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Policy Reform in the Tobacco Industry: Producers Adapt to a Changing Market

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Abstract

The Fair and Equitable Tobacco Reform Act of 2004 eliminated tobacco quotas and tobacco price supports and allowed producers to plant any amount or type of tobacco regardless of geographic location. The authors found that flue-cured tobacco producers made greater adjustments to their operations after the buyout than did burley tobacco producers. Flue-cured tobacco producers were more likely to increase tobacco acres per farm, pushing up the tobacco acreage per farm at a faster rate compared with burley tobacco producers. Flue-cured producers also were more likely to invest in their tobacco enterprises and invested more per farm after 2004. As a result of increased acreage, tobacco operations became more sensitive to changes in labor costs. With over 75 percent of tobacco farms using hired or contract labor in 2008, the availability and cost of workers have become increasingly important to tobacco producers. This report is based on data collected from the tobacco version of the 2008 Agricultural Resource Management Survey (ARMS), which focused on U.S. producers of burley and flue-cured tobacco in 2008 and how their tobacco operations have changed since 2000 and 2004.

Keywords: Tobacco, structural change, farm adjustments, adaptations, Agricultural Resources Management Survey (ARMS)

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Contents

Summary

What Is the Issue?

Prior to the 2004 tobacco buyout, burley and flue-cured tobacco producers operated under a system of quotas and price supports that kept tobacco prices artificially high by limiting tobacco production. The Fair and Equitable Tobacco Reform Act of 2004 (or tobacco buyout) changed the tobacco policy in the United States by eliminating quotas and price supports, while providing buyout payments to quota owners and growers. Without tobacco quotas, producers were freed from tobacco planting restrictions that limited the amounts and types of tobacco that could be marketed in a geographic region. While changes in tobacco policy gave producers the freedom to plant as much tobacco as they wished, they were also exposed to increased market and price risks, ultimately impacting their ability to adapt to current market conditions.

What Did the Study Find?

- Flue-cured tobacco producers made greater changes in their tobacco operations than burley tobacco producers in the first 4 years after the buyout by increasing their tobacco acreage more and investing more in their tobacco operations.
- Producers who continued to grow tobacco after the buyout farmed more tobacco acreage per farm in 2008 than they did in 2004. Flue-cured tobacco producers increased their tobacco acreage per farm by 30 acres, or 50 percent, between 2004 and 2008, while burley tobacco producers increased their tobacco acreage per farm by 3.6 acres, or 26 percent.
- Tobacco acreage per farm is expected to rise through 2013. Producers who intend to plant flue-cured tobacco in 2013 plan to plant 115 acres of tobacco per farm while burley producers expect to plant 20 acres of tobacco per farm. Much of the expected rise in tobacco acreage per farm is attributed to the exit of smaller scale tobacco producers prior to 2013 since the total tobacco acreage for burley and flue-cured tobacco is anticipated to remain roughly the same in 2013 as in 2008.
- Flue-cured tobacco producers were more likely than burley tobacco producers to have made capital investments in their tobacco operations. The principal reasons for investing were to improve production efficiency, handle the expansion in tobacco acres, and replace machinery, equipment, and buildings.
- As producers increased their tobacco acreage per farm, they became more sensitive to fluctuations in the availability and cost of hired labor. Tobacco producers reported that it takes an average of 72 labor hours per acre to produce flue-cured tobacco for market and 151 labor hours per acre for burley. Hired labor accounts for the majority of tobacco labor, with flue-cured tobacco producers more dependent on migrant labor than burley producers due to the larger size of flue-cured operations.
- Tobacco producers are using marketing contracts to manage the increased marketing risk. Without auction houses or guaranteed buyers, most tobacco producers are now marketing their tobacco under a marketing

contract. However, producers are exposed to market risk if buyers should choose not to renew contracts, as most contracts last for 1 year.

How Was the Study Conducted?

