

Agritourism in the West: Exploring the Behavior of Colorado Farm and Ranch Visitors

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Introduction

Agritourism represents a significant part of the tourism industry in the Intermountain West, and is poised to become increasingly important in Colorado. Nationwide, 106 rural counties employed more than 1,000 people in travel and tourism jobs, with some recording 90% of total employment in that industry (Wilkerson, 2003). According to 2002 US Census of Agriculture data, farm and ranch businesses in Colorado derived over \$12 million in income from recreational sources. Recreation contributes more than 5% to producers' total farm income in 6 Colorado counties (Wilson, Thilmany and Watson, 2006; US Census of Agriculture, 2002). Moreover, these are conservative estimates of agritourism-based income for Colorado, given that the USDA survey focused only on fishing- and wildlife-based activities, to the exclusion of agritainment, heritage, culinary and off-farm agritourism enterprises.

There has been limited empirical research on the agritourism industry to date. The majority has been somewhat anecdotal, relying primarily on case-studies and startup guides. Brown and Reeder (2007) use national data from the 2004 Agricultural Resource Management Survey to provide summary descriptive information about the extent of the farm recreation industry and the likelihood of farmer involvement in an on-farm recreation business. Carpio et al. (2006) use data from the 2000 National Survey on Recreation to develop a travel cost model to examine the value of the rural landscape. Bernardo et al. (2004) use the same national survey to explore visitor characteristics and various expenditure patterns for enterprises in Kansas; something we also try to address in our study of Colorado. The work of Wilson et al. (2006) focuses on unique characteristics of county-level agritourism data, including natural amenities and other perceived public goods that might add to each county's agritourism revenue stream.

The West has experienced growth in tourism planned around agricultural and food enterprises, as well as agricultural heritage sites. Colorado State University (CSU) researchers needed to understand the tastes and preferences of visitors to and within Colorado who participate in agritourism, as well as visitor incidence and travel expenditures to assist agritourism providers. Although this research was targeted at Colorado, the methods and findings will be useful to a broad set of Western researchers, agricultural businesses and regional economic development staff.

This paper will summarize CSU's consumer-based research on agritourism by providing the following: an overview of agritourism; a general description of travelers; an explanatory model of visitors' agritourism planning; a model analyzing factors affecting the level of travel party expenditures on agritourism; and a classification of agritourists that will better illustrate the diversity and priorities of those who visit agritourism enterprises.

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A Study of Colorado Agritourists

In 2007, Colorado State University worked with National Family Opinion (NFO; <http://www.tns-us.com/>) to implement a Web-based survey targeted at travelers to and within Colorado during 2005 and 2006. NFO distributed the survey to individuals already recruited to their panel, but filtered the samples to include only those who had visited Colorado during the 2005/06 timeframe. These samples were then stratified according to certain demographic characteristics such as age, income, race, and education. Data were not collected from visitors at agritourism sites, which reduces sample bias, but is also a limitation to the study.

Of 1,003 total survey respondents, 503 were from Colorado and 500 were from targeted metro areas in adjacent states (hereafter referred to as out-of-state). Overall, there was a 38% response rate to the Web survey. The targeted out-of-state areas were Salt Lake City, Utah, Albuquerque/Santa Fe, New Mexico, and Phoenix, Arizona—chosen because the Colorado Tourism Office reported that the incidence of travel to Colorado from these metro areas was very high (CTO, 2007). As a result, a fairly representative sample of visitors to Colorado was obtained (in terms of demographics such as income, education and gender). One exception is that those of Hispanic ethnicity were less likely to respond (as is the case with most surveys administered by this company). However, the under-reporting among Hispanics is not believed to significantly impact study outcomes.

