

“Maryland Dividends”
Maryland Agricultural Experiment Station
College of Agriculture & Natural Resources
Premiums returned on investments in research, education and outreach.

Shore Agricultural Sustainability Program: Increasing the Profitability
of Wheat, Corn, and Soybeans
Maryland Center for Agro-Ecology, Inc.



For more information about this research project please contact:

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Research Team:

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William J. Kenworthy, and Eric B. Johnson

Region of Impact:

National

Research Description:

The Upper Eastern Shore of Maryland, also known as the corn-belt of the Mid-Atlantic, produces corn, soybeans, and wheat as its principal agronomic. Currently, almost all of these grains are sold to a commodity market, with most being used by the large poultry broiler industry located on the Delmarva Peninsula. Recently, losses in local buying competition coupled with national overproduction of these commodities have reduced the prices received by farmers for these commodities. Data indicate that farmers are currently experiencing negative cash flows with many farmers leaving the industry altogether. The traditional focus by farmers on producing quantity, as opposed to quality, must be reversed to ensure that a sustainable and more profitable agricultural industry will exist. Current commodity grain price forecasts have little bullish news. Compounding this is the fact that third world countries continue to provide strong competition, thereby driving prices even lower. Farm Credit data drawn from area farmers also paints a dismal picture, indicating that cash grains have showed a negative cash flow for 6 out of the past 9 years. Therefore, if our farmers are going to become profitable, and if land and natural resources are to be preserved through a sustainable agricultural community, it is important for value-added products and new markets to be identified. Ongoing, sophisticated research is required to identify value-added products as well as locate profitable niche markets.

The Maryland Cooperative Extension (MCE) teamed with the Chesapeake Fields Institute (CFI), a 501(c)(3) organization chartered in the year 2000 to address the loss of profitability in traditional agricultural markets throughout farms. By working with local agribusiness, government officials, and community leaders, MCE and CFI have developed a plan that will result in farmers gaining knowledge and skills that will move them toward greater sustainability. The long-term objective of this project is to enable farmers to engage in the production of alternative crops through which value-added enhancements are to be achieved. MCE has assembled a team of researchers at the University of Maryland that possess rich backgrounds in cereal chemistry, plant genetics, crop production, food science, and market feasibility. This diverse set of academic backgrounds ensures a comprehensive approach to developing value-added products and markets and has received major grants to finance the project.

5 November 2002 Lo2

“Maryland Dividends”

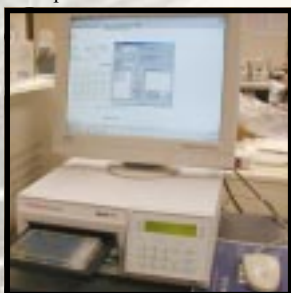
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Shore Agricultural Sustainability Program: Increasing the Profitability of Wheat, Corn, and Soybeans (continued)



The “Texture Analyzer” used to measure the texture profile of food products.



Analysis of protein subfractions of wheat samples using a microplate reader.



Analysis of the amino acids in wheat flour using High Performance Liquid Chromatography (HPLC).

Our Food Bioprocess Engineering Laboratory plays a core role in the identification of crop constituents critical to the quality of final products. Harvested grain samples from the crop production stage are submitted for laboratory analysis immediately following their respective harvests. This is the key stage in identifying value-added applications of the crops. An in-depth texture characterization with regard to protein quality and potential applications is in progress. Correlations between the composition profile and product quality will be evaluated against the cultivars and management programs employed. Not only will the information generated from this research be disseminated to the farmers but also manuscripts based on the research outcomes will be prepared for publication.

Research Area Classification

1. Competitive Agricultural Systems in a Global Economy
2. Safe and Secure Food and Fiber Systems
3. Healthy, Well Nourished Population
4. Greater Harmony Between Agriculture and the Environment

Research Benefits:

An effective extension mechanism integrating value-added research with field management practice has been developed. What makes this mechanism unique is the fact that farmers are involved in a research-oriented effort that will facilitate adding value to their crops. This mechanism is innovative in that it is the result of major collaborations with area farmers, extension offices, government officials, and academic institutions from all over Maryland. Subsequently, a sustainable/profitable agricultural community will emerge. The research outcomes from this project are expected to contribute to the knowledge of alternative crop production and value-added product development. Ultimately, achievement of the long-term objective will result in preservation of the land through environmentally sound farming practice that is profitable.

As a measurable outcome, this mechanism is expected to directly lead to improved and more profitable farming practices, as well as enhanced quality of life for Maryland farmers and their rural communities. The diverse research team ensures that a comprehensive approach to developing value-added products/markets will occur. Additionally, the effective coordination of scholarly research and extension that is the cornerstone of this project is expected to lead directly to improved and profitable farming practices. This mechanism could serve as a model for enhancing quality of life for farmers and their rural communities nationwide.