

Colorado Consumer Preferences for Specialty Potato Varieties

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Presented to:
Colorado Potato Administrative
Research Committee
March 1, 2006

"Power to the Spud: The Potato Revolution is Upon Us!"

— D. Blackburn, *NY Times* News Service,
January 12, 2006

Motivation

The Changing Consumer:

- Acceptance of specialty potatoes on the rise
- Increased popularity of gourmet and "exotic" foods
- Increased information concerning potential use of specialty foods (e.g., internet, T.V.)
- Trend towards out-of-home consumption

For example...

Avg Number of Produce Items Stocked per Supermarket

"Growing niche markets for noncommodity products are expected to provide greater opportunities for both foreign and domestic producers to increase the farm value of fresh produce"

—R. Clemens,
Iowa State University Center for Agricultural and Rural Development

In the Potato Industry...

Variety	Percentage
White	10%
Yellow	5%
Other	0%
Red	22%
Russet	63%

Variety	Percentage
Yellow	3%
Other	8%
Russet	30%
White	14%
Red	25%

Source: Repositioning Potatoes at Retail Benchmarking Study, Perishables Group, Inc.

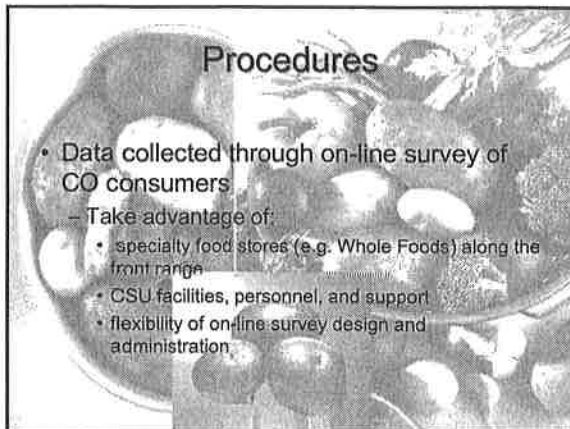
But the growth...

National Bag Sales by Type as % of Total

Overall Growth: 15.6%
Non-Russet Growth: 31.1%
Russet Growth: 7.7%

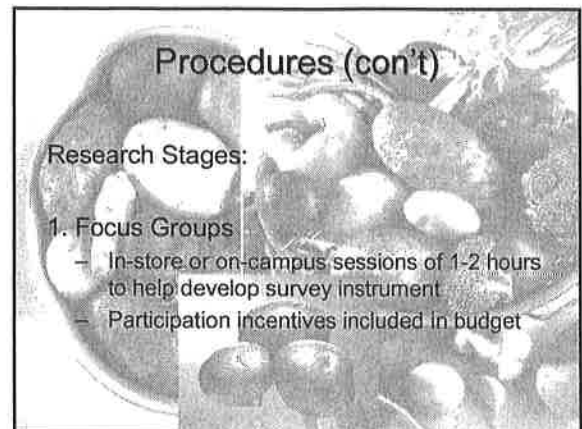
National Bag Sales by Type (\$000,000)

Source: National Potato Board



Procedures

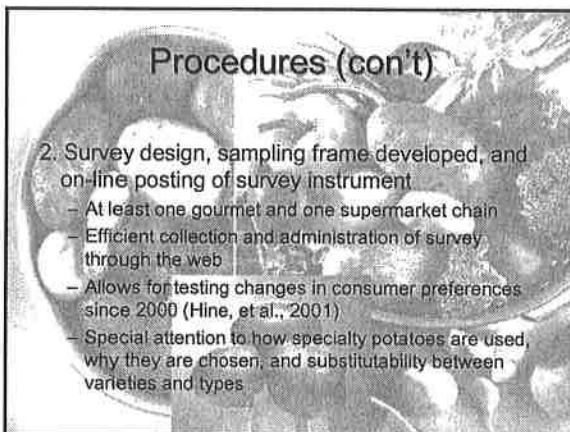
- Data collected through on-line survey of CO consumers
 - Take advantage of:
 - specialty food stores (e.g. Whole Foods) along the front range
 - CSU facilities, personnel, and support
 - flexibility of on-line survey design and administration



