

IN THE FIELD

Sustaining local agriculture: Barriers and opportunities to direct marketing between farms and restaurants in Colorado

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Abstract. Research explored methods for “shortening the food links” or developing the “local foodshed” by connecting farmers with food service buyers (for restaurants and institutions) in Colorado. Telephone interviews were used to investigate marketing and purchasing practices. Findings include that price is not a significant factor in purchasing decisions; that food buyers prioritize quality as their top purchasing criterion but are not aware that local farmers can provide higher quality, that institutions are interested in buying locally; that small farms can offer comparable or higher quality produce and service; and that farmers need to show buyers what the quality of produce and service they can provide.

Key words: Direct marketing, Foodshed, Localization, Local economies, Shortening food links, Small farms, Sustainable agriculture, Sustainable development

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Introduction

A sustainable system is one that in its lifetime generates the energy required for its construction,¹ resulting in net zero impact on the ecology in which it is embedded. While very few modern systems even approach this state, sustainable development can be understood as a vector, in which projects move *toward* sustainability. In addition to the environmental aspects of sustainability, allies of sustainable development have pushed to expand the definition of sustainability to include social concerns such as working conditions, trade equity, labor policy, and quality of community life (Naess, 1972; Dag Hammarskjöld, 1975²; Trainer, 1989). Agriculture has been a focus of sustainable development work because it is a location of vital and intimate relations between culture, science, and nature. Recently, advocates of sustainable agricultural ecosystems have emphasized aspects of sustainability that go beyond production to embrace the economic systems in which sustainable agriculture must operate.

A number of movements and ideas have converged around the idea that a "local" food system can address the interrelated concerns with environmental sustainability, agricultural sustainability, food quality and safety, and economic health. This study examines one of the less-developed areas of the local food system, connections between farmers and food-serving organizations, such as restaurants and institutions. We examine barriers and opportunities to building these connections.

Overview of the local food movement

A brief chronological review of local food movements will help us understand the different conceptions and resources that are available.

The practice of "fair trade" emerged in the 1960s as a form of solidarity trade aimed at increasing returns to and improving the working conditions of third world artisans and primary producers. More recently, fair trade proponents have broadened their focus from social justice to include issues of sustainable agriculture. In 1997, fair trade activists working with Equal Exchange founded a program called Red Tomato to address the fact that US farmers face similar economic and social problems as third world peasant farmers.

Also developed in the late 1960s was Community Supported Agriculture (CSA), which originated in Japan under the name "farming with a face on it." This new economic institution provided secure income to farmers while educationally linking urban families to the changing fate of the farm, seasonal food cycles, and even farm production experiences. Families purchase a share of the harvest once a year and receive a weekly basket of whatever is ripe, sharing with the farmer both the bounties and losses of the harvest (Groh and McFadden, 1990; Imhoff, 1996). The idea spread to Europe and then to the US in the 1980s. Twenty years later, there are over 1000 CSAs in the US.

Nouvelle cuisine, developed by Chef Paul Bocuse and others during the 1970s (officially founded 1976), brought chefs' attention back to ingredients whose flavor was allowed to stand on its own through simplification and reductions. Starting in 1972, Chefs Jeremiah Tower and Alice Waters at Chez Panisse in California began a novel practice of using the freshest vegetables they could find. This twist on Nouvelle Cuisine eventually came to be known as "California Cuisine." Chefs' new passion brought them to farms and farmers markets and caused them to re-write their menus weekly or daily in order to ensure they were only serving the freshest, seasonal ingredients. Seasonality became a definition of quality. According to Tower, before the late 1970s farmers market comeback in California, the only place to buy really fresh vegetables was Chinatown. Soon he was contacting farmers asking them to grow seeds he brought from Europe and to raise livestock to his specifications (Elder, 2001).

Meanwhile in Europe, the Slow Food movement, founded 1986, started to defend "the right to taste."³ At first, Slow Food facilitated food education with school-children to "improve knowledge about production processes and establish direct contacts with farmers and artisans." Then it began to "defend food heritage" by acting on behalf of disappearing varieties and artisanal products. "At first sight, such products may appear to be no more than the results of micro-economies, but in actual fact they represent a safety net for the entire European agricultural sector."⁴ Slow Food has spread to the US, publishes an international magazine, and hosts an annual exhibition to celebrate and protect traditional and small-scale producers (<http://www.slowfood.com>).

The US organization Chefs Collaborative (founded 1993) initially focused on quality of food, but before long shifted focus to “sustainable cuisine,” which not only “celebrates the pleasures and aesthetics of food” but also “recogniz[es] the impact of food choices on our health, environment, and the preservation of cultural diversity.” In 1998, a US Chefs Collaborative “Woodstock” introduced chefs from across the nation to heirloom varieties, taught them about the dangers of pesticides, and encouraged them to meet farmers, support urban gardens, and work with schools on nutritional issues. The *New York Times* quoted a chef saying “I will never again look at a glass of wine or a plate of food and not wonder how it was grown” (Hamlin, 1994). By 2000, fresh products produced in small scale had become so important to fine cuisine that top chefs in New York and even Denver were having not only artisanal cheeses but also *produce* shipped in by Federal Express from their favorite farms – an extravagance that would not be endorsed by Chefs Collaborative.

As organic agriculture has gained market share for health and ecologically-conscious consumers, it has become a corporate agro-industrial product (Imhoff, 1998). Its corporatization has caused organic to diverge from principles of sustainability in multiple ways. The definition of “organic” as free of petroleum-based chemicals does not necessarily lead to a sustainable reliance on near-farm inputs but can mean import of a different set of chemicals approved for fertilizer, pest, and weed control within the “organic” certification framework. “Organic” standards offer no particular resistance to mechanization, so production-related fossil-fuel pollution may not be reduced at all. Finally, organic agricultural products have been integrated into the global marketplace as any other product, resulting in rates of processing and transport undifferentiated from conventional luxury food products (Pollan, 2001; Rowell, 2001). For these reasons, some activists have insisted that agricultural sustainability should not be defined according to production method, but primarily according to locality and secondarily according to farm size.

In the US, cuisine trends, ecological concerns, and the farm crisis met at the farmers’ market, inspiring a dramatic renaissance (Lyson et al., 1995). In 1977, the California Department of Food and Agriculture implemented a Certified Farmers Market Program. Since then, the number of farmers markets in the state has grown to over 350,⁵ and then spread across the country. There are now 3100 farmers markets in the US, a 79% increase since 1994.⁶ Farmers markets and other direct economic institutions have received increasing attention as part of community economic development.⁷

New axes of analysis and experimental models in the field of sustainable development address the expanded matrix of sustainability in complex ways. Activists and scholars are concerned with building economic institutions that can support sustainable agriculture. In 1991, Arthur Getz reconfigured the analytic framework of “watershed” around the local food system’s “carrying capacity” in order to trace a “foodshed” (Hedden, 1929; also see Kloppenburg et al., 1996). Consumers can become aware of where they and their communities fit into the foodshed as a basis of economic and political analysis and decision-making about the food system. Foodsheds embed the system in a moral economy attached to a particular community and place, just as watersheds reattach water systems to a natural ecology. Farmers markets and CSAs mobilize consumers into a community economy with values, but these are usually focused on middle-class and upper-income households’ consumption of fresh produce. The combination of a class analysis with systems analysis of local economies has led to policy suggestions, such as “community food security,” “food policy councils,” “food circles,” and “shortening local food links.”

The Community Food Security Coalition (US) grew out of a 1995 white paper by Andy Fisher and Robert Gottlieb that requested federal funding as part of the 1996 Federal Farm Bill. The funding would provide seed grants for programs designed to increase nutrition and secure food access in low-income communities by building new market-based economic institutions rather than relying on charity. These have included CSAs redesigned for low income communities that cannot invest up front in the harvest; farmers markets for low-income neighborhoods; urban gardens, community kitchens; incubators for processed food micro-enterprises; baby food making and other cooking classes; and shuttle services to facilitate access to higher quality and lower priced grocery stores outside the neighborhood.⁸ Community Food Security analysis itself has been institutionalized in the form of Food Policy Councils, local bodies that analyze and design interventions into the foodshed in pursuit of community food security principles (Dahlberg, 1994; Dahlberg et al., 1997; Clancy, 1994). Within the Community Food Security framework, several projects have aimed to reconnect food-serving institutions like schools with local small farms. There has been some success in these efforts.