Individuals were presented a nested question in which they were first asked if they had traveled to Colorado in 2005 or 2006. If they responded “yes,” they were then eligible to take the survey. Subsequently, questions were posed about the respondents’ agritourism experiences. Agritourism was defined for them as a variety of recreational, educational and other leisure activities and services, provided by farmers and ranchers that could take place on or off the farm or ranch. A list of activities was provided—including wildlife, food-based, educational tours, ranch/farm stays, heritage agriculture/cowboy/pioneer activities and agritainment (mazes, pumpkin patches, festivals), and respondents could refer to this definition during the course of the survey. Questions regarding agritourism expenditures referred to the respondents’ most recent trip to Colorado during the referenced 2005/06 time period.

Overall, travelers who came to Colorado to participate in agritourism between 2005 and 2006 were characterized as follows:

- Age - 46 years on average
- Income
 - 37% earned incomes over \$75,000 per year
 - 12% earned incomes under \$30,000 per year
- Family characteristics
 - Marital status:
 - 73% of travelers were married
 - 27% were never married, or were divorced, widowed or separated
 - Family composition:
 - 28% were young couples with no children
 - 22% were families with children over six years of age
 - 20% were young families with children under six
 - 15% were retired couples
 - 15% were singles and of any age
- Race/ethnicity
 - 90% identified themselves as White (7% of whom specified Hispanic ethnicity)

- Provenance
 - Overall, 57% of agritourism travelers came from out-of-state (but within the Four Corners region), a slightly greater share than the broader sample would suggest

These numbers would suggest that travelers are more likely to be higher-income (consistent with other tourism studies) and from white households (a little surprising given the state's ethnic diversity). However, it should be noted that Hispanic households are under-represented among those who were recruited for the survey, given that recent population estimates place the proportion of Hispanics in Colorado at nearly 20% for 2006 (U.S. Census Bureau and the Pew Hispanic Trust), and undersampling of this group is a common challenge with surveys.

Among the respondents, 75% participated in at least one agricultural, food or heritage activity on their most recent trip to Colorado, with the majority of these travelers taking 3 or less trips a year. Of those who participated in at least one agritourism activity, more than one-third reported that agritourism was a primary or secondary reason for their trip; more than half of whom (56%) were Colorado residents. Furthermore, nearly one-fifth of all respondents participated in agriculture-related activities on their trips more than 3 times a year, a relevant target market for the state and any farm or ranch business seeking to increase revenue through alternative enterprises. While it is encouraging that such a large share of visitors already participated in agritourism, there may be opportunities to expand participation, the number of overall visitors or the length of visitors' stays by better understanding their motivations and travel behavior.

In understanding the role that agritourism plays in travel planning, the Colorado Department of Agriculture and Colorado State University Extension can help communities build economic development and marketing strategies, and provide information to improve farm and ranch enterprise management. First, knowing how pivotal agritourism is allows us to more accurately measure the degree to which the economic activity brought by travelers can be attributed to this sector (and, thus, the potential for improved economic activity through agritourism development). Second, enterprise and community planners need to understand how to differentially market to those who are seeking to engage in agritourism as the main purpose of their trip (primary visitors), or who may extend their stay to participate in agritourism (secondary), or who participate in agritourism based on a spur of the moment decision (unplanned), in order to attract agritourists.

Explanatory Model for "Agritourism Importance"

An econometric model was developed to determine the factors affecting travel planning by potential agritourists. The model was based around the stated attribute of agritourism being a "primary," "secondary," or "unplanned activity" to one's trip, which respondents indicated on their survey, based on the descriptions given above. A multinomial logit model was selected to regress explanatory variables against these three agritourism classifications, with "unplanned" serving as the benchmark category for the dependent variable.

The relevant explanatory variables for this model fall into four broad categories that were expected to influence agritourism's draw to a visitor: (1) unique place aspects of each Colorado county to control for natural amenity quality differences (USDA-ERS natural amenities index, USDA-ERS, 1999) and proximity to urban areas (USDA-ERS urban influence codes, USDA-ERS, 2003), (2) selected demographics of the participant/household (i.e., gender, family size, race, life-stage, residence market size, and income), (3) trip characteristics found to be significant in past research (i.e., number of people in the travel party) (Seiler, et al., 2002), and

(4) trip planning resources referenced by the travelers (i.e., past experience(s), welcome centers, recommendations, Colorado Tourism Office, travel Web sites, personal Web searches, magazines, park brochures, and billboards/public signage). Further description of the survey and variables included can be viewed in Thilmany et al 2007(a) (<http://dare.colostate.edu/pubs/edr07-16.pdf>).