Procedures (con't)

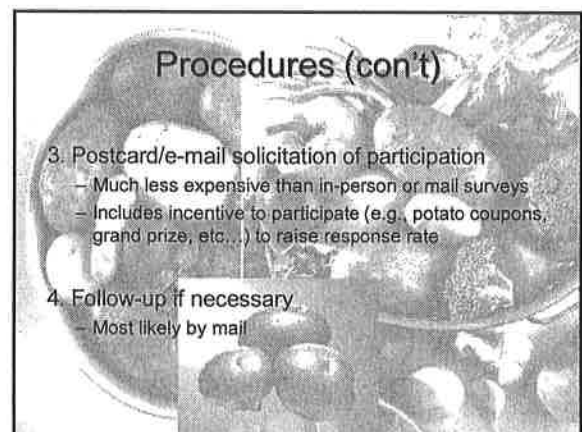
Research Stages:

1. Focus Groups
 - In-store or on-campus sessions of 1-2 hours to help develop survey instrument
 - Participation incentives included in budget



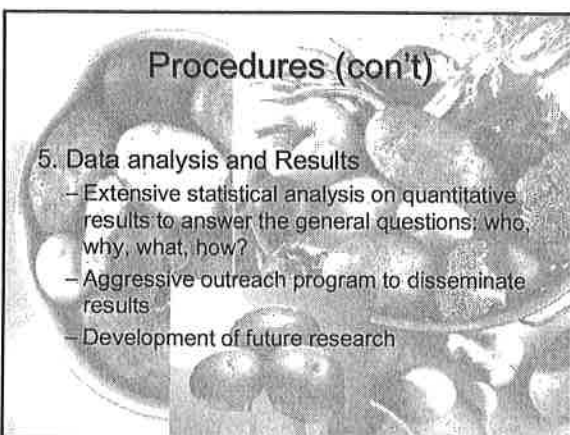
Procedures (con't)

2. Survey design, sampling frame developed, and on-line posting of survey instrument
 - At least one gourmet and one supermarket chain
 - Efficient collection and administration of survey through the web
 - Allows for testing changes in consumer preferences since 2000 (Hine, et al., 2001)
 - Special attention to how specialty potatoes are used, why they are chosen, and substitutability between varieties and types



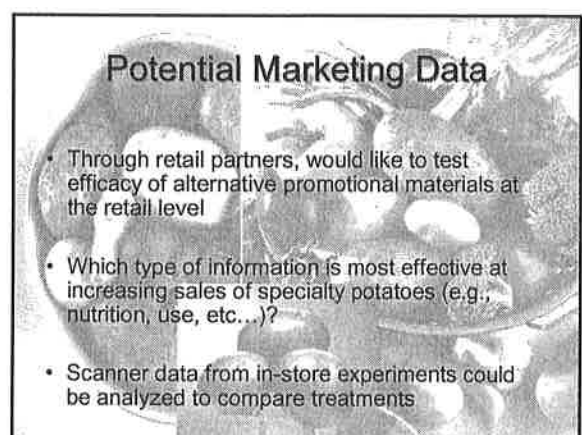
Procedures (con't)

3. Postcard/e-mail solicitation of participation
 - Much less expensive than in-person or mail surveys
 - Includes incentive to participate (e.g., potato coupons, grand prize, etc...) to raise response rate
4. Follow-up if necessary
 - Most likely by mail



Procedures (con't)

5. Data analysis and Results
 - Extensive statistical analysis on quantitative results to answer the general questions: who, why, what, how?
 - Aggressive outreach program to disseminate results
 - Development of future research



Potential Marketing Data

- Through retail partners, would like to test efficacy of alternative promotional materials at the retail level
- Which type of information is most effective at increasing sales of specialty potatoes (e.g., nutrition, use, etc...)?
- Scanner data from in-store experiments could be analyzed to compare treatments

Title: National Consumer Preferences for Specialty Potato Varieties

2006

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Summary of Problem:

