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The Potential of Other Crop and Livestock Enterprises to Replace Tobacco: Perceptions of U.S. Burley Producers

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Abstract: *The purpose of the study reported here was to explore burley tobacco growers' perceptions about the potential of other crops/livestock enterprises to replace tobacco and to identify the ways in which these perceptions are related to*

famer/farm business characteristics. Perceptions about the potential of other crop/livestock enterprises to replace tobacco varied by location of the farming operation, tobacco acreage, and previous experience with alternative crops/livestock enterprises. Extension personnel may be able to use these results to better target technical information about alternative agricultural enterprises to replace tobacco production to clientele who are transitioning from tobacco to alternative agricultural enterprises.

Introduction

U.S. tobacco production has decreased over the past two decades due to lower cigarette consumption, U.S. manufacturers' reliance on lower-cost tobacco grown in other countries, increasing production costs, and labor supply shortages. These trends have intensified since 2004, when the tobacco buyout terminated the marketing quotas and price supports established under the federal tobacco program (Altman, Levine, Howard, & Hamilton, 1996, Altman et al., 1998; Beach, Jones, & Tooze, 2008; Snell, Powers, & Halich, 2009; Strader & Alston, 2009). This market environment increased interest in the potential for on-farm and off-farm activities to replace tobacco production (Altman et al., 1996, 1998; Beach et al., 2008, Strader & Alston, 2009).

Since 2002, both the number of tobacco farmers and the amount of tobacco acreage in the U.S. has declined dramatically. From 2002 to 2007, the number of tobacco farms fell 72%, from 56,977 to 16,234, while harvested tobacco acreage decreased 16%, from 428,631 to 359,846 acres (USDA/NASS). Burley tobacco has suffered the biggest decline in tobacco acreage, decreasing 33%, from 158,657 to 106,300 acres (USDA/NASS). In a 2009 survey conducted by the Center of Tobacco Growers Research (CTGR), 100% of the burley farmers who responded to the survey were already producing livestock or at least one crop other than tobacco in 2008. In contrast, previous studies have indicated that many tobacco farmers believe there is no farming enterprise available to them that is as profitable as tobacco (Altman et al., 1996, 1998; Beach et al., 2008, Mendieta & Velandia, 2010).

Previous studies investigated the potential for on-farm activities to replace the income from tobacco production using enterprise budget analyses. Using a budget analysis, Rhea (2001) analyzed the potential of converting tobacco greenhouses for tomato production. Results from that study suggested that sequential production of spring and fall hydroponic tomatoes was a profitable and efficient alternative for

greenhouses used for tobacco transplant production. Halili (1999) evaluated the potential for alternative crop/livestock enterprises to replace flue-cured tobacco in Pittsylvania County, Virginia. That study found that contract swine production could be a profitable alternative to tobacco, but environmental concerns were identified as a limitation. Soybeans and cotton were identified as crops that could contribute to farm revenues when produced at the average yield. Similarly, tomatoes and broccoli were identified as potential profitable small-scale alternatives.

Another group of studies has looked at factors affecting tobacco farmers' interest and attitudes towards diversification (Altman et al., 1996, 1998; Beach et al., 2008).

Beach et al. (2008) studied factors affecting tobacco farmers' interest in searching for alternative on-farm enterprises to replace tobacco. They found that more educated farmers were more likely to actively search for alternatives to tobacco.

Altman et al. (1998) studied factors influencing the interest of tobacco farmers in North Carolina on supplementing farming income with other non-tobacco crops and their perceptions about barriers to diversification. They found that younger farmers with some college education were more likely to be interested in supplementing their tobacco income with non-tobacco farming enterprises. Barriers such as lack of skills to grow crops other than tobacco were more likely to be identified by less educated (i.e., no college education) farmers who received off-farm income. External barriers such as lack of favorable credit instruments (e.g., low interest loans, grants) for new business ventures and lack of processing plants near farming communities were some of the barriers perceived by younger farmers who received off-farm income. Other external barriers such as lack of places to sell new products were more likely to be perceived by farmers with a large percentage of income coming from farming.