The authors of this report used data collected from the tobacco version of the 2008 Agricultural Resource Management Survey (ARMS). The ARMS is a detailed, annual survey of farm businesses and associated households conducted jointly by the U.S. Department of Agriculture's Economic Research Service (ERS) and National Agricultural Statistics Service (NASS). The tobacco version of the survey focused only on producers of either burley or flue-cured tobacco in 2008. To track the adjustments made by the 2008 tobacco producers, growers were asked to report on their tobacco operations in 2000, 2004, and 2008. Therefore, the ARMS data presented in this paper for 2000 and 2004 are not representative of all tobacco producers in those years, since those who exited tobacco farming before 2008 were not included in the survey. Tobacco producers in Kentucky, Tennessee, and North Carolina, where the majority of burley and flue-cured tobacco production occurs, were included in the survey.

Introduction

Marketing quotas and price supports were longstanding features of the U.S. farm policy on tobacco until 2004, when they were eliminated by Congress. The original purpose of quotas was to limit the amount of marketable tobacco leaf and generate stable tobacco prices for tobacco producers. Tobacco quotas offered a viable system for regulating tobacco production until the 1990s when demand fell for U.S. tobacco. The decreased demand was due to higher retail prices of cigarettes, increased smoking restrictions, increased use of foreign tobacco in cigarettes, a reduced amount of tobacco leaf per cigarette, and a larger gap between U.S. and foreign tobacco leaf prices due partly to the price support program. Lower demand led to tobacco quota reductions that left many tobacco producers struggling to maintain viable tobacco farming operations during an era of rising production costs.

The quota reductions spurred calls by quota owners and growers for a tobacco buyout. Owners wished to be compensated for quota losses since quotas were considered assets. An increasing number of growers supported a buyout as the rental rate for tobacco quotas rose, pushing up the costs of tobacco production. In response, Congress enacted the Fair and Equitable Tobacco Reform Act of 2004, ending tobacco quotas and price supports for tobacco while providing compensation for quota owners and tobacco growers (Womach, 2004). The tobacco buyout created a market system where any producer, regardless of location, can grow tobacco, and the amounts and types of tobacco grown are not limited by quotas. The buyout, however, increased the market risk for tobacco producers since growers were not guaranteed a minimum price or a buyer for their tobacco.

Since the tobacco buyout was anticipated and most proposals provided additional payments to tobacco growers, many struggling producers continued farming tobacco despite the reduced quota levels that preceded the buyout. Immediately after the tobacco buyout, however, many tobacco producers exited the industry. Others continued to farm, but quit growing tobacco. In the first year after the tobacco buyout, approximately 63 percent of flue-cured tobacco producers and 56 percent of the burley tobacco producers who farmed tobacco in 2004 stopped farming tobacco (Dohlman, Foreman, and Da Pra, 2009). It was not clear whether the remaining tobacco producers would benefit from the policy change, what new issues they would face, or how they would restructure their enterprises to take advantage of the changing tobacco industry.

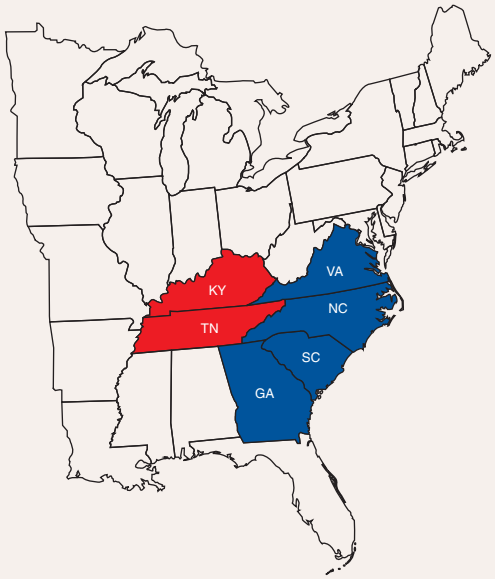
The Government's tobacco policy implemented in 2004 provides a unique opportunity to assess how the remaining tobacco producers adapted their enterprises in response to changing markets, fewer tobacco growers, and greater choices in the amounts and types of tobacco grown. Structural adaptations made by the remaining flue-cured and burley tobacco producers are presented using data derived from the tobacco version of the 2008 Agricultural Resource Management Survey (ARMS) (see box, "The 2008 Tobacco Version of the Agricultural Resource Management Survey"). The results may indicate how tobacco farms adjust to future policy changes.

