation by producers. Colorado State University (with Thilmany as lead PI) submitted a grant application to the USDA AFRI to support additional benchmarking work (using the USDA Agricultural Resource Management Survey and USDA NASS Local Foods Survey data), as well as integrating a train-the-trainer model to facilitate market channel assessments more broadly. In this way, we hope to integrate the best available secondary data, with primary data collection, in the hope of improving profitability outcomes for specialty crop producers – particularly those that are small, mid-scale, and beginning.

Project Beneficiaries: Describe the groups that have benefitted from the project including the number, type and scale of producers, processors, businesses, consumer groups, etc.

Descriptive statistics for the farms that participated in the 2016 and 2017 MCATs are provided below. All information is also available via the foodsystems.colostate.edu website. 24 of the 25 MCAT in 2016 and 15 of the 17 MCAT participants from 2017 received 30-minute consulting sessions following completion of their MCAT, as well as a customized report. We cannot share the customized reports due to producer privacy, however, a generic version of the report is attached here. Below we also provide some quotes from producers compiled as part of the MCAT consulting sessions. In general, the consulting sessions were the researchers' favorite part of the project given the overwhelmingly positive response from farmers. Getting to here the changes that producers intend to make based on the market channel assessment results, as well as 'aha' moments was incredibly rewarding.

The CSU website hosting the benchmarks has received over 400 page views, and we have integrated the 2016 benchmarks into the MarketReady training as well as the Building Farmers course that is taught throughout Colorado. It is more difficult to track changes from producers who viewed or used the benchmarks through these channels, though we know the impact is broader than just those who directly participated in the study. Additionally, we do not have data on the utilization of the benchmarks by the CO Fruit and Vegetable Growers Association membership. Given that they are a relatively new organization, we anticipate the utilization of the benchmarks by this constituent will grow in years to come.

We have created a draft white paper (see attached) and plan to have copies of it available for producers at many upcoming industry conferences (Western Horticultural Society, CO Produce Day at the Farm Show, Food and Farm Forum, CO Farmers Market Association Annual Meeting, etc.). Additionally, we will disseminate results through an upcoming lunch and learn webinar with CO Fruit and Vegetable Association membership. As we embark upon the conference season and many opportunities for direct producer interaction, we anticipate the number of project beneficiaries to increase. Additionally, there is already national interest in replicating this study in other states – as evidenced by the reaction at the Food Distribution Research Society, Western Agricultural Economics Association, and Local Food Metrics conferences. We have scheduled a national webinar for January 25th in conjunction with overlapping research projects and the USDA AMS and anticipate at least 200 people nationally participating, generating additional consideration about next steps in supporting benchmarking and market channel selection for diversified specialty crop producers.

Summary Statistics (12/19/17)

Farm Attributes

N=41	Acres
Max	1,500
Average	90.2
Min	0.1

N=41	Weekly Income
Median	\$1,742
Average	\$19,546.46

Market Channels Used

Market	Direct	FM	CSA	FS	Interm	Dist.	Res.	Groc.
% Total	92	66	56	59	85	34	51	22

Summary Statistics by Location (12/19/17)

Front Range Farms

N=16	Acres	N=10	Weekly Income
Max	13.00	Average	\$2,992.88
Average	2.84	Median	\$1,810.46
Min	0.10		

Western Slope/Central Rockies Farms

N=12	Acres	N=10	Weekly Income
Max	15.00	Average	\$4,004.66
Average	3.40	Median	\$2,515.38
Min	0.75		

Southern Farms

N=13	Acres	N=13	Weekly Income
Max	1,500.00	Average	\$54,266.38
Average	277.42	Median	\$633.25
Min	0.25		

Summary Statistics by Location (12/19/17)

Front Range Farms

Market	<u>Direct</u>	FM	CSA	FS	<u>Interm</u>	Dist.	Res.	Groc.
% Total	100	75	69	69	75	6	63	25