However, the studies evaluating the economic potential for other on-farm enterprises to replace tobacco have not considered farmers' perceptions about the economic potential of specific enterprises to replace tobacco. Additionally, these studies have ignored the relative effect that tobacco farmers' resources and skills have on their ability to successfully replace tobacco with other on-farm enterprises. Even though budget analyses might show that alternatives to tobacco are economically feasible, farmers' management skills and experience might prevent them from considering such alternatives.

Literature about tobacco farmers' interest in diversification has studied the factors affecting perceptions about the overall potential for on-farm and off-farm activities to overcome tobacco income losses. Nonetheless, there is little research examining the factors affecting farmer perceptions about the potential for specific

crops/livestock enterprises (e.g., grain crops, livestock) to replace tobacco.

The objective of the study reported here was to explore burley producers' perceptions of the potential for grain crops, hay, fruits and vegetables, and livestock enterprises to replace tobacco, and identify how these perceptions are related to producers' characteristics. The study intended to fill the gap that previous literature has left on the consideration of farmer's perceptions when evaluating the economic potential of specific agricultural enterprises to replace tobacco and the effect of farmers' specific characteristics on these perceptions. A better understanding of tobacco farmers' perceptions of the potential for specific on-farm enterprises in replacing tobacco could help Extension personnel direct technical information about alternative agricultural enterprises to replace tobacco production to their clientele most in need of such information. Better delivery of technical information by Extension personnel could improve tobacco farmers' managerial skills to successfully transition from tobacco production to different on-farm enterprises (Strader & Alston, 2009).

Methods

A survey was mailed March, 2009 to 8,343 farmers in Kentucky, Tennessee, North Carolina, South Carolina, Virginia, Ohio, Indiana, Wisconsin, Georgia, Missouri, West Virginia, Florida, Pennsylvania, and Louisiana. Out of the 8,343 questionnaires mailed, 3,698 were completed and returned, for a rate of response of about 45%. Of the 3,698 completed surveys, 1,218 (33% of respondents) were burley tobacco producers.

The survey instrument was used to collect information about tobacco production, marketing, contracting, and labor issues faced by tobacco producers. The survey also captured information about willingness to continue growing tobacco, perceived importance of improvements or additions to equipment and infrastructure in tobacco operations, and general farm business and farmer characteristics. In addition, producers were asked to rank from 1 to 10 the potential of various crops/livestock enterprises to replace tobacco production on their farm. The producers were instructed to assign a value of 1 to the crop/livestock enterprise with the highest potential to replace tobacco, a value of 2 to the crop/livestock enterprise with the second highest potential to replace tobacco among all crop/livestock enterprise considered, and so on.

Producer responses to this question are summarized by current acreage in tobacco production, previous experience with these crops/livestock enterprises (i.e., they

produced that particular crop/livestock in the 2008 crop year), and geographical location. Differences in perceptions according to current acreage in tobacco production, previous experience, and location groups were statistically tested using independent sample t-tests at the 10% level.

Results

Demographic characteristics of the burley producers surveyed are presented in Table 1. About 65% of the respondents were located in Kentucky, 14% in Tennessee, 3% in North Carolina, 4% in Virginia, and 13% in other states (Georgia, Indiana, Ohio, Virginia, Wisconsin, and West Virginia). About twelve percent (11.6%) of the burley producers who reported their age were younger than 40, 57.9% were between 41 and 60, and 30.6% were older than 60. About 3.4% of the producers reported they had no formal education, 7.3% reported having some high school education, 46.6% reported completed high school, 14.5% reported having some college or completed college education, and 6.5% completed a graduate or equivalent professional program. All burley farmers who responded to the survey produced livestock or at least one crop other than tobacco in 2008. A large percentage of producers produced livestock (60%), hay (78%), or grain crops (51%).