Because “unplanned” activity was designated as the baseline value, the model produces statistical results for agritourism when it serves as a “primary” and “secondary” activity. For brevity, the full set of results is not presented here, but a summary of significant factors provides an interesting complement to other findings from the survey.

Table 1: Multinomial Logit Regression Model Results			
Number of observations = 363		Pseudo R ² = 0.0787	
Primary importance (1)		Secondary importance (2)	
	Relative risk ratio (RRR)		RRR
Where relative risk ratio infers a higher (above 1.0) or lower probability (below 1.0) of a traveler participating in agritourism			
Middle-aged with no kids	** 0.3543	Natural amenity scale of county visited	* 1.2349
Parents	** 0.2719	Planned travel based on past experiences	** 2.4604
Number in travel party	** 1.1182		
Planned using national travel Web site(s)	** 0.3266		

** significant at 95%
 * significant at 90%

We observe four significant variables for travelers who indicated that agritourism was of “primary” importance to their trip to Colorado: middle-aged household with no kids, parents, number in party, and use of travel planning resources on the Web (all at the 95 percent level). Estimates suggest that a middle-aged person with no children is less likely (≈65%) to have agritourism as the primary reason for his/her trip (holding all else constant). This is a reasonable conclusion as one would expect this group to have the flexibility to act more impulsively and plan activities during their trip. This hypothesis is strengthened by the positive estimates on the size of the travel party, which shows that larger groups participating in agritourism are more likely to plan their trip itinerary (and include agritourism activities) prior to travel. Among travel planning resources, only travel planning through national travel Web sites is negative and significant, indicating that these Web sites are less likely to be used by people planning their travel around agritourism activities (most likely because these sites have limited activity lists from which to choose, and they feature only major destination cities and resort areas).

For the group where agritourism was of “secondary” importance, two significant variables were observed—the natural amenities scale variable for the county visited and the dichotomous variable for whether the respondent has had a previous agritourism experience. The likelihood ratios show relative propensity, so that any fraction above 1 is a positive probability of greater incidence, and vice versa for those under 1.0. Results suggest that a one-unit increase in the natural amenities scale results in an approximate 23 percent increase in travelers to a county noting agritourism was of “secondary” importance, all else being equal (because 1.23-1.0 is equivalent to 23%). This result is encouraging because it reveals that people are attracted to an area by its natural amenities and this, in turn, spills over into participation in agritourism activities in these areas: good news for areas that have struggled to increase the economic contributions they can leverage from the beauty of their communities. It also highlights the importance of linking marketing for agritourism enterprises to natural parks, forests and recreation areas, such as representing them in park brochures and at visitor centers. Lastly, the results imply that private enterprises should describe the natural aspects of their operations in their marketing materials.

Travel Expenditure Model

A linear expenditure model was developed to measure demand and reveal plausible factors affecting travel party expenditures². The dependent variable, total travel party expenditures per day, was regressed on a set of explanatory variables very similar to the multinomial logit model. The model was further refined to reflect the full set of travel spending choices, and showed that seven variables were significant, with the direction of the effect presented below (detailed results will be explored in a subsequent analysis).

