

JOURNAL OF  
**Agricultural and  
Resource Economics**

---

**Volume 38**

**Number 3**

**December 2013**

---

- Price- and Policy-Induced Innovations ..... H. Jang and X. Du
- Decomposing Productivity and Efficiency ..... P. R. Tozer and R. Villano
- Residual Development Options and Preserved Land Values ..... B. J. Schilling, K. P. Sullivan,  
and J. M. Duke
- Measuring Environmental Quality ..... A. Strong
- Economic Impact of MarketMaker ..... S. D. Zapata, C. E. Carpio,  
O. Isengildina-Massa, and R. D. Lamie
- Consumer Preferences for Tomatoes ..... K. A. Carroll, J. C. Bernard,  
and J. D. Pesek, Jr.
- Consumer Preferences for Ham Products ..... M. G. S. McKendree, N. O. Widmar,  
D. L. Ortega, and K. A. Foster
- Consumer Attitudes toward Farm-Animal Welfare ..... Y. Heng, H. H. Peterson, and X. Li
- Cow-Calf Herd Performance and GHG Emissions ..... T. Wang, S. C. Park, S. Bevers,  
R. Teague, and J. Cho



---

**The Journal of the Western Agricultural Economics Association**

---

## EDITOR

Christopher S. McIntosh, *University of Idaho*

## Co-editors

Hayley H. Chouinard, *Washington State University*

Gregmar I. Galinato, *Washington State University*

Larry Makus, *University of Idaho*

## EDITORIAL COUNCIL

(2012–2014)

Christopher T. Bastian <i>Univ. of Wyoming</i>	James Chalfant <i>Univ. of Calif., Davis</i>	Lilyan F. Fulginiti <i>Univ. of Nebraska</i>	Jason F. Shogren <i>Univ. of Wyoming</i>
Timothy Beatty <i>Univ. of Minnesota</i>	Jean-Paul Chavas <i>Univ. of Wisconsin</i>	Karen Klonsky <i>Univ. of Calif., Davis</i>	C. Richard Shumway <i>Washington State Univ.</i>
Craig A. Bond <i>Colorado State Univ.</i>	Roger A. Dahlgran <i>Univ. of Arizona</i>	Timothy J. Richards <i>Arizona State Univ.</i>	Michael Springborn <i>Univ. of Calif., Davis</i>
Peter C. Boxall <i>Univ. of Alberta</i>	Penelope L. Diebel <i>Oregon State Univ.</i>	Michael J. Roberts <i>Univ. of Hawaii, Manoa</i>	Dawn D. Thilmany <i>Colorado State Univ.</i>
Gary W. Brester <i>Montana State Univ.</i>	Jeffrey H. Dorfman <i>Univ. of Georgia</i>	W. Douglass Shaw <i>Texas A&amp;M Univ.</i>	JunJie Wu <i>Oregon State Univ.</i>
B. Wade Brorsen <i>Oklahoma State Univ.</i>	T. Randall Fortenbery <i>Washington State Univ.</i>		

### Amy L. Bekkerman, Technical Editor and Editorial Assistant

Bozeman, MT (amy@precisionedits.com)

The *Journal of Agricultural and Resource Economics* is published by the Western Agricultural Economics Association three times per year, in April, August, and December.

Copyright © 2013 by the Western Agricultural Economics Association.

Abstracted and/or indexed in: Thompson Scientific Products ISSN 1068-5502: Current Contents–Social & Behavioral Sciences; Current Contents–Agriculture, Biology & Environmental Sciences; Social Science Citation Index; Social Science Citation Index Expanded; *Journal of Economic Literature*.

An article, note, or other material appearing in the *Journal of Agricultural and Resource Economics* may not be republished in full or in part without permission from the editor.

### Editorial Policy

The *Journal of Agricultural and Resource Economics* seeks to publish creative and scholarly economic studies in agriculture, natural resources, and related issues. Manuscripts dealing with the economics of food and agriculture, natural resources and the environment, human resources, and rural regions are encouraged. The *Journal* seeks to provide a forum for topics of interest to those performing economic research as well as to those involved with economic policy and education. Submission of comments on articles previously published in the *Journal* is welcomed.