The 2008 Tobacco Version of the Agricultural Resource Management Survey

The analysis was primarily based on data from the tobacco version of the 2008 Agricultural Resource Management Survey (ARMS). This version of ARMS collected data from producers who planted either burley or flue-cured tobacco in 2008 and focused on their characteristics, financial status, and capital and labor usage on tobacco enterprises. The survey did not include growers who produced tobacco in 2000 or 2004, but stopped producing tobacco by 2008. Data for 2000, 2004, and 2008 were collected for select questions, so comparisons could be made between pre- and post-buyout years. Since data for 2000 and 2004 were collected only from producers who grew flue-cured or burley tobacco in 2008, the 2000 and 2004 data are not representative of all tobacco producers in those periods. Tobacco producers in the following States were surveyed: Virginia, North Carolina, South Carolina, Georgia, Kentucky, and Tennessee (box fig.)

States surveyed in the 2008 tobacco version of ARMS

All flue-cured tobacco acres and 91 percent of burley tobacco acres were covered by the survey



Note: Red indicates States where most burley tobacco production occurs; most flue-cured tobacco is produced in the States highlighted in blue.

Source: USDA's 2008 Agricultural Resource Management Survey, conducted by National Agricultural Statistics Service and the Economic Research Service.

U.S. Tobacco Policy

Government tobacco policy began with the Agricultural Adjustment Act of 1933. This act set up a payment system for producers who reduced their production of seven basic commodities—corn, wheat, cotton, rice, peanuts, tobacco, and milk. The 1933 Act was later declared unconstitutional. The 1938 Agricultural Adjustment Act authorized tobacco marketing quotas and tobacco price supports based on parity. The 1938 Act was amended several times.

The quantities of major types of tobacco that could be marketed yearly were controlled by quotas (see box, "Introduction to Flue-Cured and Burley Tobacco"). Quotas were the right to sell tobacco at or above the support price in specific geographical regions, such as a county or State. Quotas were assigned to farms based on each farm's history of tobacco production. Tobacco quotas were owned by farm landlords and tobacco producers, and owners could either grow their own tobacco or lease their quota to tobacco growers. Farm landlords acquired their tobacco quotas through retention or inheritance. Quotas could be transferred between farms with certain geographical restrictions. Quota transfer rules were generally stricter in the burley tobacco production region compared with rules in the flue-cured tobacco production region. These restrictions on quota transfers slowed the consolidation of tobacco farms into larger units, unlike what occurred in most other types of farming.

Before the 2004 change in tobacco policy, tobacco producers were guaranteed to have a purchaser for their tobacco at a minimum price through the use of nonrecourse loans. If tobacco was not purchased at an auction market, the price stabilization cooperative would buy the tobacco at the loan rate for tobacco. For 2004, the weighted support price was set at $1.69 per pound for flue-cured tobacco and $1.87 per pound for burley tobacco. The cooperative would store the tobacco and sell it later to repay the loan and interest. The change in tobacco policy eliminated the nonrecourse loan program for tobacco.

Introduction to Flue-Cured and Burley Tobacco

Burley and flue-cured tobacco are the two major types of tobacco grown in the United States.[1] These two tobacco types account for 92 percent of the U.S. tobacco acreage since the tobacco buyout. Burley tobacco accounts for 29 percent of U.S. tobacco acreage and flue-cured tobacco accounts for 63 percent.

Flue-cured tobacco is traditionally grown in Virginia, North Carolina, South Carolina, Georgia, and Florida. These locations provide sandy soil as well as warm weather, humidity, and light rainfall: all conditions favored by the flue-cured tobacco plant. In contrast to flue-cured tobacco, burley tobacco needs to be grown on well-drained, lime-based soils typically found in Kentucky, Tennessee, the southern portions of Ohio, Indiana, and Missouri, and the western regions of Virginia, North Carolina, and West Virginia.

