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## Making a Dollar per Square Foot: Dream or Reality?

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## Making a Dollar per Square Foot: Dream or Reality?

### Abstract

Small farmers often rely on Extension for farm management practices to increase their farm income. This article presents an attempt by Virginia State University Extension to demonstrate to small-scale farmers strategies for increasing farm income. It is called the 43560 initiative, and it evaluates the notion that a farmer can make a dollar per square foot. We initiate a discussion on this notion and its challenges.

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## Introduction

Diversification is a key cost-minimizing and production-efficiency strategy that production agriculture has used for several centuries. But does this strategy help to boost farm profit for small-scale farmers? While attempts at addressing this question abound in the field of agriculture (Chavas, Petrie, & Roth, 2005; Cooke & Sundquist, 1989; Conner, Montri, Waldman, Biernbaum, & Hamm, 2011; Heady, 1952; Pope & Prescott, 1980; Rao, Brummer, & Qaim, 2012), the question of whether a farmer can earn a dollar per square foot of land farmed is yet to be conclusively addressed. In March 2013, Virginia State University's (VSU) Small Farm Outreach Program (SFOP) took on the challenge of testing this idea by growing a variety of vegetables. It is called the 43560 initiative.

### 43560

An acre is equivalent to 43,560 square feet and is commonly used in the U.S. as a unit of measure of farmland. The acre therefore represents a standard measure of profitability and resource use efficiency in agriculture. With 91% (NASS, 2007) of all farms in the U.S. making less than \$250,000 in sales annually, the possibility of grossing \$43,560 from an acre of farmland (proposed by the VSU 43560 initiative) while incurring about \$10,000 in cost is worthy of interest. To farmers in Virginia, where average farm size is 171 acres (NASS, 2007), the notion that they can generate a dollar per square foot of a cultivated acre of vegetables continues to attract interest and excitement.

## What We Know

Muhammad, Tegegne, and Ekanem (2004) identified three factors that contributed to the success of small farm operations in Tennessee as: 1) production strategies based on diversification and cost control; 2) financial plans that kept debt low and good record keeping; and 3) marketing strategy aimed at achieving the highest possible profit. In agreement with Nanhou and Duffy (2002), the authors viewed success as increased farm profitability. In their study on the use of Hoop-houses to increase farm profitability and food system sustainability, Conner, Montri, Waldman, Biernbaum, and Hamm (2011) concluded "that the key to success was human." Other studies have reported that marketing and financial and business planning are major limitations of small-scale farmers.

Previous studies (Brereton, 1974; Doye, Jolly, Hornbaker, Cross, King, Lazarus, & Yeboah, 2000; Suvedi, Jeong, & Combs, 2010; Stebbins-Wheelock, Parsons, Wang, Darby, & Grubinger, 2012) have reported attempts by Extension professionals to encourage farmers to keep farm financial records. Some of these studies found a positive relationship between the education level of farmers and the likelihood of new technology adoption (Lin, 1991). Lin (1991) also reported that farm size, herd size, and the use of computer all influenced the likelihood of adoption of new technology.

The study by Suvedi, Jeong, and Coombs (2010) showed that Michigan farmers' educational and informational needs were changing and that farmers indicated a need for more information about the business aspects of farming. These studies underscore the need to identify strategies and farm management practices that can increase profitability for small-scale farmers and, the pivotal role of extension service in getting the needed information to farmers.

## VSU's 43560 Initiative

The design of the VSU 43560 initiative was based on using improved input practices, complementary vegetable type, and population density. The initiative attempted to demonstrate optimal production strategies to small scale farmers and encourage them to plan their "43560" plots accordingly. Groundbreaking started in March 2013, with soil sample testing, fertilizer application, and planting. Plants included the following: Irish Potatoes, collards green, lettuce, bok choy, brussel sprouts, three varieties of mini cabbage, sweet corn, and purple and white specialty sweet potato transplants. Watermelon and cantaloupe transplants were also incorporated into the mix after black plastic had been laid to heat the soil. Water supply was by drip irrigation. Routine management was done primarily by the lead small farm agent, with assistance from volunteers (student interns and individuals) from the community. Harvesting started in Mid-June until Mid-July.