As consumers continue to expand their demand for fresh, quality, non-traditional foods, the potato industry stands poised to take advantage of the changing market for fresh specialty potato varieties.¹ Consumer acceptance of specialty potatoes has been on the rise for the last several years, with varieties of yellow, blue, and red flesh or unusual shape such as the “banana” fingerling reported to have great consumer appeal (Olsen, et al., 2003). Trends towards increased consumption of gourmet and exotic foods as well as products that are innovative, high quality, healthful, and fun are likely to support continued demand into the future (Purcell, 2006). Although currently comprising a small (~1%) percentage of the overall fresh market and slowly making inroads into the foodservice market both domestically and internationally, the higher prices (and profits) for these specialty varieties have great potential to raise farmer incomes and serve as a buffer against price risk (Earnst and Woods, 2003; Olsen, et al., 2003).²

However, more effective promotion of specialty potatoes to target beyond “early adopter” consumers depends upon identifying and understanding the purchasing, consumption, and socio-economic and demographic characteristics of both current and potential consumers of these products. As such, this project proposes to conduct a national survey that will result in a quantitative description of the preferences of potato consumers, with an emphasis on those characteristics specific to specialty potato purchasers. It is expected that the survey will result in information not fully addressed through the national 2005 Potato Marketing Board survey.

Research Objectives:

- To collect and analyze current and potential consumer data to facilitate a better understanding of national specialty potato preferences and market potential;
- To effectively communicate the results of the research to U.S. potato producers through appropriate outreach activities including presentations to potato producers at events such as the U.S. Potato Board annual meeting, writing of fact sheets and articles containing findings and recommendations, and circulation of information which clearly and accurately explains the market potential for specialty potatoes.

¹ Similar to the University of California Cooperative Extension service, herein specialty potatoes are defined as potatoes with yellow flesh, fingerling or other unique size/shape characteristics, red flesh, purple/blue skin and flesh, and multi-colored skin and/or flesh.

² Specific references available upon request from the authors.

Research Plan:

Quantification of national consumer preferences will be accomplished through primary data collection via surveys of potato buyers and subsequent statistical analysis of the collected data. Although not necessarily comprehensive, it is expected that the survey will result in information not fully addressed through the national 2005 Potato Marketing Board survey, including:

- Relative consumption of specialty potatoes to bargain and bulk varieties;
- How the consumer learned about specialty potatoes;
- What product attributes prompted the consumer to make their specialty potato purchase;
- Packaging preferences (i.e. bulk, clamshell container, small bag);
- How the consumer learned to prepare specialty potatoes;
- What methods of preparation are commonly used and whether these methods and uses differed from those used to prepare bargain and bulk potato varieties;
- When the consumer began purchasing specialty potatoes;
- What varieties of specialty potatoes do they find most appealing and/or purchase more often;
- What is their general perception of relative healthfulness and quality of specialty potatoes;
- Where is the consumer most likely to purchase specialty potatoes;
- What perceived level of substitutability exists between bulk and bargain potatoes versus specialty potato varieties;
- In principle, would the consumer support a price premium for varieties of specialty potatoes?

Following data collection, extensive statistical analysis will be performed by the investigators to analyze the raw data and a final report of findings will be prepared. Results will be summarized in various extension and outreach publications, including, but not limited to, fact sheets, trade journals, and presentations to growers and other interested parties. In cooperation with the Denver-based U.S Potato Board, additional outreach material and presentations may be developed as they are requested. The survey and data analysis activities including writing of the research report and supporting outreach material is expected to take one year.