Table 2: Generalized Linear Demand Model Results	
Number of observations = 358	
Variable	Positive/Negative effect
Urban influence on visited county	++
Natural amenity scale of visited county	-
Income level (categorical)	++
Planned travel based on past experiences	-
Planned travel through Colorado Tourism Office	+
Used no travel planning resources	-
Planned travel through magazines	++

++/-- significant at 95%

+/- significant at 90%

The relationship between agritourism expenditures and the urban influence codes was robust and positive. This suggests a get-a-way effect for people participating in agritourism in rural communities, a result that is consistent with Wilson, Thilmany and Watson (2006). The

² Due to some endogeneity issues with the variable for travel party size, the final linear model was generalized with this variable as an analytical weight.

coefficient on natural amenities was also highly significant; however, it was estimated to have a negative relationship on the dependent variable. While this result was a little unanticipated, it is often the case that travelers' expenditures are actually limited by the natural state of an area because there are fewer opportunities to spend money there. The model's result also reveals some plausible variable bias in using the natural amenities scale as a measure of "scenic beauty" as it incorporates inputs related to climate and topography. Results for income were robust and in line with a priori expectations of a positive relationship with demand/expenditure. The regression results also suggest a negative relationship on total expenditures per day for people who did not use any resources for their trip planning, or for those who used their previous agritourism experience for planning, instead of new resources. However, those travelers who referred to Colorado Tourism Office (CTO) resources before or during their travels showed increased expenditures. This result highlights the potential economic contribution the CTO can have for Colorado's expanding agritourism industry.

Agritourism Clusters

Another approach to understanding traveler behavior is by cluster analysis. This is a statistical technique that groups people with similar behavior and attitudes into distinguishable traveler segments. A factor analysis was used to identify the variables accounting for most of the variance among travelers. The k-means clustering algorithm in STATA 9.0 was then employed to group the sample. It should be noted that the sample was reduced to 897 observations due to incomplete responses. More details on this approach and findings are available at: <http://dare.colostate.edu/pubs/edr07-16.pdf>.

After examining differences across travelers in the survey, five groups of travelers who visited Colorado were identified, based on how their behavior is unique from other segments. A brief summary of these clusters shows the following:

- **Cluster 1:** The *Loyal Colorado Enthusiasts* make up 13% of the travelers analyzed in the cluster analysis. These visitors are parents of older children and couples who return often—based on their previous agritourism experiences. They represent the largest share of participants in outdoor recreation on farms and ranches during the summer. They are most likely to camp while traveling, and they stay within a few hundred miles of home. Loyal Colorado Enthusiasts plan to participate in a diverse set of agritourism activities and report more visits to agritourism enterprises relative to two years earlier.
- **Cluster 2:** *Family Ag Adventurers* make up 17% of the survey respondents and are among the most promising agritourism visitors. This segment plans their travels around specific agritourism outings, and also participates in unplanned activities several times per year. This group can be defined as middle-income, often traveling with children in bigger parties. They are willing to visit local enterprises, and travel long distances to reach a variety of agritourism destinations. They travel primarily in summer, but also plan trips for spring and fall, which extends the season for some agritourism operators.
- **Cluster 3:** *In-State Explorers* make up 30% of the 897 travelers analyzed. These are Coloradans who explore the state by car on short jaunts, but usually do not make trips specifically for agritourism purposes. Most of their travel occurs in winter and, to a lesser extent, in fall and summer. Although this group might be hard to target directly since they don't travel with agritourism activities in mind (they do participate in some unplanned activities, however), they travel frequently and are from upper-middle income households. Many planned to travel in the subsequent year and participate in some

agritourism, so the culinary events in which they currently participate may be the best means to extend their visitation and spending into other agritourism experiences.

- **Cluster 4:** The *Out-of-State Activity Seekers* represent about 4% of the survey panel and comprise those visitors to Colorado who traveled the farthest, did not plan to visit again in 2007, and who were more likely to spend longer trips in hotels, resorts, second-homes or bed and breakfast accommodations. They were primarily mid- to upper-middle class individuals, traveling in smaller parties (even though they are parents), who were more likely to engage in agritourism as a secondary or unplanned activity. They enjoy participating in numerous outdoor activities, and report some of the highest interest across all agritourism activity groups, relative to other survey respondents. Their travel is spread more evenly across all four seasons, relative to the other clusters.
- **Cluster 5:** The *Accidental Tourists* are 36% of the 897 survey respondents, and may be coming for non-recreational business, educational, or convention activities. In short, they are not seeking agritourism activities, and only a small share of their total agritourism-oriented activities takes place in Colorado. While this group is only in the state for a few days with small windows of time for leisure (for which they may not have planned), they may look for activities to occupy their free time. However, these activities need to be local, well-promoted and easily accessed due to their travel and time constraints.