Table 1.
Burley Tobacco Producers Profile

State (%)					
KY	TN	NC	VA	Others	
65.44	14.20	3.20	4.27	12.89	
Age (%)					
Younger than 30	31 to 40	41 to 50	51 to 60	61 to 70	71 or older
3.42	8.13	24.14	33.73	21.23	9.33
Education (%)					
No Formal	Some High School	Completed High School	Some College	Completed College	Completed Graduate
3.35	7.30	46.56	21.74	14.52	6.53

Other crops/livestock produced in 2008 (%)					
Grain Crops	Cotton	Hay	Fruit and Vegetables	Livestock	Other
50.73	0.00	78.16	14.37	59.52	8.13

Figure 1 summarizes burley producers' perceptions about the relative potential of various crop/livestock enterprises to replace burley tobacco production. This figure highlights the percentage of producers ranking grain crops, hay, fruits and vegetables, livestock, cotton, and peanuts as either the first, second, or third enterprises with the highest potential to replace tobacco production. The first, second, and third ranks were aggregated to better reflect producers' preferences on a 1 to 10 rank scale. This aggregation follows the same pattern as if only individuals who ranked each enterprise as first were considered in the analysis. A majority (69%) of the burley producers considered livestock to be one of the enterprises with the highest potential to replace tobacco (i.e., they ranked it either first, second, or third). About 56% of the respondents considered hay as one of the crop enterprises with the highest potential to replace tobacco. About 32% of burley producers considered grain crops as one of the enterprises with the highest potential to replace tobacco, while about 23% ranked fruits and vegetables in the top three. Cotton and peanuts were each ranked first, second, or third by only about 9% of the burley tobacco producers.

Figure 1.

Percentage of Producers Ranking Crops/livestock Enterprises as First, Second, or Third Based on Potential to Replaced Burley Tobacco

