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## Contents

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# DISCOVERY

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DISCOVERY is published annually by the Dale Bumpers College of Agricultural, Food and Life Sciences. http://bumperscollege.uark.edu/ Processing and storage effects on the polyphenolic content and antioxidant capacity of conventional and sugar-free blueberry jams Chelsey Castrodale, Luke Howard, and Cindi Brownmiller......3 History of development and characterization of the U.S. blackberry market Effectiveness of zinc given intra-nasally or orally to newly received stocker cattle against bovine respiratory disease and effects on growth performance Amy R. Guernsey, Beth Kegley, Jeremy G. Powell, Doug L. Galloway, Developing enterprise budgets for sustainable school gardens: Service learning in a global context Ashley D. Jones and Jennie S. Popp ......24 Application of cross-linked rice starches as drug delivery matrices in monolithic tablets Christopher F. Peluso, Fernanda O. Onofre, and Ya-Jane Wang......29 Measurement of transient smoke emissions from diesel and biodiesel fuel blends in an agricultural tractor Correlation of calcium and magnesium intakes to frequency of muscle cramps in female college athletes Jennifer Schneider and Marjorie Fitch-Hilgenberg......41 E-85 vs. regular gasoline: effects on engine performance, fuel efficiency, and exhaust emissions Jordan W. Steinhaus, Donald M. Johnson, George W. Wardlow ......47 Establishing a rapid and effective method for screening salt tolerance in soybean 





Cover: The fresh blackberry market in the U.S. has grown significantly in the past 10 years or so due in part to the development of new cultivars with improved firmness and longer shelf life. Worldwide, there has been a 45% increase in area planted by producers from 1995-2005. The paper in this issue by Carvalho et al. examines shipment and price trends from 1999-2008 and presents a history and characterization of this growing market. Cover design by Judy Howard. Photo by Fred Miller.