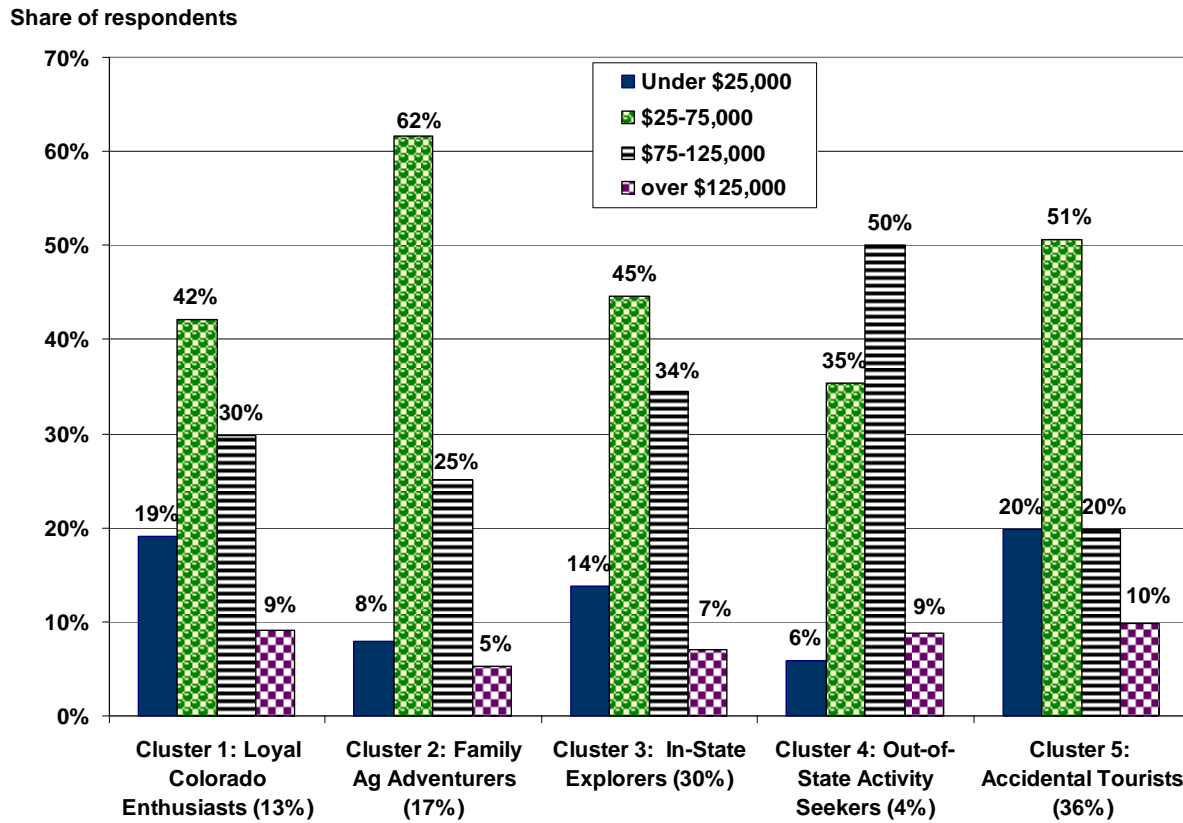
Some of the differences across clusters (including those that assisted us in naming the clusters) are more evident in the following figures and tables that examine demographics, travel behavior and choices across these consumer clusters.