Simultaneous with the development of interest in ecological agriculture and how to support it, concerns about the economic status of small farms were heightened. Throughout the 1940s and 1950s, US farmers’ share of retail food expenditures was 40% or higher. In 1952, it was 47%. In 1980, it had fallen to

37%, in 1987 to 30%, and in 1997 to 21%. In 1967, fruit farmers earned 31% of retail expenditures. In 1997, they earned only 18%. The fall for fresh vegetables is from 32% to 21%. These changes are accounted for by the increasing share of food expenditures spent on processing, marketing, and corporate profits, and most importantly by the concentration of power in food retailing, which enables corporate buyers to drive down farm prices. While "produce is the most profitable and fastest growing department of the typical grocery store," providing 20% of grocery stores' net profit, the wholesale to retail margin for fresh produce is 44%, compared with 30% for farm products overall (Elitzak, 1997). Yet small farms play a crucial role in the overall farm economy and in rural communities. The Institute for Food and Development Policy (Food First) analyzed data cross-nationally and discovered that despite the wide variation in average farm size from country to country, it is each nation's smallest farms that are most productive (Rosset, 1999).⁹ The U.S. Department of Agriculture created a Small Farm Commission in 1998 and issued the report "A Time to Act," which argued, affirming Strange, that small-scale farming is crucial to the economic and social health of rural communities.

As issues of sustainability, food culture, and community-based economics have converged, the possibility of local food systems has become interesting to diverse actors. Urban economic policy experiments have included attempts to "shorten the food links" by bringing farmers and consumers closer together to begin redeveloping the local economy (Norberg-Hodge, 1991, 2002; Campbell, 1997). Other urban programs, such as the Rainbow Plan in Nagai, Japan, have worked with other parts of the food system, such as recycling food wastes onto local farms (Ichiyo, 1993). "Food circles" came out of the US Green Party movement and aim to develop decentralized and sustainable food systems by linking up consumers, farmers, retailers, environmentalists, and so forth (see Hendrickson, 1997).

The USDA's "farm to school" program supports efforts to connect farmers directly with public schools. The 1998 Agriculture Appropriations Bill from the House of Representatives also mandated that federal Food and Nutrition Service "acquire commodities from local farmers markets and cooperatives to maximum extent possible." School programs are usually driven by nutritional concerns (therefore often parent-driven, trying to improve fresh food in schools in affordable ways), and novel education programs (school gardening programs, composting programs). Several universities have built relationships with local and/or sustainable farmers/producers for use in food service.

A number of studies have explored the possibilities for helping food-serving institutions and restaurants to link up with farmers. A 1998 study of "white tablecloth" restaurants in Florida cities found a 22% of them already buying produce directly from farmers and significant proportions willing both to try it and to pay a small premium for organic produce (Zimet and LaColla, 1999).

According to the early studies of purchasing by institutions such as schools, hospitals, nursing homes, and jails, institutions share many of the same barriers and opportunities faced by restaurants with direct purchasing, while others are distinct. The barriers shared are increased logistical burden on the food buyer (more phone calls, accounts, and deliveries to arrange); the ability of farmer to deliver regularly; unpredictability or inconsistency of product availability (including seasonality); cost; lack of knowledge of how to find local suppliers; and unavailability of pre-processing (increasing labor costs). Additional barriers for large institutions (such as schools and colleges included in several of the studies) are vendor bid systems and contracts that lock out local producers; requirements to take food from government commodity programs and the Department of Defense food program; insurance requirements for vendors; lack of discretionary budgets; and little to no discretion to pay higher prices for higher quality. Studies of institutions found that institutional barriers were much stronger for public institutions than private ones. The opportunities discovered by these studies include agriculture and nutrition educational components of the program for schools and colleges, community involvement reflecting well on the institution, and growing consumer interest in seasonal, fresh, and local foods (Lawless, 1999; Johnson and Stevenson, 1998; Enshayan and Cooley, 2001; Azuma and Fisher, 2001; Yazman, 1991).

Most of these studies were underway simultaneous with ours, so results were not available when we began the project.

Research methods

Operationalization

Responding to the state-of-the art theory of sustainable food systems summarized above, we defined sustainable agriculture as *local* agriculture (regardless of agronomic practices). Aware that this definition is neither necessary nor sufficient for achieving sustainability, we chose it as a way of participating in the localization vector of the sustainability movement.

Next we had to define “local.” We sought a definition with some ecological grounding. What is the appropriate scale for a “local” food system? One of the only geographical definitions which takes into account both human settlement and ecology is Peter Berg’s 1983 term “bioregion.” Our bioregion is the Southern Rocky Mountain Steppe, which includes the Western part of Colorado and parts of Wyoming and New Mexico. Bioregions are diverse enough to support the production of most material necessary for human life. Colorado, while smaller than our bioregion, contained much of this diversity and would enable us to work with pre-existing programs, such as a Colorado marketing program entitled ABC, “Always Buy Colorado” (1981), and the revamped Colorado Department of Agriculture “Colorado Proud” (started September 1999).

Colorado is a useful case in the context of current US research on these issues because it has not yet benefited from the gourmet local food fads discussed above and yet the state produces an extensive range of produce. The Western Slope orchards produce some of the United States’ finest apples, as well as other stone fruits, grapes, and vegetables. Market gardens on the Eastern Slope or Front Range produce all manner of vegetables for up to nine months. Some greenhouse production along the Front Range takes advantage of Colorado’s unusually sunny winters to produce tomatoes and other greenhouse-friendly vegetables. The Southern part of the state produces potatoes, onions, and beans, along with vegetables. Colorado also hosts extensive rangeland for cattle, buffalo, and venison. Finally, Colorado is the western end of the great plains, with extensive grain production. Colorado could easily be self-sufficient in food.

While Colorado’s agricultural productivity, quality, and diversity made it a promising base for local eating, the political and aesthetic cultures that have helped the local food movement expand are in the earliest stages of development. There is one Community Food Security project in Colorado. There is a small chapter of Chefs Collaborative. Sustainability issues (aside from alternative transportation in the City of Boulder) are hardly viable issues for public debate, as they are overwhelmed by the construction industry’s growth/jobs hegemony.

Concerned with the survival of local farmers, we sought to expand the retinue of economic institutions available to support them by searching out larger, more stable, contracts through institutions and restaurants. Increased consumer interest in local produce could be augmented by larger-scale, more stable buyers. We also wanted to extend the nutritional aspects of the food security movement by paying attention to the quality of food eaten by people who either do not

cook or who, for whatever reason, eat few meals at home. Finally, we saw restaurants and institutions as an educational site to facilitate sustainable agriculture: seasonal eating, eating in relation to local ecology, and a new constituency for small farms and local economics.

We call a purchasing relationship between a farmer and an institutional food buyer a local “foodlink.” Our goal was to learn how to build these “foodlinks.”

Data collection and analysis

The project was to have three phases. First, we would do telephone interviews with agricultural producers and institutional food buyers exploring barriers and opportunities to local purchasing. The interview schedule addressed business size, menu variability, purchasing priorities, practices, and specifications, reasons for buying or not buying local products, interest in shopping on-line, and Likert scale questions regarding the importance of several variables relevant to local purchasing. (Surveys appended.) Second, we would design educational materials (video and print) that addressed these barriers and opportunities and encouraged farmers and buyers to work together. Third, we would use the video as a stimulus in a focus-group type setting and examine the interaction between farmers and restaurant buyers.

We proposed to study local producers and local buyers. We defined a local producer as an owner-operated farm within Colorado. There are three primary agricultural regions of the state for non-grain, non-livestock crops: the San Luis Valley (13%), the Tri-River Area (39%), and the Front Range (47%). Since exhaustive lists of producers do not exist, we created a master list from 13 producer association lists.¹⁰ Random sampling was performed on these regional lists. 53% of our sample was drawn from the Front Range, 13% from the San Luis Valley, and 34% from the Tri-River Area. Adrian Card, Natasha Pernicka, and Seth Roberts, undergraduate and graduate students majoring in Food Crops, did the producer interviews in February, March, April, November, and December, 2000.