Total Budget:

Personnel	
Graduate Student Assistant (1 year stipend)	16,820
Survey	
Administered via NFO	25,000
Materials and Supplies	
Outreach Materials	2,750
Travel	
For Outreach and P.I. Meetings @.\$0.34/mile	714
TOTAL	\$45,284

Colorado Consumer Preferences for Specialty Potato Varieties

Grant Proposal

Submitted to:
Colorado Potato Administrative Committee

February 24, 2006

By

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PROJECT TITLE: **Colorado Consumer Preferences for Specialty Potato Varieties**

FUNDING LEVEL: \$19,736

DURATION OF PROJECT: 1 year

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TITLE: Colorado Consumer Preferences for Specialty Potato Varieties

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NATURE, SCOPE, AND OBJECTIVES:

Nature and Scope of the Research:

As consumers continue to expand their demand for fresh, quality, non-traditional foods, the potato industry stands poised to take advantage of the changing market for fresh specialty potato varieties.¹ Consumer acceptance of specialty potatoes has been on the rise for the last several years, with varieties with yellow flesh, red or purple skin, or unusual shape such as the “banana” fingerling reported to have great consumer appeal (Olsen, et al., 2003, Naegely, 2002). Trends towards increased consumption of gourmet and exotic foods as well as products that are innovative, high quality, healthful, and fun are likely to support continued demand into the future (Purcell, 2006). Although currently comprising a small (~1%) percentage of the overall fresh market and slowly making inroads into the foodservice market both domestically and internationally, the higher prices (and profits) for these specialty varieties have great potential to raise farmer incomes and serve as a buffer against price risk (Earnst and Woods, 2003; Olsen, et al., 2003).

However, more effective promotion of specialty potatoes to target beyond “early adopter” consumers depends upon identifying and understanding the purchasing, consumption, and socio-economic and demographic characteristics of both current and potential consumers of these products. As such, this project proposes a market survey and data analysis exercise that will result in a quantitative description of the preferences of

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potato consumers, with an emphasis on those characteristics specific to specialty potato purchasers. Given the substantial access to specialty food stores that stock specialty potato varieties along the Front Range of the state of Colorado, such as Whole Foods and Wild Oats, the research will concentrate on the preferences of these local buyers. The project length is one year.

Objectives:

The objectives of the project are as follows:

- to collect and analyze current and potential consumer data to facilitate a better understanding of region-specific specialty potato preferences and market potential;
- to effectively communicate the results of the research to Colorado potato producers through appropriate outreach activity; and
- to leverage regional survey research to fund a national consumer survey through additional funding sources such as the Colorado Department of Agriculture and the United States Department of Agriculture.

METHODS, PROCEDURES, AND FACILITIES

Quantification of regional consumer preferences will be accomplished through primary data collection via surveys of potato buyers and subsequent statistical analysis of the collected data. To begin, focus groups recruited from area (Front-range) gourmet food stores will be conducted to gauge general attitudes, preferences, and knowledge about Russet and specialty potatoes. This information will be used to develop a draft survey instrument which will be reviewed by willing CPAC representatives for completeness and potential value and revised accordingly. Although not necessarily comprehensive, it is expected that the survey will result in information not fully addressed through the national 2005 Potato Marketing Board survey, including:

- Relative consumption of specialty potatoes to bargain and bulk varieties;
- How the consumer learned about specialty potatoes;
- What product attributes prompted the consumer to make their specialty potato purchase;
- Packaging preferences (i.e. bulk, clamshell container, small bag);
- How the consumer learned to prepare specialty potatoes;
- What methods of preparation are commonly used and whether these methods and uses differed from those used to prepare bargain and bulk potato varieties;
- When the consumer began purchasing specialty potatoes;
- What varieties of specialty potatoes do they find most appealing and/or purchase more often;
- What is their general perception of relative healthfulness and quality of specialty potatoes;
- Where is the consumer most likely to purchase specialty potatoes;
- What perceived level of substitutability exists between bulk and bargain potatoes versus specialty potato varieties;

- Would the consumer support, in principle, a price premium for varieties of specialty potatoes?

The survey will be administered on-line at a web address hosted by the Department of Agricultural Economics at Colorado State University, using currently-existing technology. It is anticipated that on-line survey administration will result in considerable savings over mail or in-person data collection, as well as minimizing data entry errors and lowering transactions costs for potential respondents. The sampling frame will be determined by the customer information available, such as email or address lists, from least one gourmet chain (e.g. Whole Foods) and one supermarket chain (e.g. Safeway). If such information can be negotiated, then invitations to the website hosting the survey will be solicited by (e)mail; otherwise, invitations will be distributed in person at retail locations throughout the Front Range. As an incentive to participate in the survey, respondents will be issued a coupon to be applied towards their next potato purchase, as documented in the budget.