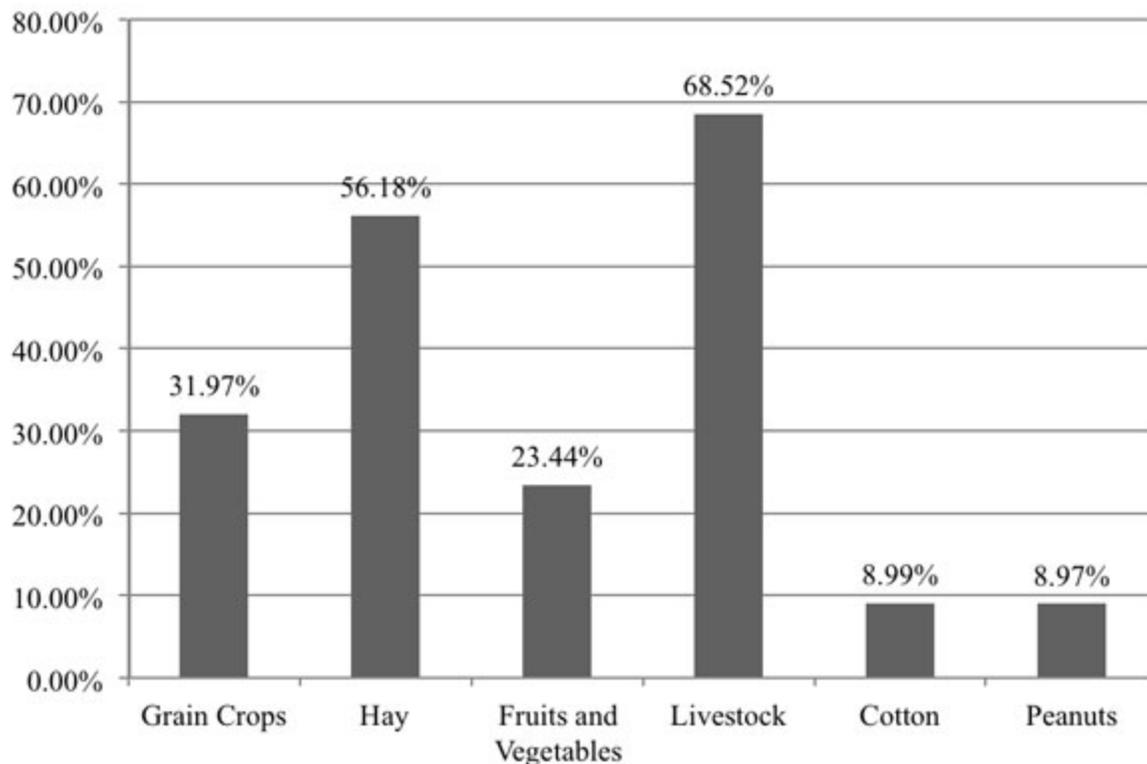


Table 2 presents information about the percentage of burley producers ranking various crop or livestock enterprises as the enterprises with the first, second, or third highest potential to replace tobacco by state, tobacco acreage, and previous experience with the crop and livestock enterprises. A larger percentage of burley producers located in non-traditional burley tobacco states (i.e., Wisconsin, West Virginia, Indiana, Ohio, Missouri, and Georgia) perceived grain crops as an on-farm enterprise with a high potential to replace tobacco when compared to growers located in states with a long tradition of burley tobacco production (Tennessee, Kentucky, Virginia, and North Carolina). A larger percentage of burley tobacco producers in North Carolina (47%) perceived fruits and vegetables as an agricultural enterprise with a high potential to replace burley tobacco when compared to producers in Kentucky (21%) and Virginia (10%). This result suggests that differences in location-specific growing conditions and availability of marketing channels influence grower views on the economic feasibility of the alternative agricultural enterprises.

Similarly, a larger percentage of burley producers with between 50 and 200 acres of tobacco perceived grain crops as an enterprise with a high potential to replace tobacco when compared with growers reporting tobacco acreage of less than 25 acres. Thus, the number of tobacco acres to be converted to alternative crop/livestock enterprises may represent a barrier for farmers considering grain

crops as an enterprise to replace burley tobacco.

Table 2.

Percentage of Producers Ranking Crop/livestock Enterprises as First, Second, or Third Based on Potential to Replaced Burley Tobacco by State, Previous Experience Producing Other Crop/livestock, and Tobacco Acreage

		Grain Crops (%)	Hay (%)	Fruits and Vegetables (%)	Livestock (%)
State	TN	24.1	56.2	30.5 ^{†‡}	60.6
	VA	38.4 [‡]	50.0	10.3 ^{*†§}	53.1
	KY	30.5 [†]	57.7	21.1 ^{*†§}	61.5
	NC	18.8	51.5	46.7 ^{†‡}	60.7
	Others	52.9 ^{*†‡§}	51.4	24.8 ^{†§}	49.3 ^{*‡}
Experience	Produce	40.7 ^{***}	52.3	40.2 ^{***}	71.9 ^{***}
	Do not produce	14.2	43.9	13.1	62.7
Tobacco Acreage	≤ 24	30.2 ^{bc}	58.1 ^b	24.0	69.2
	25 to 49	41.3 ^a	40.9 ^a	20.3	64.4
	50 to 200	42.2 ^a	48.3	16.3	64.4
	> 200	42.9	48.9	16.7	42.9

1 All differences tested at 10% *Significantly different from "Tennessee (TN)"; † significantly different from "Virginia (VA)"; ‡ significantly different from "Kentucky (KY)"; § significantly different from "North Carolina (NC)"; Significantly different from "Other states (Wisconsin, West Virginia, Indiana, Ohio, Missouri, and Georgia)"; a significantly different from "Less than or equal to

24"; b significantly different from "25 to 49"; c significantly different from "50 to 200"; d significantly different from "More than 200".

Finally, tobacco growers with experience producing grain crops, fruits and vegetables, and livestock were more likely to perceive these crop/livestock enterprises as on-farm alternatives with a high potential to replace tobacco. Regardless of location, tobacco acreage and experience, about half of the burley tobacco producers surveyed perceived hay and livestock as on-farm enterprises with a high potential to replace tobacco.

Summary and Discussion

Results from the study reported here suggest that burley tobacco producers are generally likely to view hay and livestock as on-farm enterprises with a greater potential to replace burley tobacco than grain crops, fruit and vegetables, cotton, and peanuts. Additionally, results suggest that location (e.g., growing conditions, availability of marketing channels), tobacco acreage under production, and previous experience with alternative crops may be characteristics to be considered when promoting and providing technical support to tobacco growers looking for alternatives to replace tobacco. Better targeting of information-delivery efforts could have a positive impact on the likelihood of success for tobacco producers making the transition from tobacco production to an alternative crop/livestock enterprise.

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