We sampled buyers (restaurants and other food-serving institutions) in the same three areas. The Front Range area (including Denver, Fort Collins, and Boulder) amounts to 53% of the population (and therefore the food consumption) within the state. In order to retain regional matching between producers and consumers, we also sampled buyers in the other two agricultural regions. We erred in failing to include the mountain resort towns, which have low population and low levels of agricultural production but high levels of consumption, higher quality consumption with more

contact with national food trends, and, as tourist areas, high levels of interest in local products. The sampling frame was the Colorado Department of Revenue lists of Retail Food Service Establishment Licenses for 1999. Over half of the sample was drawn from the Front Range, proportionally by county according to its share of the region's population. Random sampling was then used in each county list. Sampling was continued until each county's sample was made up of 60% local restaurants, 20% national chain restaurants, and 20% other food-serving institutions (schools, prisons, congregate meal sites, nursing homes). Letters were sent two weeks in advance of interview calls. Buyer interviews were performed by Carolyn Benepe, a former restaurateur, between October 1999 and February 2000.

At the end of the project in the spring of 2001, Benepe did telephone interviews with representatives from nine distributors operating in Colorado. Qualitative analysis of the interviews was completed by Jeff Broadie, a sociology major.

When we reached the third phase of the project, we had mixed results with the focus groups. The first one, in Fort Collins, was well attended and resulted in some new foodlinks. Groups in other areas of the state were poorly attended. We decided to change the phase III strategy and hire an "organizer" to take our message to the streets. We hired Julie Finley, an experienced organic farmer who had been working on her farm's sales to restaurants. She spent 100 hours on the phone and in person working to build relationships and she documented the trials and tribulations of each relationship she tried to build. (Results from this part of the study are not yet available.)

Results

Quantitative analysis of data on buyers: Price and dependability do not affect decisions to buy local

Of the 393 buyer interviews initiated, 154 were completed (37% response rate with four callbacks). Of the completed interviews, 15% were from the Tri-River Area, 18% were from San Luis Valley, and 59% were from the Front Range.¹¹ Twenty-two (14%) of the completed interviews were chain restaurants, 94 (61%) were locally-owned restaurants, and 38 (24%) were institutions. Twenty-nine percent of completed interviews served less than 100 customers per day, 26% served between 100 and 200 per day, 28% served between 200 and 500 per day, and 17% served over 500 per day.

Those who purchase food items from local producers are more likely to report that "supporting

local businesses" is important (Pearson $r = 0.28$; $P < 0.001$; 2-tailed) and also report that "purchasing foods that are grown and processed locally" is important (Pearson $r = 0.66$; $P < 0.001$; 2-tailed). Of the entire sample, 42% buy something local. While 51% of local restaurants and 45% of institutions buy something local, only 11% of chains do. 22% of the sample gave the top Likert rating to the value "supporting local businesses," and 61% of those who rate it as "extremely important" also manage to do it.

Since locally-owned restaurants and institutions are more likely to buy local than chain restaurants, we removed the chains from the quantitative analysis. (Qualitative analysis of chain buyers is presented below.) To compare buyers who do buy locally with those who do not buy anything locally, we conducted t-tests for independent samples on several variables. These variables included their size, region, whether they have a seasonal menu, the importance of quality in their purchasing priorities, and their values. Because data are ordinal and parametric statistics may be misleading in terms of identifying differences in ordinal variables, we also compare ranks using a Mann-Whitney U test. Those results are presented in Tables 1 and 2.

The differences between local restaurants and institutions are interesting. As indicated in Table 1, for local restaurants, the important factors are supporting other local businesses, buying products that minimize impact on the environment, choosing products that are grown and processed locally, and being located in one of the agricultural regions, as opposed to in the Front Range.

As indicated in Table 2, none of these factors distinguished institutions that buy local from those that do not. Table 2 suggests that the most important distinguishing feature between those institutions that purchase local and those that do not is the importance of buying food that is free of pesticides and other toxins.

We hypothesized that the importance of this factor among institutions was largely attributable to the number of schools in our sample. Schools are likely to have administrators and staff who are highly concerned with food safety and are also aware that pesticides and toxins in food pose more of a health threat to children than adults because of their lower body mass. A difference of means test ($t = 1.82$; $P < 0.10$) and a Mann-Whitney U test ($z = 1.89$; $P < 0.10$) support our supposition and suggest that it is more important for school buyers to obtain toxic free pesticides (mean Likert rating = 4.21) than buyers for other institutions (mean = 3.43). The other factor that was important for institutions, but not restaurants, was their size. It is also important to point out that there are several vari-

Table 1. Comparison of restaurants that buy local and those that do not using difference of means tests.

	Restaurant buys local	Restaurant does not buy local	Mean difference	<i>t</i> -score
Size of operation (customers/day)	193	255	-53.57	1.20
Located in Front Range (1 = yes; 0 = other regions)	0.43	0.88	-0.55	5.03***
Menu changes seasonally	0.0870	0.1042	-0.78	0.28
Quality ^a	1.67	1.52	0.14	0.78
<i>How important is^b:</i>				
Supporting local business	4.23	3.54	0.68	3.49***
Price	4.18	4.21	-0.03	0.17
Freshness of produce	4.92	4.83	0.09	1.46
Using ingredients without pesticides and other toxins	3.92	3.68	0.24	1.12
Environmental impact	3.32	3.11	0.21	1.02 ^c
Choosing foods that are grown and processed locally	3.86	2.94	0.92	4.60***
Dependable supply (delivery times, quantity)	4.83	4.83	0.00	0.05
<i>N</i> = 94	48	46		

^aRespondents were asked to list and then rank their purchasing priorities. This variable was created to measure the importance of quality in this assessment. Respondents listing quality as #1 were coded "1." Respondents listing price and quality equally were coded "2." Respondents who listed price as #1 were coded "3."

^bResponses to the seven items on importance of factors in food businesses were coded as follows: 1 = not important to 5 = extremely important.

^cStatistically significant difference ($P < 0.10$; 2-tailed) based on the Mann-Whitney U which is a non-parametric test that measures differences in rank-order.

* $P < 0.10$; ** $P < 0.05$; *** $P < 0.01$ (two-tailed).

ables that seem not related to the decision to buy local. Factors that were not significant in any of these tests for restaurants or institutions were price, dependability, freshness, the importance of quality in purchasing decisions, and seasonal menus.

To examine simultaneously the impact of several factors together on the decision of restaurants to buy local, we use logistic regression. It may be, for example, that the bivariate associations we discovered disappear when controlling for other factors that may influence local buying patterns. The results from our multivariate analysis are presented in Tables 3 and 4. In addition to the variables we examined using difference of means tests, we also include a region indicator in the logistic regressions (i.e., is the restaurant or institution located in the Front Range, 1 = yes; 0 = no). Region is likely to be important because restaurants in regions where agriculture is a more important part of the economic base may have closer connections with local farmers.

According to Table 3, and as we surmised, region is an important factor in predicting local purchasing among local restaurants. Holding all other factors constant, being in the Front Range (the region with the smallest agricultural base of the three) decreases

the odds of buying local by a factor of 0.073. Also important is the emphasis local restaurants place on minimizing environmental impacts. Each increment increase on the Likert scale regarding the importance of minimizing the impact to the environment increased the odds of buying local by a factor of 1.895.

Unfortunately, due to the small number of institutions (34), we were not able to control for all variables simultaneously in the institutional model of local buying practices. We were, however, able to examine the impact of the importance of pesticides and toxins, controlling for each of the other variables separately so that only three variables were in the model at any one time. Those results are presented in Table 4. The only significant variable was the importance of buying foods without toxins and pesticide residues. This variable was significant in Model 1 and Model 4. Moreover, the coefficients in Model 5 and Model 6 fell just short of statistical significance ($P = 0.13$ and $P = 0.17$; 2-tailed in each case). The odds ratios associated with the coefficients in Models 1 and 4 indicate that for every one increment increase in Likert scores on the importance of buying foods without toxins and pesticide residues increases the odds of buying locally by a factor of between 2.08 and 1.872.

Table 2. Comparison of institutions that buy local and those that buy non-local using difference of means tests.