U.S. burley and flue-cured tobacco are used primarily in cigarettes. Most cigarettes contain a blend of tobacco, since each tobacco type has different characteristics and blending ensures desirable properties and consistent taste. For example, after curing, the burley tobacco leaf has a low sugar content, while flue-cured tobacco leaf has a high sugar content. The most popular blend of cigarettes is the American blend. American blend cigarettes are composed of burley, flue-cured, and oriental tobaccos. The mix of tobacco types varies by brand to achieve desired brand characteristics.

[1]For further information on tobacco types, visit http://www.tobacco.yaia.com/types.html.

Tobacco Acreage Per Farm Increased After the Buyout

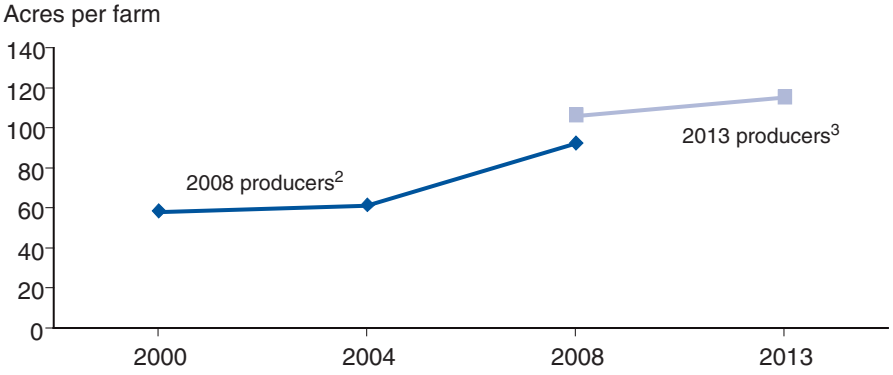
Both flue-cured and burley tobacco producers increased their acres of tobacco after the change in tobacco policy, but flue-cured tobacco producers increased their tobacco acreages by a greater percentage than burley tobacco producers (see box, "Characteristics of Flue-Cured and Burley Tobacco Farms"). Flue-cured tobacco producers planted an average of 92 acres of tobacco per farm in 2008, up 50 percent from the 61 acres per farm they planted in 2004 and the 58 acres they planted in 2000 (fig. 1). About 75 percent of the 2008 flue-cured tobacco producers increased their planted acres of flue-cured tobacco after the buyout. North Carolina tobacco producers were most likely (82 percent) to increase their flue-cured tobacco acres per farm, while Virginia producers were the least likely (55 percent) to increase their flue-cured acres per farm.

The increase in flue-cured acres planted per farm after the 2004 tobacco buyout reflects the recovery in total flue-cured tobacco acres to nearly the prebuyout level, as well as the consolidation of tobacco acreage on fewer farms growing flue-cured. Increased demand for flue-cured tobacco after the buyout supported the recovery as total disappearance of flue-cured tobacco leaf rose from 526 million pounds in the 2004/05 marketing year to 642 million pounds in the 2007/08 marketing year (Dohlman, Foreman, and Da Pra, 2009). This increased demand is reflected in the changing number of harvested flue-cured tobacco acres after the tobacco buyout. In 2004, 228,400 acres of flue-cured tobacco were harvested and, in 2005, the first year after the buyout, harvested acres fell to 175,500 acres. By 2008, rising demand for flue-cured tobacco boosted flue-cured tobacco acreage to 223,000, almost on level with the prebuyout year (NASS, 2010). The 2008 flue-cured tobacco

Figure 1

Tobacco acreage per farm for flue-cured tobacco producers[1]

Producers planted an average of 92 acres of flue-cured tobacco per farm in 2008, up 50 percent in the 4 years after the buyout, while producers intending to plant flue-cured tobacco in 2013 expect to plant 115 acres of the crop per farm in 2013



[1]In 2000, 2004, 2008, and 2013, an acre or less of nonflue-cured tobacco per farm was planted or was expected to be planted by flue-cured tobacco producers.