Demographics

In terms of life stage differences among clusters, there are a higher number of parents among the Family Ag Adventurers, especially relative to the Out-of-State Activity Seekers (who are older with no children). Although singles make up a large share of the In-State Explorers (20%) and the Accidental Tourists (23%), travel parties with parents and children are the majority (35% and 42%, respectively). In fact, families with children make up 39% of the sample as a whole.

Figure 1 shows that Loyal Colorado Enthusiasts, the Out-of-State Activity Seekers, and the Accidental Tourists have the highest share of high-income travelers (more than 8%, 9% and 11%, respectively), although the Accidental Tourists have the most diverse income levels. The Out-of-State Activity Seekers have a high number of upper-middle and upper-income households. It is interesting to note that the two segments that have the greatest interest in agritourism have more lower- and middle-income households, suggesting that agricultural, food and heritage activities may be perceived as a good value for vacationers with more limited budgets.

Figure 1: Income Levels of Colorado Visitors, by Cluster, n=897



Traveler Behavior

Although demographics lend some insight into traveler behavior, it is more relevant to consider how behaviors and attitudes differ among the segments. Out-of-State Activity Seekers spend, by far, the greatest amount of time in Colorado (nearly 6 days), while In-State Explorers make the shortest trips (4 days on average). All five groups travel in parties that average 3-4 people. The Loyal Colorado Enthusiasts participate in the greatest number of agritourism activities per trip (more than 4 activities), followed by the two segments with the most out-of-state visitors (Out-of-State Activity Seekers and Family Ag Adventurers). The types of agritourism activities in which travelers participate also vary among consumer segments. On-farm activities based on educational and nature experiences were the most popular among all respondents, followed by food and culinary activities. Food and culinary activities were the top agritourism choice for Loyal Colorado Enthusiasts and Family Ag Adventurers. Although In-State Explorers participated in relatively few agritourism activities relative to the Out-of-State Activity Seekers, Loyal Colorado Enthusiasts and the Family Ag Adventurers, they were most interested in food/culinary and on-farm activities.

Understanding the types of planning resources used by the different traveler segments can help the tourism industry and public officials who are considering investing more resources in agritourism promotion to reach the targeted audiences. Among all clusters, past experiences and recommendations were the most frequently mentioned, but personal experiences were particularly important for Loyal Enthusiasts and In-State Explorers, while Family Ag Adventurers relied more heavily on recommendations from friends and family than the other clusters (Table

3). The Colorado Tourism Office was also cited frequently, especially among the three segments that show the greatest interest in agritourism: a clear signal that even stronger partnerships with the Tourism Office would be fruitful in growing this segment. Out-of-State Activity Seekers generally did the most planning, and could be effectively targeted with good materials shared through Web sites or travel destination partners (such as state and national park visitor centers and Welcome Centers).