	Institution buys local	Institution does not buy local	Mean difference	<i>t</i> -score
Size of operation (customers/day)	954	4733	-3779	1.76*
Located in Front Range (1 = yes; 0 = other regions)	0.12	0.14	-0.03	0.22
Menu changes seasonally (1 = yes)	0.06	0.19	-0.1317	1.18
Quality ^a	2.50	2.08	0.42	1.36
<i>How important is^b:</i>				
Supporting local business	3.85	3.48	0.38	0.94
Price	4.47	4.45	0.02	0.08
Freshness of produce	4.88	4.68	0.21	1.42
Using ingredients without pesticides and other toxins	4.31	3.43	0.79	1.82 ^{c*}
Environmental impact	3.44	3.00	0.44	1.03
Choosing foods that are grown and processed locally	3.62	3.03	0.59	1.29
Dependable supply (delivery times, quantity)	4.76	4.95	0.19	1.66
<i>N</i> = 38	17	21		

^aRespondents were asked to list and then rank their purchasing priorities. This variable was created to measure the importance of quality in this assessment. Respondents listing quality as #1 were coded "1." Respondents listing price and quality equally were coded "2." Respondents who listed price as #1 were coded "3."

^bResponses to the seven items on importance of factors in food businesses were coded as follows: 1 = not important to 5 = extremely important.

^cStatistically significant difference ($P < 0.05$; 2-tailed) based on the Mann-Whitney U which is a non-parametric test that measures differences in rank-order.

* $P < 0.10$; ** $P < 0.05$; *** $P < 0.01$ (two-tailed).

Table 3. Logistic regression predicting whether restaurants purchase local food products.^a

Variable	b	(S.E.)	Odds ratio
Size of operation (customers/day)	-0.002	(0.001)	0.998
Located in Front Range (1 = yes; 0 = no)	-2.611	(0.708)***	0.073
Menu changes seasonally (1 = yes)	-0.014	(0.946)	0.986
Price	-0.404	(0.333)	0.667
Freshness of produce	0.449	(1.026)	1.567
Using ingredients without pesticides and other toxins	0.014	(0.253)	1.014
Environmental impact	0.639	(0.322)**	1.895
Dependable supply (delivery times, quantity)	0.223	(0.483)	1.250
Constant	-1.378	(5.102)	
R^2	0.28		
<i>N</i>	78 ^b		

^aWe did not include the importance of quality in purchasing decisions in the regression analysis because 24 respondents did not answer this question and we did not want to lose that many cases from the analysis.

^bSome of the 94 cases were missing data.

* $P < 0.10$; ** $P < 0.05$; *** $P < 0.01$.

Table 4. Logistic regression predicting whether institutions purchase local products.^a

Variable	Model 1			Model 2		
	b	(S.E.)	Odds ratio	b	(S.E.)	Odds ratio
Using ingredients without pesticides and other toxins	0.732	(0.415)*	2.080	0.370	(0.339)	1.447
Size of operation (customers/day)	0.000	(0.000)	1.000	0.000	(0.000)	1.000
Price	-0.674	(0.636)	0.510	-	-	-
Freshness of produce	-	-	-	1.487	(1.158)	4.426
Environmental impact	-	-	-	-	-	-
Dependable supply	-	-	-	-	-	-
Located in Front Range (1 = yes; 0 = other regions)	-	-	-	-	-	-
Menu changes seasonally (1 = yes)	-	-	-	-	-	-
Constant	0.176	(2.321)		-8.590	(5.600)	
R^2	0.18			0.20		
N	38		33			

Variable	Model 3			Model 4		
	b	(S.E.)	Odds ratio	b	(S.E.)	Odds ratio
Using ingredients without pesticides and other toxins	0.615	(0.513)	1.850	0.627	(0.367)*	1.872
Size of operation (customers/day)	0.000	(0.000)	1.000	0.000	(0.000)	1.000
Price	-	-	-	-	-	-
Freshness of produce	-	-	-	-	-	-
Environmental impact	-0.206	(0.457)	0.814	-	-	-
Dependable supply	-	-	-	-1.994	(1.458)	0.136
Located in Front Range (1 = yes; 0 = other regions)	-	-	-	-	-	-
Menu changes seasonally (1 = yes)	-	-	-	-	-	-
Constant	-1.763	(1.381)		7.285	(6.719)	
R^2	0.14			0.21		
N	38			33		

Table 4. Continued.

Variable	Model 5			Model 6		
	b	(S.E.)	Odds ratio	b	(S.E.)	Odds ratio
Using ingredients without pesticides and other toxins	0.511	(0.338)	1.667	0.458	(0.337)	1.581
Size of operation (customers/day)	0.000	(0.000)	1.000	0.000	(0.000)	1.000
Price	–	–	–	–	–	–
Freshness of produce	–	–	–	–	–	–
Environmental impact	–	–	–	–	–	–
Dependable supply	–	–	–	–	–	–
Located in Front Range (1 = yes; 0 = other regions)	0.395	(1.218)	1.485	–	–	–
Menu changes seasonally (1 = yes)	–	–	–	–0.728	(1.283)	0.483
Constant	–2.020	(1.429)		–1.687	(1.411)	
R^2	0.15			0.16		
N	33			33		

^aWe did not include the importance of quality in purchasing decisions in the regression analysis because 15 respondents did not answer this question and we did not want to lose that many cases from the analysis.

* $P < 0.10$; ** $P < 0.05$; *** $P < 0.01$.

Some of the other factors that did not emerge as statistically significant in regressions examining local purchasing in the sample or subsamples (i.e., among local restaurants or institutions) were dependency of supply, size, seasonal menus, and price. Although freshness and dependency of supply are consistently rated among the highest of any of the Likert scale factors, whether corporate distributors or local producers can provide more dependent supply and better freshness is a matter of extensive disagreement (discussed further below), which could explain the neutralization of these factors in the data. Ten percent of local restaurants already have seasonally-varied menus, but surprisingly there was not a direct correlation between seasonal menus and local purchasing. Also important is our finding that price did not emerge as a significant factor in purchasing in any test we ran. This finding disputes common wisdom that has been reproduced in many studies, such as the Practical Farmers of Iowa (2002).

The results regarding buyers' relationships to "quality" are interesting. We did not impose a definition of quality, allowing respondents to imbue this term with subjective meaning and then prioritize it

alongside other factors. When asked to name and rank their purchasing priorities, 53% of locally-owned restaurants put quality alone as their highest priority in purchasing decisions and another 14% put price and quality as equal factors. Only 18% put price alone as their top priority. The remaining 15% put some aspect of service as their highest priority. 36% of chains named quality alone as their top priority and an additional 9% put price and quality as equal factors. Four out of 38 institutions (10%) named quality as top priority with an additional 9 (24%) putting price and quality as equal priorities.

For the sample as a whole (although nearly half of chain respondents did not answer this question), difference of means test revealed that buyers who ranked quality as their top purchasing priority were more likely to buy local ($t = 1.8$; $P < 0.10$). This might be interpreted as suggesting that local producers have better quality products. However, this ranking was not a significant factor when we restricted the sample to locally-owned restaurants. We believe this is because while a majority of restaurant buyers prioritize quality first in purchasing, they are not aware of the quality differences between what their distributors

bring them and what is available from local producers. The restaurants who do not buy local produce might well do so and (since price is *not* determinative of purchasing decisions) might even be willing to spend a little extra for it if they were convinced it would bring them higher quality.

Qualitative analysis of data on buyers: "Come to me"

Turning now to the qualitative analysis, we begin with an analysis of the chain restaurants. Out of the initial sample, thirteen of the incompleting interviews were with corporate chains who said that all purchasing decisions are made by corporate headquarters and then did not complete the interview. After learning this from one store in any chain, we then eliminated any additional stores from that chain from the sample and replaced them. Of the 22 chain restaurants that did complete the interview, nine said that all decisions are made by corporate headquarters. So of corporate restaurants with which we had contact, 63% do not make any of their own purchasing decisions. Only four chains (11%) buy anything locally. A small Colorado pizza chain that buys honey from a Denver producer expressed interest in buying local produce if it could be delivered. A chain San Luis Valley motel restaurant buys its potatoes from local trucks. Ben and Jerry's ice cream buys milk and coffee locally. An unknown burger chain buys locally, but refused to complete an interview. The buyer for 15 restaurants of one national chain without an internal commissary said that due to the restaurants' "theme" he "would like to use Colorado products across the board if they could figure out accessibility and who to contact" but "distributors are driving the bus." He said that if he knew how, he would contact local suppliers and see if they could match price on items. This buyer said that buying locally gives him "better control over quality, quicker service, more leverage, and also supports the community." So regional or local chains may have more buying flexibility and chains with regional "themes" might also be amenable to local purchasing. But the majority of chains, despite their concern with quality, do not have enough decision-making independence to respond to requests to purchase locally.