[2]Acres of tobacco planted per farm by producers who planted flue-cured tobacco in 2008.

[3]Acres of tobacco planted or expected to be planted per farm by producers who plan to plant flue-cured tobacco in 2013.

Source: USDA's 2008 Agricultural Resource Management Survey, conducted by National Agricultural Statistics Service and the Economic Research Service.

Characteristics of Flue-Cured and Burley Tobacco Farms

The characteristics of farm operations and their operators impact the willingness of farm operators to expand or restructure their farming operations. LaDue, Miller, and Kwiatkowski found that operators of large farm businesses and younger farm operators were most likely to expand their farm operations. Farm operators operating smaller farms often have lower farm incomes and, therefore, supplement their farm income with off-farm income more frequently than operators of larger farms. Operators of smaller farms often face greater opportunity costs to significantly expand their farm enterprises since they may need to choose how to allocate their labor resources between their off-farm work and farm work. Older operators are less willing to expand or invest in their farming operations, since they have less time to receive sufficient returns from investing in their farm operations.

The major differences between flue-cured and burley tobacco farms, besides location, include size, commodity mix, and ability to generate farm income. In the United States, farms growing burley tobacco are more numerous, but smaller in terms of both total farm acreage per farm and tobacco acreage per farm compared with farms growing flue-cured tobacco. According to the 2008 Agricultural Resource Management Survey (ARMS), there were roughly 11,800 farms growing burley tobacco compared with 2,600 farms growing flue-cured tobacco in the surveyed States (see box table). Flue-cured tobacco farms averaged 887 total acres per farm with an average of 92 acres of tobacco per farm in 2008. In contrast, burley tobacco farms averaged 340 total acres per farm with just over 17 acres of tobacco per farm in 2008.

Although tobacco acreage makes up a small percentage of farm acreage on tobacco farms, the impact of tobacco enterprises on farm operations is large. The net returns to tobacco production are greater than those for other crops, even though tobacco's cost of production per acre is relatively high. On average, tobacco accounts for 50 percent of the value of production on burley and flue-cured tobacco farms in 2008.

Household income of burley tobacco farmers averaged $76,413 in 2008 compared with $142,236 for flue-cured tobacco farmers. Burley tobacco producers earned an average of $26,465 from farming compared with $103,395 earned by flue-cured tobacco producers due to the smaller scale of burley tobacco farms and their farms' commodity mixes. As a result, burley tobacco families relied more on off-farm income to meet their financial needs than flue-cured tobacco families. On average, families of burley tobacco operators derived 65 percent of their incomes from off-farm sources compared with 27 percent of flue-cured tobacco operators in 2008. To supplement their farm incomes, burley tobacco producers more frequently worked off the farm compared with flue-cured tobacco producers. In 2008, 36 percent of burley tobacco producers worked at off-farm jobs or businesses compared with 14 percent of flue-cured tobacco producers. Expansion of the farm operation may require farm operators who work off the farm to make a choice in their allocation of labor between farm and off-farm work.

Characteristics of flue-cured tobacco and burley tobacco farms, 2008

Burley tobacco operators farmed fewer acres and planted less tobacco acreage than flue-cured tobacco operators

Item	Flue-cured	Burley
Number of tobacco farms	2,639	11,780
Tobacco as percent of value of production	51	50
Operated acres per farm	887	340
Planted tobacco acres per farm	92	17
Operator worked off-farm *(percent)*	14	36
Operator principal occupation *(percent)*	838	952
Farming	94	69
Nonfarm work	*6	29
Operator age *(mean)*	52	55
Less than 50 years *(percent)*	40	39
65 or more *(percent)*	11	21
Number of farms with:		
Corn	45	22
Hay	22	76
Soybeans	63	8
Cattle	20	74
Household income/farm family *(dollars)*	142,236	76,413
Farm income/farm family	103,395	26,465
Off-farm income/farm family	38,841	49,949

Coefficient of Variation (CV) = (Standard Error/Estimate) x 100.