Following data collection, extensive statistical analysis will be performed by the principal investigators to analyze the raw data and a final report of findings will be prepared. Results will be summarized in various extension and outreach publications, including, but not limited to, fact sheets, trade journals, and presentations to Colorado growers and other interested parties.

RELATIONSHIP OF RESEARCH TO PROPOSED PROBLEM

Marketing theory suggests that purchasing decisions are based in large part on consumer perceptions of core product benefits. Specifically, consumers respond to what problem they perceive the product can solve and what attributes they believe the product can offer (Farrell and Hartline, 2005). To encourage trial of new or unfamiliar foodstuffs such as specialty potatoes, it is most effective to promote the product attributes that solve a problem that is common to a large proportion of target consumers. For example, if target consumers desire to eat more healthful foods, they can be encouraged to address this problem through purchase of specialty potatoes if promotion material highlights their nutritious properties. Determination of consumer preferences and attitudes through market research can similarly guide promotion efforts and increase the effectiveness of a variety of marketing tools.

Several specialty food success stories share a common bond of conducting market research to better target consumers and enhance their understanding of potential markets. In fact, researchers working with natural beef producers recently concluded “(w)hen beef producers target specific consumer segments, they need to know the particular consumers’ preferences....” (Boland and Schroeder, 2002). A survey of Colorado chefs helped to identify important factors contributing to food purchase choices by chefs which in turn assisted in the targeted marketing of the Colorado Crops to Cuisine specialty food program (Benepe et al., 2001). Since conducting market research, the Colorado Crop to Cuisine program has seen orders increase and has become a self-sustaining organization (Thilmany, 2004). A better understanding of target consumer attitudes and preferences

enhanced these marketing efforts and serve as inspiration for the proposed market research on consumers' preferences for specialty potatoes.

POSSIBILITIES FOR LEVERAGING OF RESEARCH RESULTS

The findings from the Colorado-level consumer research will be leveraged, through application for state and national value-added grants as mentioned above, to fund a national consumer survey. A national survey would reveal much about the preferences of an even larger cross-section of potential and current specialty potato consumers and could also return estimates of consumer willingness to pay or to accept (to try) specialty potatoes. Results from the proposed local and potentially national survey will be a powerful marketing tool for specialty potato producers, and could potentially yield a number of benefits.

First, the survey results identify what specialty potato attributes matter most to consumers, and these attributes could become the focus of differentiation and other marketing efforts. Second, the survey results give credibility to marketing claims that producers make when promoting their product to wholesale or retail carriers. For example we may find the 50% of respondents would try specialty potatoes if they were available in their local supermarket. This finding could be used, for example, to persuade supermarkets to carry the product. Finally, the willingness to pay or accept figures from the national survey could inform pricing decisions. For example, producers would have information on how much they may need to discount their specialty potatoes in order to initially attract consumers to try them, or alternatively, it may be that consumers are willing to support a price premium assuming a marketing campaign can successfully promote the unique and appealing aspects of specialty potatoes. This essentially empirical question can be addressed only through data collection and subsequent analysis.

TIMELINE

Solicitation of focus group participants will begin in late spring of 2006, while the actual focus groups will be conducted in early summer for a period of approximately 6-8 weeks at a frequency of slightly greater than one focus group per week. Following analysis of focus group participant data, as well as industry input, the consumer survey will be developed and submitted for approval to the Internal Review Board of Colorado State University. The survey will then be placed online and data collection will begin in late summer, 2006, in accordance with the methodology above. Analysis of survey results will begin in fall, 2006, and a final research report and associated outreach fact sheets, trade journal articles, and other outreach publications will be developed and distributed during the early months of 2007. With the support of specialty potato producers, findings from the regional consumer survey will be utilized to apply for both state and national value-added grant funds, the results of which will continue to document market opportunities for potato producers in the state of Colorado.