Of the 38 institutions, 5 claimed to be restricted to a bid system. Two of these mentioned "No local grower has ever approached us for the bidding process. They would have to meet the specifications but then would be given first shot because they are local." Six claimed to be restricted by purchasing guidelines or state requirements that they felt *prohibited* them from buying from local producers (this includes a school district that gets all food from a Department of Defense program) and another four claimed to be restricted to a

list of approved vendors. Two specifically cited budget constraints that they felt made it "impossible" to work with local producers. Buyers' information about government regulations varied widely from "Buying local is school district policy" to "state requirements prevent buying local produce or supporting local businesses." Some saw local food as a "huge risk" or as affecting their liability insurance coverage. In toto, 45% of institutional buyers felt one or another of these constraints, but of these 17 constrained buyers, four still managed to source something locally.

Of the remaining 21 institutional buyers, 13 do some local sourcing and one is trying to start. Some mentioned that they "love local," that "direct purchasing is easier and fresher and I try to support local business," and that they "try to keep money in town." The reasons given by the remaining seven, who do not face severe institutional constraints, but who do not buy local, were: wanted to work only with one supplier ($n = 3$); claimed there is no local produce in their area ($n = 2$); and claimed that they cannot buy local because of the volume that they need ($n = 2$).

Among local restaurants who do buy something local ($n = 48$), many buyers explained why they do not do more of it than they do. The most common answer ($n = 7$) was service-related issues of dependability, reliability, convenience, preference for having one supplier, and ability to get refunds. The next most common concerns ($n = 3$ each) were delivery and availability of the right products. Seasonal constraints, price, and supposed health department restrictions were each mentioned by two buyers in this category. There was one mention each of the following issues: cleanliness, need to be able to use a purchase order, and not having been approached by local producers.

Buyers also listed what works about buying local. The most popular answer was liking small, local growers and liking the face-to-face interactions ($n = 6$). Four buyers each said local is cheaper and they buy local because of freshness. Three each said they prefer it so they can buy low volumes and that they like that growers come to see them. Two claimed local producers provide better service than distributors. One each claimed that they do it to keep money in the state and because the growers eat at their restaurant.

Among the 46 locally-owned restaurants who buy nothing local, four like the idea and are working on it. Only six expressed perceptions that it would be more expensive. The same number said that what they need is not available locally. The next most popular reason ($n = 5$) was lack of time, followed by convenience, preferring one supplier, not knowing how to find local products, and the fact that local producers do not approach them (each with $n = 3$). Two buyers each mentioned the need for delivery (assuming that

local producers cannot or will not deliver) and a belief that local products are low quality. One buyer each mentioned that their distributor prevents them from buying from any other source, a belief that their distributor is honest, they are just “sticking to what we know,” a concern that health codes prevent buying local, not trusting local producers, that local producers cannot provide the volume, and one believes that their distributor already brings them local produce.

This group also mentioned some aspects of their purchasing habits that present opportunities. One said that even though the distributor is more expensive, the buyer is “just lazy.” Another two said that they pay attention to whoever comes to them. One said he buys local produce at Safeway and would buy directly “if the price was right.” One said “SYSCO is low quality.” We asked buyers how they found new suppliers and ingredients (open-ended, multiple answers allowed). For locally owned restaurants, the most important source of information about new products is the salesman. Other sources mentioned by locally owned restaurants were “experience in the business,” food shows, print material, and word of mouth. They said “they come to us.” Many noted that they had never been approached by a local producer, but would be interested to be. “I would buy locally if someone would come in and show me what they’ve got.” “We would buy locally if we were presented with a good quality product, at a good price.”

Quantitative analysis of data on owner-operated produce farms: Larger, less diversified farms less likely to direct market at all

The sample of producers was initially 253, of which 46 were not called because we ran out of winter-time during which to politely ask growers for their time, 42 turned out not to be produce growers (field corn, wheat, sugar beets, grains, livestock), 32 were unreachable by phone, 14 declined the interview, 18 interviews were lost, and 101 interviews were completed and analyzed. Fourteen percent of the analyzed interviews were in the San Luis Valley, 38% were Front Range, and 49% were Tri-River area. Farm sizes ranged from half an acre to 2122 acres. Median farm size was 60 acres. 57% of the farmers gained 100% of their income from the farm while 21% gained less than 50% of their income from the farm. Seventeen percent of the farms use some sustainable farming technique (IPM, organic, NPU, IRM, etc.). We asked what percentage of sales are within the state and what percentage are within 30 miles of the farm, but the answers to these questions are unreliable as some apparently viewed sales to a nearby shed or broker as “local” and others did not.

Thirty-eight percent of the farms sell *all* of their produce to middle men (packing sheds, elevators, distributors, or brokers). The other 62% sell at least some produce directly (to restaurants, grocers, at produce stands, CSA, or farmers markets). Only 16 farms in the sample already sell directly to restaurants and institutions. Due to the limitations of this number for statistical analysis, we focused on the differences between farms that direct market and those that do not, since that step is prerequisite for initiating sales to restaurants and institutions. We created a binary variable for whether farms do any direct marketing (to restaurants, grocers, at produce stands, CSA, or farmers markets). This variable was significantly correlated ($r = 0.347$; $P < 0.01$; 2-tailed) with answers to the Likert scale assessment of the importance of “selling foods locally.”

As Table 5 indicates, using direct marketing as a dependent variable, difference of means test showed diversity of production, farm size, belief in the importance of using ecological agricultural practices, and belief in selling locally were all statistically significant. Farms in the sample that do direct market are more diverse than those that do not. They are much smaller (mean of 188 acres compared with 540 acres), are more likely to use an alternative production method, to see environmentally-friendly agricultural practices as important, to be willing to pay someone else to market their product, and to think selling locally is important. Length of season and a sense of the need to reduce transportation costs were not significant.

To analyze simultaneously the impact of several factors together on the decision of farms to direct market, we also examine associations using logistic regression. Again, the bivariate associations we discovered could disappear when controlling for other factors that may influence local marketing practices. The results from our multivariate analysis are presented in Table 6. Four variables appear to be associated with direct marketing. First, farm size is important. For every increase in farm size by 100 acres, the odds of direct marketing decrease by a factor of 0.87. Farm diversity is also important. As farms diversify (measured with a 3-category ordinal variable: 1–4 products, 5–10 products, or more than 10 products), the odds of direct marketing increase by a factor of 5.21. The importance placed on using environmentally friendly practices is also related to direct marketing. For every increment of increase on the Likert scale assessment of the importance of using environmentally-friendly agricultural practices, the odds of direct marketing increase by a factor of 1.99. Finally, as might be expected, for every increment of increase on the Likert scale assessment of

Table 5. Comparison of farms that direct market to those that do not direct market using difference of means tests.

	Farm does direct market	Farm does not direct market	Mean difference	<i>t</i> -score
<i>Farm characteristics</i>				
Diversity of production ^a	1.98	1.18	0.80	5.34***,b
Farm size in acres	188	540	-352	3.57***,b
Length of season in months	6.31	6.62	-0.31	0.47
Located in Front Range (1 = yes; 0 = other regions)	0.43	0.29	0.14	1.34
Use alternative production method (1 = yes; 0 = no)	0.21	0.08	0.13	1.71*,b
<i>How important is^c:</i>				
Selling local	4.14	3.03	1.12	4.24***,b
Reducing transportation costs	3.75	3.89	-0.14	0.54
Using environmentally friendly practices	4.54	3.50	1.04	5.03***,b
Willingness to pay to market product	2.58	3.04	-0.46	1.68*,b
<i>N</i> = 101	63	38		

^a Coded into three categories: 1 = farms that produce four or fewer products; 2 = farms that produce between 5 and 10 products; and, 3 = farms that produce more than 10 products.