* indicates that CV is greater than 25 and less than or equal to 50.

Source: USDA's 2008 Agricultural Resource Management Survey, conducted by National Agricultural Statistics Service and the Economic Research Service.

acreage, however, was spread over fewer farms since many tobacco growers exited the industry after the buyout.

Producers growing flue-cured tobacco in 2008 operated larger-than-average tobacco enterprises in 2004. According to 2004 ARMS data, flue-cured tobacco producers harvested 33 acres of flue-cured tobacco per farm in 2004, but producers who grew flue-cured tobacco in 2008 reported harvesting an average of 61 acres per farm in 2004. A number of factors may cause producers with a higher-than-average number of acres planted to a specific commodity to continue production of that commodity. Producers with more acres may realize cost advantages due to economies of size, which allow them to spread their fixed capital costs over more acreage. Producers with greater acreages planted to a specific commodity are likely to have more invested in the specialized machinery and farm structures needed to grow and store the crop and are more likely to rely on the income generated from that crop.

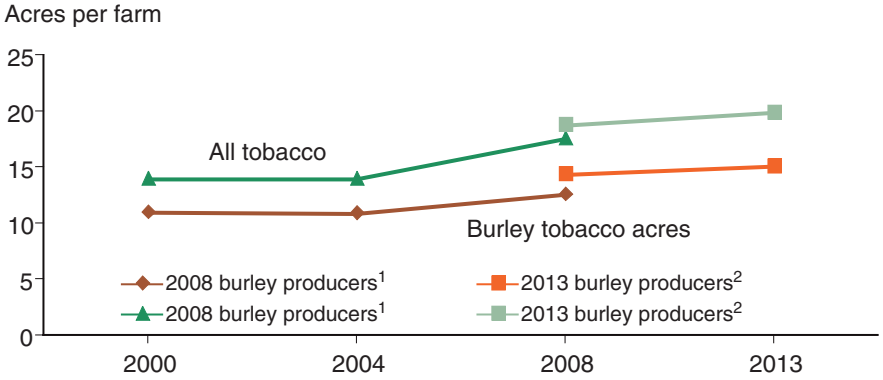
Producers who grew flue-cured tobacco in 2008 typically planted only that tobacco type in 2004. Only 4 percent of flue-cured tobacco growers produced other tobacco types in 2004. After the geographic restrictions were removed by the buyout legislation, small but increasing numbers of Virginia and North Carolina flue-cured tobacco producers began experimenting with burley tobacco. By 2008, 10 percent of flue-cured tobacco producers also grew another type of tobacco. Flue-cured tobacco producers averaged 1 acre of other tobacco (burley, dark, other) per farm in 2008.

Four years after tobacco quotas were eliminated, burley tobacco producers averaged 12.5 acres of burley tobacco per farm, up from 10.7 acres in 2004 (fig. 2). Kentucky burley tobacco producers farmed an additional 1.7 acres of burley tobacco per farm in 2008, while Tennessee burley tobacco producers added less than half of an acre to their production area. Slightly less than half

Figure 2

Tobacco acreage per farm for burley tobacco producers

Producers increased their burley acres per farm by 16 percent to 12.5 acres, 4 years after the buyout, while producers who intend to produce burley in 2013 expect to plant 15.6 acres of the crop in 2013



[1]Acres of tobacco planted per farm by producers who planted burley tobacco in 2008.

[2] Acres of tobacco planted or expected to be planted per farm by producers who plan to plant burley tobacco in 2013.

Source: USDA's 2008 Agricultural Resource Management Survey, conducted by National Agricultural Statistics Service and the Economic Research Service.

of burley tobacco producers in 2008 increased their burley tobacco acreage from 2004.