### Editorial Communications

All initial submissions and accompanying editorial correspondence should be submitted electronically at our *JARE* internet website. (Refer to Author Guidelines, inside back cover of this journal issue, for full information.)

JOURNAL OF  
**Agricultural and  
Resource Economics**

---

Volume 38

• Number 3

• December 2013

---

**Articles**

Price- and Policy-Induced Innovations: The Case of U.S. Biofuel / *Heesun Jang and Xiaodong Du* / 299

Decomposing Productivity and Efficiency among Western Australian Grain Producers / *Peter R. Tozer and Renato Villano* / 312

Do Residual Development Options Increase Preserved Farmland Values? / *Brian J. Schilling, Kevin P. Sullivan, and Joshua M. Duke* / 327

Measuring Environmental Quality: Ecosystem Services or Human Health Effects / *Aaron Strong* / 344

The Economic Impact of Services Provided by an Electronic Trade Platform: The Case of MarketMaker / *Samuel D. Zapata, Carlos E. Carpio, Olga Isengildina-Massa, and R. Dave Lamie* / 359

Consumer Preferences for Tomatoes: The Influence of Local, Organic, and State Program Promotions By Purchasing Venue / *Kathryn A. Carroll, John C. Bernard, and John D. Pesek, Jr.* / 379

Consumer Preferences for Verified Pork-Rearing Practices in the Production of Ham Products / *Melissa G. S. McKendree, Nicole Olynk Widmar, David L. Ortega, and Kenneth A. Foster* / 397

Consumer Attitudes toward Farm-Animal Welfare: The Case of Laying Hens / *Yan Heng, Hikaru Hanawa Peterson, and Xianghong Li* / 418

Factors Affecting Cow-Calf Herd Performance and Greenhouse Gas Emissions / *Tong Wang, Seong C. Park, Stan Bevers, Richard Teague, and Jaesung Cho* / 435

## AUTHOR GUIDELINES FOR SUBMITTING MANUSCRIPTS TO *JARE*

Contributors must use the following guidelines in preparing manuscripts for submission. Please note that the *Journal of Agricultural and Resource Economics (JARE)* accepts only electronic submissions submitted in PDF format. Submissions must be made at <http://www.jareonline.org>.