Table 3: Trip Planning Resources by Cluster, n=897

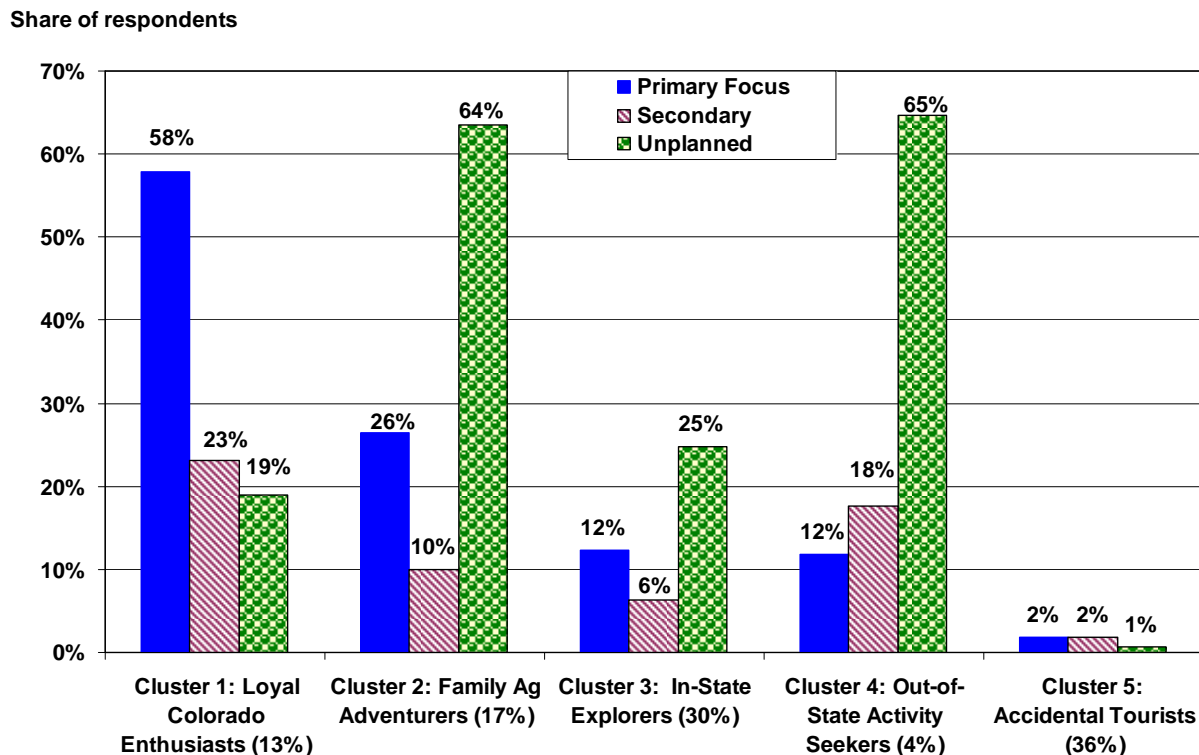
Resources Used to Plan Trip to Colorado*	Cluster 1: Loyal Colorado Enthusiasts (13%)	Cluster 2: Family Ag Adventurers (36%)	Cluster 3: In-State Explorers (4%)	Cluster 4: Out-of-State Activity Seekers (30%)	Cluster 5: Accidental Tourists (17%)
Past Experience	76%	56%	64%	35%	52%
Personal Web Search	24%	19%	15%	24%	15%
CO Tourism Office	17%	13%	8%	29%	2%
Park Brochures	17%	14%	4%	9%	2%
Recommendations	17%	30%	22%	21%	16%
Travel Association	12%	12%	8%	21%	7%
Welcome Center	9%	9%	6%	15%	2%
Regional Web site	7%	7%	6%	9%	2%
Travel Web site	4%	7%	13%	50%	14%
Magazines	3%	3%	4%	6%	3%
Signage	3%	1%	2%	0%	0%
Arranged by hotel	2%	2%	5%	6%	7%
Regional Brochure	2%	1%	2%	3%	1%
Mailing	1%	1%	1%	0%	1%
Other	1%	1%	4%	3%	3%
Travel Agency	0%	0%	0%	15%	1%

Note: Respondents checked all resources they used in their travel planning, so totals may sum to more than 100%.

The Role of Agritourism in Colorado Visits

The model results presented earlier in this paper suggest that it is important to understand the role of agritourism in trip planning in order to further develop agritourism visitation (Figure 2). The Family Ag Adventurers and, to a lesser degree, Out-of-State Activity Seekers and Loyal Colorado Enthusiasts, tend to note a very important role for agritourism activities in their travel plans—one of the main reasons they are considered great opportunities for growing the industry. The Out-of-State Activity Seekers and Family Ag Adventurers are particularly promising for growth since so many of their agritourism activities were also unplanned. This creates opportunities to increase their future visitation to agricultural, food and heritage based enterprises through the information channels they are most likely to use: word of mouth, Colorado Tourism Office promotions and Internet-based searches.

Figure 2: Importance of Agritourism to Visit, by Cluster, n=897



Note: The boxes for each cluster will not necessarily add to 100% since this graph only presents the share of each cluster that did participate in agritourism during their last trip.