## Result and Lessons Learned

Overall, the initiative generated tremendous interest in the public. This may be attributed to the espoused potential of helping farmers increase farm income on a limited farm size. As resources continue to shrink and become more valuable, the need for optimal resource use efficiency increases. As economic beings, farmers are willing to try farming practices that promises to maximize farm income. The following key pointers emerged from the VSU's attempt to answer the burning question: Can a farmer make a dollar per square foot?

## Labor

As is typical of any farming operation of this nature, labor is intensive. The initiative primarily relied on volunteers for land preparation, planting, and routine weeding. While this offered labor at no cost to the project, it also provided an opportunity for the project team to use the initiative as a hands-on teaching/learning lab for interested and prospective farmers who volunteered. However, logged-in times worked on the project and the respective tasks should be documented with the appropriate imputed costs.

## Marketing

Farmers and the general public were encouraged to harvest produce through a pick-your-own (PYO) program. This served as a major strategy that brought in the general public and particularly those who ordinarily would not have visited a farm. The project identified key market outlets for interested farmers as on-farm sales, nearby farmers markets, Community Supported Agriculture organizations (CSAs), and direct sales to independently owned restaurants.

## Outreach

The 43560 initiative served as an outreach forum for educating the general public on the importance of good agricultural practices and promoting agro-tourism (a good marketing strategy for farmers to drive customer traffic to their farms).

## Major Challenges

Activities such as soil testing and preparation, planting, weeding, and so forth can be quite demanding and require thorough preparation. While SFOP team enjoyed free access to equipment and machinery at VSU that made the operations relatively manageable, a typical limited-resource or small-scale farmer will have to do these at a cost. Labor and machinery cost will be remarkably different and most certainly higher.

## Bottom Line

Making the "a dollar per square foot" slogan needs to provide a better explanation of the bottom line. For the 43560 initiative to be promoted as an economically attractive endeavor, future attempts must account for all costs and revenue, knowing full well that what matters in farm business is the profit. All farming operations and produce need to be appropriately quantified, priced, and marketed.

## Conclusion

As land-grant institutions' Extension units attempt to provide technical assistance to small farmers to increase farm profitability, making \$43,560 from 43,560 square feet is appealing. For small-scale, limited-resource farmers who are unable to compete with big commercial farms, the possibility of significantly increasing farm income on an acre is welcome news.

While VSU research/Extension units continue to explore and improve on the 43560 initiative to assist farmers to boost farm income, other research and Extension units could consider evaluating this proposition to see if it could be enhanced. Can small farmers really make a dollar per square foot, if the strategies being espoused are adopted and implemented? The proponents of the initiative have cautioned that this is an intensive production operation suitable for full-time vegetable production farmers with reliable market access. So far, the key question remains unanswered, and the challenge remains. But the quest continues.

It is worth noting that good agronomic practice must go along with good farm management practice and marketing strategies. The success of the 43560 initiative as a farm management model rests significantly on resource use efficiency and diversification, which are key cornerstones of sustainable farm profitability. Considerable thought has to be given to the management element in farm businesses. While substantial research work is advocated to test and develop appropriate best management practices that are adoptable by small farmers, the initiative appears to be a healthy challenge for land grant institutions and particularly those that cater to this group of farmers.

The level of interest and turnout of farmers at the VSU's extension Small Farm Commercial Vegetable and Berry Field Day in June 27, 2013 is an indication that a lot has to be done to continue to increase production efficiency and profitability for small farmers who still constitute over 90% of the farming population nationwide. The role of Extension as the two-way conveyor of valuable information in this challenge continues to be crucial (Akobundu, Alwang, Essel, Norton, & Tegene, 2004; Diekmann, Loibl, Batte, & Yen, 2012). According to King and Boehlje (2013), the 21st century land-grant university should therefore be a "university where research is truly discovery that drives innovation and brings economic growth and stability."

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