^b Statistically significant difference ($P < 0.10$; 2-tailed) based on the Mann–Whitney U, which is a non-parametric test that measures differences in rank-order.

^c Responses to the four items on importance of factors in food businesses were coded as follows: 1 = not important to 5 = extremely important.

* $P < 0.10$; ** $P < 0.05$; *** $P < 0.01$ (two-tailed).

the importance of selling locally, the odds of direct marketing increase by a factor of 1.46.

Interestingly, while locally-owned restaurant buyers in the Tri-River and San Luis Valley were more likely to buy local (see Table 3), there were no regional differences in the likelihood of producers selling locally. The qualitative data suggests that restaurateurs in agricultural regions buy locally because farmers are their customers, while this does not occur to restaurateurs in the suburban sprawl of the Front Range. Yet there are not significant regional differences in farmers' pursuit of direct marketing opportunities.

As farm size decreases, farmers become more interested in sustainable farming practices and in selling locally. The smallest farms are far more likely to direct market and to sell something to restaurants. Larger farms have slightly longer sales seasons. Twice as many large farms as small farms sell nine or more months per year. The large farms are *not* all large potato monocroppers; some are among the most diversified category of farms who reported their products as "vegetables."

Qualitative analysis of data on owner-operated produce farms: Diversifying marketing strategy as well as the crop

Turning to the qualitative data, we asked farmers open-ended questions about the kind of buyers that "work best for their operation currently" and about the "kind of customer they would *like* to sell to." They generally answered these two questions with the same answer. Farms that do not currently direct market answered very consistently that they want to sell to "ones that pay the most," "paying buyers," who will "buy the whole crop," who are "loyal" (by which they meant constant and repeat buyers), and who are "fair" and "honest" (will not wrongfully accuse farmer of decay, "that won't lie about how much money they're making"), and who pay in 30 days.

Farms that do some direct marketing had much more diverse responses. They talked about wanting to sell to "homemakers who want flavor," to people who are "interested," who "recognize a better product," who appreciate family farms, to people with whom they can have "direct contact on a daily basis," to an "upscale market who don't argue about price," to people who "know us, trust us, respect us," who

Table 6. Logistic regression predicting whether farms direct market.

Variable	b	(S.E.)	Odds ratio
<i>Farm characteristics:</i>			
Diversity of production ^a	1.650	(0.551)***	5.209
Farm size in hundreds of acres	-0.137	(0.065)**	0.872
Length of season in months	-0.060	(0.094)	0.941
Located in Front Range (1 = yes; 0 = other regions)	-0.160	(0.730)	0.852
Use alternative production method (1 = yes; 0 = no)	0.243	(0.993)	1.275
<i>How important is:</i>			
Selling local	0.381	(0.238)*	1.463
Reducing transportation costs	-0.100	(0.252)	0.905
Using environmentally friendly practices	0.690	(0.329)**	1.993
Willingness to pay to market product	0.107	(0.233)	1.113
R^2	0.39		
N	91 ^b		

^aCoded into three categories: 1 = farms which produce four or fewer products; 2 = farms that produce between 5 and 10 products; and, 3 = farms that produce more than 10 products.

^b Some data was missing, reducing the N from 101 to 91.

* $P < 0.10$; ** $P < 0.05$; *** $P < 0.01$.

have “good attitudes and appreciate farmers’ work,” “empathetic, consistent, and loyal,” people who “buy frequently, know and love local produce,” who are “friendly,” who like to “try something new,” “personal sales,” a “mixed clientele.” Farmers who are diversifying their marketing are also diversifying their production and the kinds of social interactions they are having. Instead of talking about people who will buy the whole crop, these farmers are looking for “\$500 accounts,” “truckload-size sales,” and “consistent cash sales.” A number of farmers already doing direct marketing talked about their desire for a farmers’ coop to do large-scale buying and distribution, while eliminating the middlemen’s outrageous cuts.

The most important information shared by the farmers is their understanding of the problems they face: “The American farmer is an endangered species.” The wholesale prices they are receiving are totally inadequate: “Prices are similar to early 1900s.” “A family farm of 240 acres 20 years ago could make a living. Now he can’t . . . need more income for product.” “It would be good to see how farmers can get proportional increases in price as reflected with price on the shelf.” “Grocery stores need to be held accountable for how they do things.” “Washington [State] is doing under the table business with Colorado grocery chains.” International trade policy is destroying American farming: “NAFTA is messing up prices.” “NAFTA has killed the American farmer.” “How can they ship produce from Australia and

compete with the US?” There are very few large volume buyers and they have little choice who to sell to: “There are fewer buyers now. Grocery stores have consolidated with buyers.” Small farms cannot compete with big ones and their special contracts: “Too many big farms coming in and hurting the small farmers.” “The stores are with big corporations and won’t buy locally.” The reduction in the numbers of middlemen have turned the regional broker or packing shed into a price fixer. Importing has resulted in a massive overproduction problem in the US: “You can build houses all over farm land and still production is too high.” They were most particularly angry that grocery chains and state institutions are not committed to selling Colorado products and that they refuse to buy direct from farmers and pay a decent price. The middle men are making all the money. From the perspective of farmers, the most important thing needed is to force the grocery stores to buy locally and to pay better prices.

We asked farmers, “We’ve heard some buyers won’t buy locally because they can’t rely on consistent quality and quantity. What are your thoughts on this?” Farmers answered all over the map on this one, with great vehemence in both directions and nuanced answers in the middle. Those who claimed it was a big problem blamed other growers’ shoddy practices and the packing sheds for irresponsibly failing to maintain quality. Some just said this claim was “a bunch of crap,” or “bullshit.” Those in the middle claimed that people are misinformed on this issue, that

consumers have been led to have totally unrealistic expectations, that there are some weather problems but overall a good product, that it is a quantity (length of season) issue but not a quality issue, that it is simply about different varieties, “true, but I don’t want that class of buyer,” people “don’t really want organic,” and emphasized educating consumers. To summarize farmers’ responses to this question: perceptions of Colorado produce quality and quantity problems have some foundation but are exaggerated. The seasons are longer than buyers know and quality is higher. (The mean season length was 6.4 months, with 26% of farms selling 9 or more months a year.) In addition, farms that sell grocery store produce wholesale to a packer have to give him their highest quality; when they bring what is left to the farmers market or produce stand, customers are seeing seconds and that is the basis of their perception of Colorado local produce.

Despite encouraging findings on farmers’ moves to direct marketing, restaurant sales account for very little of total sales. It would be helpful to find out what percentage of direct sales are in each category (farmers market, CSA, etc.). It would also be helpful to find out among those who sell to restaurants or institutions how much they would *like* to be selling to restaurants and institutions. (Some small farmers *prefer* direct consumer sales at farmers market to institutional sales.)

*Qualitative analysis of data on distributors:
No compelling motivation to carry local*

We interviewed representatives of nine distributors who sell in the state. The sampling method was convenience. Eight of the distributors are Colorado-owned and were able to provide estimates of how much of their produce is purchased from Colorado farmers. Their answers ranged from 6%–70% with a mean of 40% and a standard deviation of 25%. One, who reported only 15% of his produce being from Colorado, sources 95% of his potatoes in-state. But only four of the nine buy Colorado potatoes at all. Two of the distributors already market “Colorado-grown.” One who does not said that he perceives interest from restaurants. Five say it would lower their transport costs and five say that their systems *could* handle point-of-origin labeling. The non-Colorado owned distributor also said it would lower his transport costs.

These interviews revealed a number of barriers and opportunities to distributors carrying Colorado produce. The barriers were “California has higher quality produce and pre-cools it”; “it’s hard for Colorado producers to compete because when produce is in season here, it’s also in season everywhere else, and may be cheaper from somewhere else,” “the

demand for pre-processed vegetables makes it hard to buy from local farmers.” One distributor claimed that Colorado only has four months of production. One mentioned that a marketing campaign emphasizing “Colorado-grown” would disadvantage Colorado fruit, since Washington fruit has a better reputation.

The benefits/opportunities with Colorado produce, according to distributors, are Freshness ($n = 2$), since it is close, it is available more quickly ($n = 2$), cheaper ($n = 2$), higher quality, longer shelf life and higher yield due to less spoilage with fresher products, good relationships with growers, those Colorado farmers who are still surviving are doing a good job, which “makes it easier on the distributor,” “keeping it local is healthy for the environment and business” ($n = 1$ each).