1. *Author Certifications.* Authors submitting manuscripts to *JARE* certify that the material in the manuscript (or modification thereof) has not been published, is not being published, and is not currently being considered for publication elsewhere. Authors also certify that the material in the manuscript, to the best of their knowledge, does not infringe upon other published material protected by copyright. Authors also acknowledge they have read and agree to the policy on data access and estimation procedures outlined below.
2. *Data Access and Estimation Procedures.* Authors are expected to document their data sources, data transformations, models, and estimation procedures as thoroughly as possible. Authors are also expected to make data available at cost for replication purposes for up to five years from publication.
3. *Title Page.* In a separate PDF file, provide the title of the manuscript and author(s)' name(s) centered and in boldface type. At the bottom of the same page, provide professional title(s), institutional affiliation(s), acknowledgments of colleague reviews and assistance, and institutional support as an unnumbered footnote. Please be sure to fully acknowledge any USDA funding source, including grant or project number(s).
4. *Abstract.* Include an abstract of 100 words or less, followed by up to eight key words (or short phrases) listed in alphabetical order. To ensure anonymity in the review process, authors should not identify themselves on the abstract page or in any headers.
5. *Text.* Suggested manuscript length is no more than 25 text pages (not including reference list, tables, and graphics). Double space all text, including the abstract, acknowledgments, footnotes, and references. Use a 12-point Times Roman font and allow 1" margins on all sides. Provide short headings for each section and subsection. Do not use right-justified margins, end-of-line hyphenation feature, or line numbering.
6. *Style, Grammar, and Punctuation.* *JARE* uses the most recent edition of *The Chicago Manual of Style* by the University of Chicago Press and *Webster's Third New International Dictionary* for style, format, and spelling. For further guidelines, please visit the *JARE* website at <http://www.jareonline.org/>.
7. *Footnotes.* Use superscript Arabic numbers within the text, numbered consecutively throughout the manuscript. Footnotes should be placed at the bottom of the page. Please use the automatic footnote feature available in Microsoft Word.
8. *References/Text Citations.* In a reference section immediately following the manuscript text, list all works cited in the text, alphabetized by author last name. Refer to *The Chicago Manual of Style* for format; samples of appropriate formatting are available at <http://www.jareonline.org/>. For within-text citations (either parenthetical or as part of narrative), spell out up to three author last names; use first author's name followed by "et al." for works with four or more authors. Include the publication year with all text citations. When citing a direct quotation, include page number(s) from the author's work.
9. *Figures and Tables.* Place each figure and table on a separate page at the end of the manuscript. Whenever possible, preferred (but not required) software for figure generation is Microsoft Excel. Do not place figure title/caption within the figure graphics box.
10. *Math and Equations.* Consecutively number equations throughout the text. When displaying equations, place equation number within parentheses at flush-left margin; center the equation. Use italic typeface for all variables, and use boldface (no italics) for all vectors and matrices, both within equations and within text.
11. *Publication Costs.* Authors submitting manuscripts are expected to assume obligation for payment of page charges at publication. Current page charges are \$79/printed page for WAEA members and \$89/printed page for nonmembers.
12. *Submissions.* All submissions to the *Journal of Agricultural and Resource Economics* must be submitted electronically to the editorial team at the *JARE* URL: <http://www.jareonline.org>. To ensure author anonymity, *JARE* accepts submission only in PDF format. Author and institutional identifications will be removed from PDF file submissions by the editorial team prior to being sent to reviewers. Receipt of manuscripts will be acknowledged by e-mail.

Christopher S. McIntosh, Editor  
*Journal of Agricultural and Resource Economics*  
Dept of Agricultural Economics and Rural Sociology  
875 Perimeter Dr MS 2334 / University of Idaho  
Moscow, ID 83844-2334  
208-589-4485 · [mcintosh@uidaho.edu](mailto:mcintosh@uidaho.edu)

## Western Agricultural Economics Association, Inc.

<i>President</i>	Gregory M. Perry, Colorado State University
<i>President-Elect</i>	James Richardson, Texas A&M University
<i>Past President</i>	Russell Tronstad, University of Arizona
<i>Directors</i>	Catherine M. Keske, Colorado State University (2010–2013) Hikaru H. Peterson, Kansas State University (2010–2013) Jay E. Noel, California Polytechnic State University (2011–2014) Kellie C. Raper, Oklahoma State University (2011–2014) Gregory McKee, North Dakota State University (2012–2015) Karina Schoengold, University of Nebraska–Lincoln (2012–2015)

### Membership and Journal Subscription

WAEA, Inc. calendar-year membership dues are \$55 for regular members in the U.S., Canada, and Mexico; \$45 for senior (retired) members, \$25 for junior (student) members, and \$80 for families in the U.S., Canada, and Mexico; \$75 for regular members overseas, \$60 for senior (retired) members, \$40 for junior (student) members, and \$110 for families overseas. Lifetime membership is available for those who are at least 55 years of age. All members receive this journal. Individuals wishing to receive only the electronic version of the journal may pay per year discounted dues of \$40 for regular members, \$30 for senior (retired) members, and \$5 for junior (student) members.

Library and other institutional subscription prices are \$125 in the U.S., Canada, and Mexico; \$130 in all other countries.

Applications for membership, payment of dues, subscription charges, changes in address, and other inquiries should be addressed to:

Western Agricultural Economics Association, Inc.  
555 E. Wells Street, Suite 1100  
Milwaukee, WI 53202

Visit us on the internet at <http://www.waeonline.org>