REFERENCES

- Benepe, C. G. Auld, D. Lamm, K. Smith, A. Starr, and K. Wilken. 2001. "Cultivating Local Food Links: Barriers and Motivators for Restaurants and Institutional Food services to Purchase Locally Grown Goods." Presented at the Society for Nutrition Education Annual Meeting, Oakland, CA, 2001.
- Boland, M., and T. Schroeder. 2002. "Marginal Value of Quality Attributes for Natural and Organic Beef." *Journal of Agricultural and Applied Economics* 34, 39-49.
- Earnst, M., and T. Woods. 2003. "Potato Marketing Fact Sheet." University of Kentucky Cooperative Extension Service: University of Kentucky.
- Ferrell, O.C. and M.D. Hartline. 2005. *Marketing Strategy, Third Edition*. Mason, OH: Thomson South-Western.
- Naegely, S. 2002. "An Innovative Approach to Potato Marketing." *American Vegetable Grower*. On-line newsletter, article posted June, 2002. 2005.
- Olsen, N., J. Robbins, T. Brandt, R. Lanting, J. Parr, C. Jayo, and C. Falen. 2003. "Specialty Potato Production and Marketing in Southern Idaho." Idaho Experiment Station: University of Idaho Extension CIS 1110.
- Purcell, D. 2006. "Specialty Food for the Powerful Twenty-Somethings." *Specialty Food*. On-line magazine, article posted January, 2006.
- Thilmany, D. 2004. "Direct Food Marketing to Restaurants through Existing Farmer's Market Alliances: The Case of Colorado Crop to Cuisine." *Review of Agricultural Economics* 26, 404-17.

BUDGET:

Personnel	
PI Salary	6,889
Hourly Grad Student	2,090
Subtotal	<u>\$8,978</u>
Materials and Supplies	
Focus Group Costs	1,250
Postcard Invitations	7,360
Coupons	1,000
Outreach Materials	500
Subtotal	<u>\$10,110</u>
Travel	
Focus Groups	148
Outreach/Conference	500
Subtotal	<u>\$648</u>
TOTAL	<u><u>\$19,736</u></u>

NARRATIVE:

As this project's primary goal is data collection and analysis, a large proportion of the budget is allocated to personnel and data collection costs. Personnel costs are split into one total month of (summer) salary for the two principal investigators, and one full semester of $\frac{1}{4}$ time (10 hrs/week) for a graduate student at the Masters level. These personnel dollars are leveraged against matching faculty time of approximately 8 weeks total, worth approximately \$13,777 (not shown). Personnel will be responsible for recruiting and leading 8-10 focus groups, with a total budget of \$1250 to recruit and encourage participation (e.g., direct payments, food and coffee service, etc...) plus \$148 for travel expenses. Other primary personnel responsibilities will be preparing and administering the survey invitations, design and administration of the on-line survey, data analysis, and designing and writing the final report and various outreach products.

Invitations to the online survey are budgeted at \$0.92/postcard to 8,000 potential respondents, with a target response rate of 25%. In order to encourage participation, a financial incentive budget of \$1000 is allocated. The financial incentives could be provided in the form of a coupon for specialty potato products (e.g. \$0.50 per completed survey), as a lump-sum payment "prize" with a winner drawn at random from the completed surveys, or a combination to test the most effective strategy.

Finally, a total of \$1000, split equally between materials and travel, is allocated for outreach-related materials and presentations.

One-page Curriculum Vitae
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EDUCATION:

Ph.D. (Agricultural and Resource Economics) University of California, Davis, March 2006

Dissertation Title: *Time and Tradeoffs in Agroecosystem Environments: Essays on Natural Resource Use and Sustainability*

M.A. (Economics) Colorado State University, 1997

B.S. (Economics) Frostburg State University, 1994

EMPLOYMENT:

Assistant Professor, Agricultural and Resource Economics, Colorado State University, 2005-

Research and Teaching Assistant, University of California, Davis, 2000-2005

Lead Economist, Jacksonville Economic Development Commission, 1999-2000

Associate Economic Analyst, Regional Economic Models, Inc., 1997-1998

PUBLICATIONS:

Farzin, Y.H., and C.A. Bond. Forthcoming, "Democracy and Environmental Quality." *Journal of Development Economics*. Abstract published by SSRN in *Environmental Economics Abstracts*, Working Paper series, 9(13), 2004, ID number 502923.