Conclusions and recommendations

Farmers: Show them what you can do

Colorado farms of various sizes producing corn, pinto and other dry beans, onions, potatoes, apples, cherries, and peaches sell nearly all their produce to packing houses/distributors/brokers. They know that supermarkets are charging incredibly high prices relative to the price-setting farmers face at the packing house. These products are so abundant (some used the term “overproduction”) that farmers see no possibility for direct marketing because brokers are the only buyers big enough to buy a significant amount. Their problems are compounded when grocery stores selling in Colorado do not buy these Colorado products. Farmers are angry at the packing houses for selling inferior products, which damages the reputation of the entire region. (This problem is most troublesome for Colorado apples, which have superior flavor, but smaller size and less consistent appearance than Washington apples.) Farmers are also angry at supermarket produce buyers whose rigid criteria train customers to expect an unvarying product (Card, 2001).

If small American farmers are to survive as wholesalers, systemic change is needed to ensure that they receive an adequate, stable price. Short of such change, their survival depends on their ability to direct market. Direct marketing requires farmers to diversify their skills and use of time. While farmers would prefer to direct market to grocery stores, large grocery chains refuse to engage in direct purchasing (Card, 2001).

It is the farmers who are *not* currently direct marketing who need the most assistance in making this change so as to increase the farm gate price. And these farms are in the best position to benefit from marketing to restaurants and institutions. Contrary to popular belief and countering constant claims by reports and

studies on the topic, this study found that price is not a significant factor in buyers' buying priorities or their decisions about whether to buy locally. To the extent that price is of concern, qualitative data from this study may be helpful. Farms that already direct market most of their sales at the farmers market and in niche markets have high prices in more cosmopolitan markets. Restaurateurs' perceptions of the cost of the local produce may be formed here. And indeed, *these* farmers' produce may *not* be affordable for restaurants. Anyway, such farmers may not even want large accounts that take too much of their crop. But farms that are still selling most of their crop wholesale are getting such low prices that they could benefit greatly from direct marketing. They could ask a price somewhere between the niche market rate charged by small "market garden" farms and the rate a restaurant is currently paying a distributor.

The USDA's Agricultural Marketing Service supports two forms of direct marketing, farmers markets and Farm to School programs. While selling to restaurants and institutions is only one form of direct marketing, including this approach in their marketing plan could provide farms with large, stable direct accounts. This study can assist farmers beginning this approach in making some further marketing decisions. Restaurant chains are unlikely to purchase locally as 63% of them do not make their own purchasing decisions. Farmers seeking large, stable, direct market accounts should avoid chain restaurants and instead target buyers for food-serving institutions and locally owned restaurants.

In working with institutions, farmers should figure out which local institutions have control over their purchasing system. If there is a bid system, local farmers can get into the bid process. Producers should be encouraged that nearly half of institutions and local restaurants already buy at least something locally. Recent studies of efforts by Wisconsin college campuses to buy local include encouraging results (CIAS, n.d.). Since we began our study, the USDA's "Farm to School" program has made strides, resulting in development of extensive guidelines for farmers and schools seeking to build alliances. Despite increasing pressure on schools to buy only pre-processed products, there are countervailing trends such as including emphasis on provision of vegetarian and low-fat items, concerns with freshness, and nutrition education (USDA, 2000).

Local restaurant buyers are very interested in quality. Many are also interested in freshness and specialty products. In our Colorado study, quality concerns do not yet drive local restaurants to seek out local produce. We believe buyers are not aware of the higher quality they could be getting from local

producers. This is a clear opportunity for farmers to "show buyers the goods."

Similarly, farmers can show buyers what they can provide in terms of service. Buyers' time constraints lead them to believe that only the distributor can provide timely, convenient delivery. Yet only a few buyers actually insist on "one-stop" shopping. Restaurant buyers who've done business with farmers find them to be competitive on quality and dependability. If restaurateurs and institutional buyers knew the quality of service they could get from local producers, they might choose them more often. Direct marketing will require increased effort for sales calls, distribution, and transportation for many small accounts rather than dumping truckloads at the nearby broker's warehouse. But for farmers, the better prices should be worth it. Again, this is an issue on which farmers need to show buyers what they can do.

Farmers should be persistent and not become discouraged. Some interviewees who have approached restaurants say that the restaurants do not want to buy enough and others say that restaurants want more volume than they can provide. These divergent responses suggest that farmers should work to identify the right size of buyer for their specific operation and keep searching for a buyer of the right size. Farmers should also keep in mind that while a few buyers will emphasize price, these buyers are unusual. Most buyers will be more interested in quality. Further study would be useful on how exactly buyers define quality. Such a study could be designed as an intervention to stimulate buyers to think about the role of freshness and varietal diversity in quality. Farmers should approach buyers to show them the quality they can provide.

Brokerages (including internet ones), producer coops, and "foragers" committed to supporting small farms can vastly reduce the share of price taken by middlemen and their stranglehold on the market while taking some of the marketing burden off of farmers and mimicking the convenience of a distributor for buyers. Farmers cooperatives in Iowa have shared the responsibility for meeting farmers' needs, streamlined ordering, custom designed their plantings for the restaurants, and shared the transportation burden (Practical Farmers of Iowa, 2002). Kentucky agricultural extension agents are encouraging the redevelopment of produce auctions, which is another institution that could facilitate restaurant and institutional buyers to buy local (Miller, 2000). Clearinghouses could also assist restaurateurs in finding farmers willing to direct market and custom grow, providing convenience and stability for both parties. A number of farmers in this study are willing to custom-grow. Red Tomato, a non-profit produce brokerage in New England, can

Table 7. Colorado produce by length of season.

Year round	Nine months	Six months	Three months
Beans	Apples	Bok choy	Peaches
Honey	Carrots	Broccoli	Cherries
Meat	Garlic	Cauliflower	Apricots
Cheese	Kale	Cabbage	Plums
Eggs		Radishes	Nectarines
Potatoes		Winter squash	Grapes
Onions		Celery	Green beans
Quinoa, millet		Lettuce and salad mix	Peas
Flour		Leeks	Eggplants
Wine		Chard	Summer squash
Mushrooms		Spinach	Sweet corn
Apple juice		Kohlrabi	Melons
Greenhouse vegetables		Beets	Tomatoes

be used as a model. On the other hand, some farmers who already know the quality of their produce have decided to open their own restaurants. The North Dakota Farmers Union, which includes 37,000 farmers in 15 states, is opening a chain called Agraria, set to open five \$3M restaurants whose menus will list the source for each item (Anderson, 2002).

Many Colorado year-round products (beans, potatoes, onions, quinoa, millet, flour) are low value per volume. Small orders and constant delivery would be costly. Although the products are easy to store and have a long shelf life, restaurants may have quite limited storage facilities. Some kind of storage is needed. Coop warehouses in urban areas with appropriate cooling facilities could store apples, potatoes, onions, winter squash, grains, meat, and dry beans. If buyers bought on contract, farmers could make one large delivery to the warehouse and then restaurants could pick up their items as needed or pay a fee for regular delivery.

State policy to support direct marketing

Beyond encouraging farmers along this avenue of direct marketing, a number of policy recommendations emerge from this study that can help farmers and restaurants make connections. A straightforward policy change on a state level mandating that state institutions purchase major Colorado crops (potatoes, onions, apples) from Colorado farmers would be the single most powerful market-based support for them. Second, state support for value-added processing of potatoes, barley malting, and independent beef slaughterhouses would support Colorado farmers in selling to major Colorado markets. Third, a state

campaign should be mounted to focus on the quality of Colorado apples and their particular appropriateness for institutional and restaurant uses. While the heart-shaped large Washington apple may have become most appealing to grocery store buyers, smaller, less cosmetic, but more flavorful Colorado apples are perfect for children's lunches and most restaurant uses, in which apples are sliced and/or cooked (Card, 2001).

Fourth, state agriculture offices should mount campaigns to defeat myths about health department regulations and liability problems, quality and diversity of Colorado products, and length of season.