The smaller rate of increase in per farm acres of burley tobacco compared with flue-cured tobacco partly reflects the continued decline in demand for burley tobacco after the buyout even as burley tobacco prices declined. Total disappearance of burley tobacco fell from 328 million pounds in the 2004/05 marketing year to 247 million pounds in the 2007/08 marketing year, while harvested acres of burley fell from 153,150 acres in 2004 to 97,500 acres in 2008 (Dohlman, Foreman, and Da Pra, 2009). The changing demand will be reflected in the number of pounds that tobacco companies will purchase through their tobacco marketing contracts. In addition, the smaller rate of increase in tobacco acres on burley tobacco farms may also reflect the difficulties faced by many burley tobacco producers in increasing their tobacco acreage. Burley tobacco is extremely labor intensive, and a large percentage of burley tobacco producers are not full-time farmers (see box, "Characteristics of Flue-Cured and Burley Tobacco Farms"). For many burley tobacco producers, the expansion of tobacco acreage may require them to forego off-farm income or postpone retirement. Over 21 percent of burley farm operators are 65 years or older compared with 11 percent of flue-cured tobacco producers.

After the tobacco buyout, burley producers increased their acreage of other tobacco by 1.6 acres, on top of the additional 1.7 acres of burley per farm, between 2004 and 2008. The share of producers growing other tobacco types did not change significantly from 2004. About 9 percent of burley tobacco producers grew another type of tobacco in 2008. Hence, the elimination of geographic restrictions on tobacco did not result in a large number of burley tobacco producers diversifying into other tobacco types within the traditional burley tobacco production region.

Tobacco Acreage Per Farm May Continue To Rise

Since tobacco farms continually adjust to market conditions, the ARMS questionnaire contained two questions that covered tobacco producers' expectations for their tobacco enterprises. The first question asked producers how many more years they expected to produce tobacco. The second question asked producers how many acres of each type of tobacco they expected to plant in 2013.[1]

According to the 2008 ARMS, about 35 percent of flue-cured tobacco producers planned on increasing their acres of flue-cured tobacco between 2008 and 2013, while 27 percent of burley tobacco producers expected to increase their burley tobacco acreage. In contrast, 28 percent of both the flue-cured and burley tobacco producers surveyed in 2008 indicated that they planned to exit tobacco farming by 2013.

Data from the 2008 ARMS show that the average number of flue-cured tobacco acres per farm is expected to rise to 115 acres by 2013, up from 92 acres per farm in 2008 (see fig. 1). More than half of the expected increase is due to producers with a smaller-than-average number of flue-cured tobacco acres exiting the industry, while producers with more acreage continue production. Producers who anticipate raising flue-cured tobacco in 2013 expect to plant an additional 9 acres of the crop, up from the 106 acres in 2008 to 115 acres in 2013.

The 2008 ARMS data indicate that the average burley tobacco acreage per farm is expected to rise to 15.6 acres per farm by 2013, up from 12.5 acres per farm in 2008 (see fig. 2). Only 1.3 acres of the expected increase is due to producers expanding their burley tobacco acreage per farm, while the remaining portion of the increase—1.8 acres—is a consequence of producers with a smaller number of burley acres exiting tobacco farming.

Large changes in the aggregate acreage of flue-cured and burley tobacco between 2008 and 2013 are not anticipated by 2008 tobacco survey participants. The ARMS data on future tobacco acreage suggest that the aggregate flue-cured tobacco acreage may drop by 2 percent between 2008 and 2013, while burley acreage may rise by 1 percent. Recent concerns over the use of flavorings in cigarettes may change the plans reported by burley tobacco producers on the 2008 ARMS (see box, "Possible Ban on Menthol Cigarettes").

[1]The analysis of these data excludes new entrants in burley or flue-cured tobacco production, who did not produce either flue-cured or burley tobacco in 2008. The omitted data have little effect on this analysis since most future entrants in flue-cured or burley tobacco production are already producing one of these two major tobacco types, and data for these producers are included in the analysis.