Western Slope/Central Rockies Farms

Market	<u>Direct</u>	FM	CSA	FS	<u>Interm</u>	Dist.	Res.	Groc.
% Total	92	67	50	33	83	50	50	8

Southern Farms

Market	<u>Direct</u>	FM	CSA	FS	<u>Interm</u>	Dist.	Res.	Groc.
% Total	85	54	46	69	100	54	38	31

In summary, the goal of improving profitability of fruit and vegetable producers in Colorado by assessing and ranking the market channel performance of different, non-commodity, marketing strategies was met. Producers reported changes to their operation based on the results of the market channel assessments that they believe will improve the profitability of their operations long-term. We intend to continue to follow up with these producers to track progress, beyond the life of this grant.

Additional Information: Include publications, presentations, websites and other materials or information generated by the project. Provide as attachments or Internet links.

All benchmarks are housed here: <http://foodsystems.colostate.edu/research/market-channel-assessments/state-benchmarks/> as well as on the CO Fruit and Vegetable Growers Association website: <https://coloradoproduce.org/> (though must be a member to see benchmarks there).

Awards and Publications

Christensen, J., D. Thilmany, B.B.R. Jablonski, M. Sullins, and E. Naasz. 2017. Assessing Market Channel Performance for Colorado Fruit and Vegetable Producers. *Journal of Food Distribution Research* 48(1).

Christensen, J. 2017. Assessing the market channel performance of Colorado fruit and vegetable producers. Colorado State University. Master's Thesis.

In addition, Ellie Naasz (Graduate Research Assistant) won the Agricultural and Applied Economics Association Graduate Student Extension Competition using the results and methodological approach of this project.

Presentations

October 2015 to March 2016.

- Front Range Beginning Farmers Conference (Denver, CO)

- Colorado Produce Day (Greeley, CO)
- Colorado Building Farmers Program (El Paso County, CO)
- Colorado Building Farmers Program (Denver, CO)
- Colorado Farm to School, meetings (Montrose, Brighton, and Pueblo, CO)
- Local Food Systems in the South, Southern Agriculture Education Association (Santa Cruz, CO)
- Connecting Crops to Cuisine, workshop (Loveland, CO)
- Colorado Farmers Market Association, annual meeting (Denver, CO)
- Eagle County Building Farmers Program (Eagle County, CO)
- Colorado Food Systems Advisory Council, meeting (Broomfield, CO)

April to October 2016.

- American AgCredit Emerging Market Regional Loan Officers (Greeley, CO).
- Colorado Fruit and Vegetable Growers Lunch and Learn Webinar (Webinar).
- CO Agricultural Lenders Tour (Delta, Craig, Akron, Rocky Ford, and Alamosa, CO)
- The Nature Conservancy, Specialty Crops for Arid Climates (Webinar)
- CSU Extension Peaks and Plains Region Annual Meeting (Pueblo, CO)
- Rocky Mountain Farmers Union Member Event (Byers, CO)
- CSU Extension Western Region Annual Meeting (Rocky Ford, CO)
- Food Distribution Research Society Annual Meeting (New Orleans, LA)

November 2016 to March 2017

- Rocky Mountain Farmers Union Annual Meeting (Loveland, CO)
- CO Association of Conservation Districts (Loveland, CO)
- CO Farm Show (Greeley, CO)
- Building Farmers Program (Colorado Springs, CO)
- MarketReady Training (Brighton, CO)
- Food and Farm Forum (Montrose, CO)
- CO Fruit and Vegetable Growers Association (Webinar)
- Farm to Table Conference (Gunnison, CO)

April to October 2017

- Local Food Impact Conference (Washington, D.C.)
- eXtension Community Local and Regional Food System eCoP (Webinar)
- Western Agricultural Economics Association Conference and Western Extension Committee Conference (Incline Village, NV)
- Agricultural and Applied Economics Association Meeting (Chicago, IL)
- Food Distribution Research Society Meetings (Honolulu, HI).
- Students of Agronomy, Soil, and Environmental Sciences national convention (Tampa, FL)