Giraud, K., C.A. Bond, and J.J. Bond. 2005. "Consumer Preferences for Specialty Made Food Products Across Northern New England." *Agricultural and Resource Economics Review* 34(2), 204-216.

Bond, C.A. "Estimating Agricultural Abatement Costs at the Plot Level using Experimental Data: A Maximum Entropy Approach." Submitted to *Journal of Agricultural and Resource Economics*, 2006.

Bond, C.A., K. Giraud, and D. Larson. "Payment Schedules, Discount Rates, and Valuation of Public Goods." Submitted to *Land Economics*, 2006.

Bond, C.A., C.A. Carter, and Y. H. Farzin. 2005. "Economic and Environmental Impacts of Herbicide-Tolerant Transgenic Rice Adoption in California." *Giannini Foundation Research Report* 350, University of California.

Bond, C.A., C.A. Carter, and Y. H. Farzin. 2004. "Grower Benefits from the Adoption of Genetically Modified Rice in California." *Agricultural and Resource Economics Update*, University of California, 7(4), 1-4.

Bond, C.A., C.A. Carter, and Y.H. Farzin. 2003. "Medium Grains, High Stakes: Economics of Genetically Modified Rice in California." *AgBioForum*, 6(4), 146-154.

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EDUCATION

Ph.D. (Agricultural and Resource Economics) University of California, Davis, forthcoming in early 2006.

M.S. (Agricultural and Resource Economics) University of California, Davis, 2004.

B.S. (Agribusiness & International Business) Texas A&M University, 2000.

EMPLOYMENT

Assistant Professor, Agricultural and Resource Economics, Colorado State University, 2005-
Research and Teaching Assistant, University of California, Davis, 2000-2005

PEER REVIEWED AND OUTREACH PUBLICATIONS

Giraud, Kelly, Craig A. Bond, and Jennifer J. Keeling. "Consumer Preferences for Specialty Made Food Products Across Northern New England." *Agricultural and Resource Economics Review*, 32(2), Oct. 2005.

Keeling, Jennifer and Colin A. Carter. "Trading Places: Fortunes of California Rice Co-ops Took Opposite Trajectories." *Rural Cooperatives*, May/June 2005.

Giraud, Kelly, Craig A. Bond, and Jennifer J. Keeling. "Consumer Preferences for Specialty Made Food Products Across Northern New England." Proceedings of the Western Regional Science Association and W-1133 Conference in Wailea, Maui, February, 2004.

Keeling, Jennifer J. "Lessons in Cooperative Failure: The Rice Growers Association Experience." *Agricultural and Resource Economics Update*, 7(3), Jan/Feb 2004.

Keeling, Jennifer J. "Empirical Investigation of Relationships Between Cooperative Performance and Board of Director Characteristics." In Submission to *Journal of Agribusiness*.

SELECTED PAPER PRESENTATIONS

"Cooperative Governance and Performance Linkages: A Quantitative Investigation." Selected Paper, presented at NCERA-194, Annual Meeting, November 2005.

"Linkages between Cooperative Performance and Board of Directors Characteristics: A Quantitative Investigation." Selected paper, presented at American Agricultural Economics Association, Annual Meeting, August 2005.

"Curriculum Vitae, Resume, and Cover Letter Writing Symposium." Introductory Speaker and Symposium Organizer, American Agricultural Economics Association, Annual Meeting, August 2005.

"Welfare Analysis and Policy Recommendations for the California Raisin Marketing Order." Selected Paper, presented at the American Agricultural Economics Association, Annual Meeting, August 2004.

"Lessons in Cooperative Failure: The Rice Growers Association Experience." Selected Paper, presented at the American Agricultural Economics Association, Annual Meeting, August 2004.