Implications for Strategic Marketing and Partnerships

The overarching themes of any marketing plan should be how travelers will “find” an operation or tourism region, how to develop loyalty among visitors and what factors may influence their interest and willingness to spend on their visits. Taking these themes into consideration, three important elements for strategic marketing emerge from this analysis of travel behavior and interest in agritourism.

First, travelers who plan to participate in agritourism have some distinguishable characteristics compared to visitors who make unplanned trips to agritourism sites. Second, travel expenditures can be influenced by travel planning. Lastly, traveler characteristics provide insights into market potential, the role of targeted promotion based on identified opportunities, and how effective partnering might enhance agritourism industry growth.

Twenty-five percent of all visitors did some planned agritourism activities on their last trip to Colorado (primarily the Loyal Colorado Enthusiasts, the Out-of-State Activity Seekers and the Family Ag Adventurers). Another 23% of all visitors surveyed indicated that they participated in unplanned agritourism activities. There appears to be an untapped opportunity to reach these latter consumers and convert them into planned agritourists in subsequent trips. In contrast, those who plan for agritourism likely have travel constraints that impede the spontaneity of visiting a site on the spur of the moment, such as traveling in larger groups. In-State Explorers traveled in the largest groups. The research showed that these travelers relied on their own past experiences as a planning tool, but also on recommendations and Web searches to identify agritourism sites. These travelers might be encouraged to plan for agritourism by providing a broader set of travel planning resources at the agritourism site, offering testimonials on Web sites that provide reviews of the agritourism experience, as well as interactive blogs that provide more in-depth and current information.

The travel expenditure model showed that people who rely on their own previous experiences spend less on agritourism than those who use new information when planning their trips (for example, magazines or CTO resources). It appears that relatively small, well-targeted advertising investments in agritourism promotion could yield large returns for entrepreneurs and communities across Colorado, and create a large field of repeat visitors to businesses associated with the agritourism sector. This may be especially true for those who can promote the fact that their business is located in an area with high natural amenities, especially to travelers who are seeking complementary activities for their visits to such areas. The results suggest that this may have an even greater payoff for those agritourism businesses in more distant locales.

Partnerships with other travel-related organizations and media outlets are key to increasing the success of Colorado's agritourism sector. Only 9% of all those traveling to Colorado used Colorado Tourism Office materials when planning their trips. However, the consumer segments most likely to participate in agritourism relied more heavily on the CTO for information: Out-of-State Activity Seekers (29%), Loyal Colorado Enthusiasts (17%) and Family Ag Adventurers (13%). Further, magazine advertising and Welcome Centers played a relatively important role in attracting one group—the Out-of-State Activity Seekers (6%). This group also rented vehicles to travel around the state (82%), so brochures could be placed at car rental agencies in airports, or on travel association or industry partner Web sites. Lastly, the Accidental Tourists may not have much time for outside activities, but operations located near metropolitan areas could advertise in hotels and airports where these travelers can spontaneously plan for agritourism experiences as they embark on their Colorado travels (for example, the Colorado wine industry has effectively placed brochures in airport locations near baggage claim, shuttle and rental car counters).

For agritourism operators looking to leverage scarce advertising resources, an analysis of the most likely visitors will yield important information on how to balance investment in marketing materials, word of mouth referrals and loyalty programs. Cooperative and joint advertising partnerships with other travel-related stakeholders appear to be the most effective method of

targeting the greatest number of interested consumer segments and engaging both the planner and the spontaneous traveler in considering agritourism in their travel plans. As economic challenges lead some to consider traveling closer to home, agritourism operations may gain some advantage in attracting those who have an interest in the heritage, food aspects or education to be gained from Western farms and ranches. Therefore, thoughtful development of agritourism enterprises and strategic marketing to travelers may yield more return visitors and attract those who have only lightly considered these types of recreation and leisure activities in the past.

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