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Facilitating Highbush Blueberry Production Management By Employing a User Friendly
Interactive Decision Support Tool

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***Selected Poster prepared for presentation at the Southern Agricultural Economics Association
SAEA) Annual Meeting, Dallas, Texas, 2-4 February 2014.***

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ABSTRACT

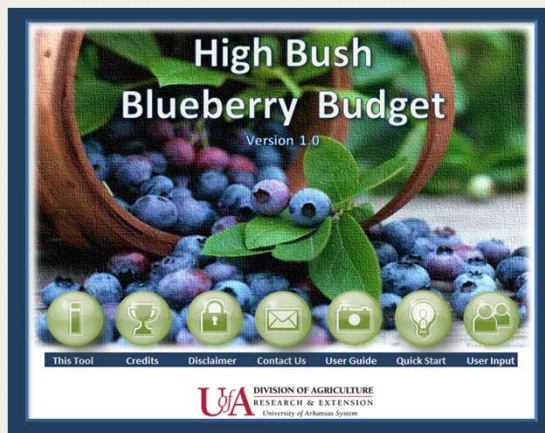
Poster Abstract: This new interactive budgeting tool allows producers to analyze costs, returns and assess risks associated with combinations of the four highbush blueberry production mechanisms: organic/conventional with open field/ high tunnel production. This first of its kind tool can provide valuable assistance to producers in investment and production decision making.

FACILITATING HIGHBUSH BLUEBERRY PRODUCTION MANAGEMENT BY EMPLOYING A USER FRIENDLY INTERACTIVE DECISION SUPPORT TOOL

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OVERVIEW

This new interactive support decision tool will allow blueberry producers to analyze costs and returns, to assess the production and price risks associated with four combinations of high bush blueberry production systems: organic, conventional, open field, and high tunnel. This first of its kind tool can assist blueberry producers to make better planning and investment decisions.



PROBLEM STATEMENT

Although general organic production does not represent a significant acreage of organic farms in the southern region (Silva et al., 2012), there is growing interest in organic blueberry production and the use of alternative production technologies, such as high tunnels. However, regionally developed organic blueberry economic metrics are limited.

Developing an interactive decision support tool that allows the producer the ability to estimate and evaluate the potential economic effects (i.e., in terms of risk-return tradeoffs) of different production technologies (field vs high tunnel) can assist blueberry producers in making better planning, marketing and financial decisions.

The objective of this poster is to contribute to the development of the economic metrics by creating an interactive decision support tool for high bush blueberry production in the South.

Figure 1. User Input

ORGANIC BLUEBERRY BUDGET: SUMMARY						
Production Activities	Soil Preparation	Establishment	Production Year 1	Production Year 2	Production Year 3	Steady Production
Gross Returns	\$ -	\$ -	\$ 7,539.17	\$ 11,388.75	\$ 22,617.50	\$ 22,617.50
Variable Costs	\$ 601.49	\$ 14,905.74	\$ 13,329.57	\$ 13,486.72	\$ 13,928.17	\$ 19,925.12
Fertilizer	\$ 50.03	\$ 19.00	\$ 356.07	\$ 356.07	\$ 356.07	\$ 356.07
Ground Cover	\$ -	\$ 7,569.44	\$ 2,520.00	\$ 2,520.00	\$ 2,520.00	\$ 2,520.00
Harvest	\$ -	\$ 528.00	\$ -	\$ 675.15	\$ 1,116.60	\$ 1,116.60
Interests on Operating Capital	\$ 23.05	\$ 571.69	\$ 610.07	\$ 610.07	\$ 610.07	\$ 890.83
Labor	\$ 238.00	\$ 3,900.40	\$ 1,260.00	\$ 1,260.00	\$ 1,260.00	\$ 1,680.00
Nutrient Analysis Tests	\$ -	\$ 50.25	\$ 100.50	\$ 100.50	\$ 100.50	\$ 100.50
Other Expenses	\$ 370.42	\$ 1,751.44	\$ 4,837.32	\$ 4,837.32	\$ 4,837.32	\$ 9,378.99
Pest Management	\$ -	\$ -	\$ 3,127.61	\$ 3,127.61	\$ 3,127.61	\$ 3,781.13
Rental Machinery & Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Supplies	\$ -	\$ 172.91	\$ -	\$ -	\$ -	\$ -
Plants	\$ -	\$ 2,870.33	\$ -	\$ -	\$ -	\$ -
Total Costs (\$/ac)	\$ 756.49	\$ 19,669.89	\$ 18,486.72	\$ 18,635.87	\$ 19,077.32	\$ 24,973.27
Net Returns (\$/ac)	\$ -	\$ -	\$ 10,949.50	\$ 10,949.50	\$ 10,949.50	\$ 10,949.50

Figure 2. Output Summary

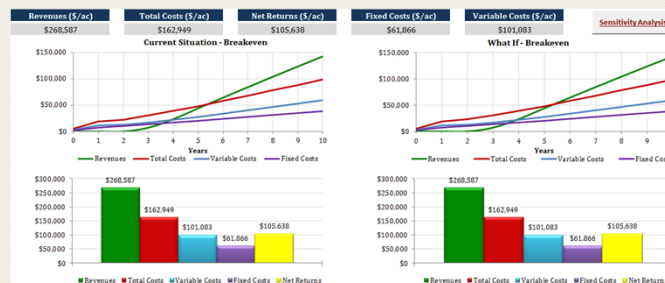


Figure 3. Sensitivity Analysis

The final version of the tool will be available by Fall 2014. For more information contact sokhasok@uark.edu or CARs@uark.edu.

METHODS

An interactive decision support tool is being developed to estimate and compare the expected risk-return tradeoff of each blueberry production system.

First, production activity data are being collected from University of Arkansas horticultural scientists and Arkansas producers engaged in high tunnel, in field, organic and conventional blueberry production.

Second, relevant production cost and yield data based on Arkansas conditions are being collected to populate a database that will be used to run default scenarios in the tool.

Third, the interactive decision support tool is being built in Microsoft Excel using user forms code VBA interfaces. This tool will require minimal input from the producer (Fig. 1). Blueberry producers will be able to estimate several production budgets for different combinations of high tunnel/in field and conventional/organic production by using default cost values, by entering their own production values or by combining both. The tool will automatically calculate: total variable costs, total fixed costs, total costs, total returns and net returns per year and over the life of the crop (Fig. 2). It will also address risk concerns by providing options for sensitivity analysis (Fig. 3) and other risk assessments. (Please note: as the tool is still in development, the numbers in figures and table are used for illustrative purposes only and do not necessarily reflect blueberry production in the South).

SIGNIFICANCE & EXPECTED RESULTS

It is expected that this new interactive decision support tool will help producers to:

- ❖ Analyze the production investment decision in terms of investment amount (i.e. payback method analysis), break-even points (i.e., yields and prices), total costs and net returns regarding various production systems.
- ❖ Conduct sensitivity analysis to increase the understanding of the relationship between input and outputs associated with blueberry production in high tunnels versus organic and conventional production systems.
- ❖ Serve as an economic analytical tool to calculate the expected returns for the next five to ten years of production, as well as to measure the production and price risks in terms of probability distributions of net returns.

LITERATURE CITED

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