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Integrating Value-Added Research with Field Management Practice: An Effective Extension Mechanism at the University of Maryland

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Integrating Value-Added Research with Field Management Practice: An Effective Extension Mechanism at the University of Maryland

Abstract
An effective Extension mechanism integrating value-added research with field management practice has been developed in Maryland. Through this mechanism, farmers are engaged in an alternative crop production process. We expect that value-added enhancements can be achieved and, subsequently, a sustainable/profitable agricultural community will emerge. The diverse research team ensures that a comprehensive approach to developing value-added products/markets will occur. Additionally, we expect that the effective coordination of scholarly research and Extension that is the cornerstone of this project will lead directly to improved and profitable farming practices and an enhanced quality of life for farmers and their rural communities.

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Introduction

The Upper Eastern Shore (UES) of Maryland, also known as the corn-belt of the Mid-Atlantic, produces corn, soybeans, and wheat as its principal agronomic crops. 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 UES farmers for these commodities. Data indicate that UES 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.

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. On-going, sophisticated research is required to identify value-added products as well as locate profitable niche markets.

Development of the Mechanism

In the wake of this agricultural crisis, 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 UES farms. By working with local agribusiness, government officials, and community leaders, MCE and CFI have developed a strategic plan for a comprehensive project that will result in UES farmers gaining knowledge and skills that will move them toward greater sustainability.

The long-term objective of this project is to enable UES farmers to engage in the production of alternative crops through which value-added enhancements are to be achieved. 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.

The short-term objectives are to:

1. Develop an integrated quality assessment methodology,

2. Incorporate the quality assessment methodology into production practices, and

3. Establish a baseline against which food quality may be measured.

To accomplish these objectives, 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. To date, this team has received some major grants to finance the project. Not only will the information generated from this research be disseminated to the UES farmers, but also manuscripts based on the research outcomes will be prepared for publication in appropriate scientific journals.

This integrated mechanism consists of four stages:

- **Crop Production (Stage 1)**: Initial crop production projects are focused upon wheat and soybeans. Of particular interest is the effect that management practices will have upon both the quality and the seed composition of hard red winter wheat, because it is the quality that will garner farmers premiums. A large number of specialty wheat varieties are being grown at a number of Maryland locations to determine their adaptability to the region. For soybeans, a number of varieties that have enhanced protein, a greater than normal oil content, and a more desirable fatty acid composition are under investigation.

- **Laboratory Analysis (Stage 2)**: 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 to verify each and every applicable area. Correlations between the composition profile and product quality will be evaluated against the cultivars and management programs employed.

- **Crop Enhancements/Changes (Stage 3)**: The results from the laboratory analyses will be used to determine whether crop production management practices should be changed in order to obtain grain quality. Fertility enhancements, variety modifications, and tillage enhancements/changes for wheat could be made prior to planting in October, and for soybeans in May/June.

- **Market Feasibility Studies (Stage 4)**: Repeated for wheat, corn, and soybeans as value-added products are identified in Stage 2. A market feasibility study will be conducted to determine the potential market(s) for the proposed product as well as the facility needs, capital and financing requirements, and potential costs/returns. As part of the feasibility

study, surveying of area producers and regional manufacturers will take place.

Conclusions

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. 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 UES farmers and their rural communities.