Fifth, state subsidies to farmers for construction of energy-efficient greenhouses would be a powerful way to facilitate the development of a high-quality year-round supply of salad mix and tomatoes for Colorado restaurants and consumers while assisting farmers in diversifying their production and organizing for local sales.

Educational and conceptual work

Seasonal limitations can be addressed in part by facilitating year-round production, but the more important task is fostering seasonal eating. This study found that already about 10% of restaurants and 13% of institutions have seasonal menus. Chefs Collaborative, Slow Food, and other movements encourage restaurateurs to make this transition (Tynan, 2002). Increasingly, chefs' menus emphasize seasonal changes and their relationships with specific, named farms. For restaurants willing to constantly vary their menus, a CSA-type setup scaled to restaurant size would eliminate the hassles of ordering while providing stable sales for farmers. Educational programs on the

nutritional, economic, and environmental effects of seasonal eating would support this transition.

In encouraging restaurants and institutions to buy local, it is important to conceptualize this transition as less than a total commitment. It does not mean changing their whole menu constantly. It can mean just integrating Colorado staples (like potatoes and beans) into the menu, regularly buying a few local high-quality year-round specialty items (salad mix, quinoa, winter squash, honey, goat cheese, herbs), stopping by the farmers market for a few seasonal items, offering a seasonal special, or adding one local year-round menu item, like Colorado potato pancakes with Colorado applesauce.

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Appendix

Telephone survey of restaurant and institutional food buyers

1. As an indication of the size of your food business, what is your average customer/day count? (or, what is your average intake, average ticket?)
2. Are you locally owned? Part of a larger corporation?
3. From whom do you buy your ... produce? meat? dairy? baked goods?
4. What are your buying criteria, for example: price, quality, dependability of delivery?
5. How do you find new suppliers/ingredient sources?
6. Do you purchase any food from local producers?
7. (If 6 = yes): What do you buy?
8. (If 6 = yes): What percentage of your local food purchases are from local growers?
9. (If 6 = yes): How do you find local sources?
10. (If 6 = no): What prevents you from buying local produce/ingredients?
11. (If 6 = no): Do you have purchase specifications that prohibit or encourage you to buy local?
12. Does your menu reflect seasonality/ingredient availability?
13. I am going to read a list of factors that are important to some food businesses. Please rank them with a number 1 through 5, 1 being not important when making buying decisions and 5 being extremely important when making buying decisions. If you don't know or have no opinion, please say so.
 - Supporting local businesses
 - Price

Freshness of produce

Using ingredients without pesticides and other toxins
Environmental impact: amount of packaging, whether packaging is recyclable, and costs involved in transporting ingredients

Choosing foods that are grown and processed locally
Dependable supply (delivery times, quantity).

14. If you could shop locally using a computer would you consider using this type of internet link?

Ask them to comment and or suggest other other issues that should be considered.

Any questions for us?

Would you like to further participate in this project by talking with us again, being on our mailing list to learn what we found in this study and hear about opportunities to develop relationships with local producers, or meet with local producers?

Telephone survey of producers

1. What do you produce?
2. What is the size of your operation?
3. How often do you bill your buyers?
4. Is your agricultural enterprise your total income? If not, what other work do you do?
5. What percentage of your income is generated by your agricultural production?
6. What percentage of your food sales is
 - a. within CO?
 - b. within 30 mile radius of your farm?
7. How does selling locally benefit you?
8. What percentage of your food sales is direct to restaurants and institutions?
 - a. (if some) How do you find them?
 - b. What do you sell to them?
 - c. How does selling to restaurants and institutions benefit you?
 - d. (if none) What prevents you from selling to restaurants and institutions?
9. Do you sell to
 - a. farmers markets?
 - b. through CSA?
 - c. distributors/brokers (national or local)?
 - d. produce stand?
 - e. foragers?
 - f. other sales?
 - g. (if any local sales) How do you find these opportunities?
 - h. (if any local sales) What do you sell?
 - i. (if no local sales) What prevents you from selling locally?
10. What kind of buyers work best for your operation currently (examples of characteristics: quantity of

produce order, consistency, size of buyer, exclusive buyer)?

11. What kind of customer would you *like* to sell to?
12. What do you understand to be your customers' expectations and requirements for your product?
13. Do you have specialized production techniques (for example: certified organic, NPU, IMP, IRM . . .)?
14. (if 13 = yes) Does this help you market your product?
15. How do you define quality in your products?
16. We've heard some buyers won't buy locally because they can't rely on consistent quality and quantity. What are your thoughts on this?
17. How many months per year do you sell produce?
18. Are you actively seeking to expand your markets or are you at full capacity?
19. Given demand, are there any items you would like to (and have the capacity to) grow more of?
20. What are you doing to develop new markets?
21. Do you use electronic methods to market your products (examples: fax, email, website)?
22. Are you satisfied with your current system of marketing/distribution? If no, how would you modify it?
23. I am going to read a list of factors that are important to some producers. Please rank them with a number 1 through 5, 1 being not important when making production decisions and 5 being extremely important when making production decisions. If you don't know or have no opinion, please say so.
Using more environmentally friendly agricultural practices.
Reducing transportation costs
Selling foods locally
Paying someone else to market your product

Ask them to comment and or suggest other issues that should be considered.

Any questions for us?

Would you like to further participate in this project by talking with us again, being on our mailing list to learn what we found in this study and hear about opportunities to develop relationships with local producers, or meet with local buyers?

Notes

1. This is the definition used by Bill Mollison, founder of Permaculture, the first design system for sustainable development, articulated between 1972 and 1974 in trainings and published in 1978 (with David Holmgren, *Permaculture One* 1978, Corgi Books).
2. Dag Hammarskjöld Foundation, "Report on Development and International Co-operation 'What Now,'" *Development Dialogue* special issue 1975. "Another Development," it was concluded by those involved in the project, 'is people-centred, geared to the satisfaction of basic human needs – both material and, in its broadest sense, political; it is

self-reliant, endogenous, ecologically sound and based on democratic, political, social and economic transformations which alone will make possible the attainment of the other goals. Another development also encompasses the search for societies overcoming discrimination of any kind – be they social, sexual, ethnic or economic. It is a participatory and pluralistic process.' "

3. John-Thor Dahlburg, "Cooking up a reply to Big Mac: The slow food movement." *Los Angeles Times*, November 18, 1998: A1, A24.
4. Carlo Petrini in *Il sole 24 ore*, no date. See <http://www.slowfood.com>.
5. California Federation of Certified Farmers' Markets (<http://farmersmarket.ucdavis.edu/>).
6. US Department of Agriculture, Agricultural Marketing Service (<http://www.ams.usda.gov/farmersmarkets/>).
7. Open Air-Market Net founded 1995 is "the World Wide Guide to Farmers' Markets, Flea Markets, Street Markets, and Street Vendors . . . research and educational project that aims to gather and provide information about open air marketplaces around the world, both formal and informal . . . Every open air market related resource on the internet should be accessible from here" (<http://www.openair.org>).
8. Low income neighborhoods often suffer exploitation at the hands of grocery stores that charge higher prices there, market inferior products, and fail to provide a diversity of product choices. See Community Food Security Coalition. P.O. Box 209 Venice, 90294, USA (<http://www.foodsecurity.org>).
9. Small farms are actually 200 to 1000% more productive than larger ones. This holds true across the world where the peak productivity is well under 10 hectares and frequently under 3 hectares. In the US, farms under 27 acres have more than ten times greater dollar output than larger farms.
10. CO Dept of Ag Marketing Producer Mailing List, CO Dept of Ag "Farm Fresh" Directory, CO Apple Administration Committee 1998–1999 Assessment List, Boulder County Farmers' Market 1998 List, Mesa County Farmers' Market 1999 F.A.R.M. Membership List, CO Chefs Collaborative 2000 Mailing List, CO Potato Administrative Committee Warehouse and Bulk Shipper List 1999–2000, Garfield County Extension Agent's List, Cooperative Extension NW Northwest Regional Office 1999 Vendors list, CO Onion Association 2000 Grower/Shipper Members, List of Greenhouse Growers provided by Steve Newman, CO Producers Association 1999 Directory, Dept of Ag Marketing CO Food Directory 1999.
11. The 13 state-run senior congregate meal sites in the sample were not categorized by location, so the location percentages do not add up to 100%.

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