Possible Ban on Menthol Cigarettes

As a result of the Family Smoking Prevention and Tobacco Control Act, enacted in June 2009, the U.S. Food and Drug Administration (FDA) now has the power to regulate the content, manufacture, and sale of tobacco products, including regulating ingredients. The act included a ban on cigarettes containing cloves, cinnamon, candy, or fruit flavors but exempted menthol-flavored cigarettes. The FDA and World Health Organization are currently reviewing the use of menthol in cigarettes, while Canada has already banned all flavorings in cigarettes, including menthol. Flavoring and sugars are often added to burley tobacco to improve the flavor and taste of cigarettes, because burley tobacco leaf can produce a harsh taste and its smoke can be irritating. Since a ruling against the use of menthol in cigarettes may reduce the demand for burley tobacco, burley tobacco producers are facing an uncertain future. This uncertainty reduces the incentive for burley tobacco producers to expand or invest in their tobacco operations.

Labor on Tobacco Farms Is an Escalating Issue

Tobacco has always been a labor-intensive crop, and labor availability and costs have always been important issues for tobacco producers, especially as the number of tobacco acres planted per farm increased and labor's rising share of production costs made controlling labor costs more critical to profitability. According to the 2008 ARMS, it takes 72 labor hours per acre to produce and prepare flue-cured tobacco for market, compared with 151 labor hours per acre for burley with half of tobacco labor hours needed for the harvest and preparation of tobacco for market (fig. 3). In contrast, field crops generally require less than 3 hours of labor per acre.

Most of the difference in labor hours between the two types of tobacco and between tobacco and field crops is due to differences in production practices. Tobacco seeds are planted in seed beds, frames, or greenhouses. Once the seedlings are ready, almost all tobacco producers mechanically transplant them in the field. Not all tobacco producers raise their own tobacco seedlings. Some purchase them from greenhouse growers who may or may not be tobacco producers. Tobacco greenhouses often cannot be used for other purposes.

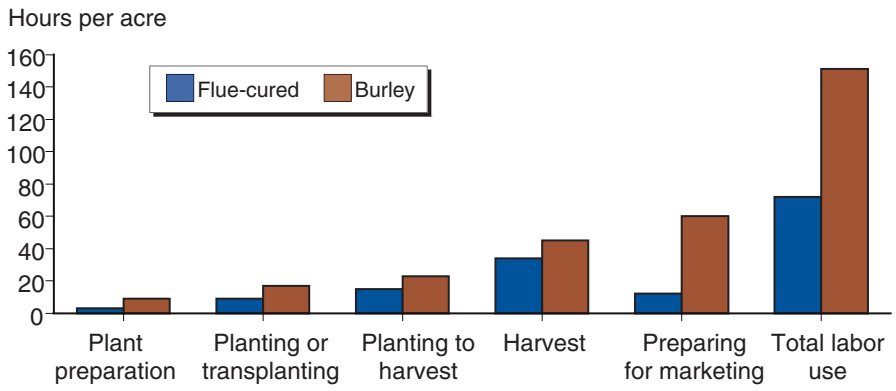
Burley tobacco production differs from flue-cured tobacco production mainly in the harvest and drying process. Burley tobacco is often harvested manually by cutting the stalk at soil level and hanging the entire plant upside down to dry. Burley tobacco is air-cured, meaning that the tobacco is dried from 4 to 8 weeks in well-ventilated barns or other structures that have open sides and a roof. After drying, burley tobacco leaves are usually manually stripped from the stalk, typically in tobacco stripping rooms, and sorted into bales based on the stalk position of the leaf.

In contrast to burley tobacco, flue-cured tobacco leaves are harvested as they ripen. Harvesting flue-cured tobacco leaf requires three or four trips through a field, often with a mechanical harvester, to pick tobacco leaves as they ripen. Lower leaves ripen first, followed in succession by leaves higher up on

Figure 3

Labor hours for tobacco production, by tobacco type, 2008

Harvesting and preparing the crop for market are the most labor-intensive activities in tobacco production



Source: USDA's 2008 Agricultural Resource Management Survey, conducted by National Agricultural Statistics Service and the Economic Research Service.

the stalk. After harvest, the leaves are put in racks or boxes and placed in a curing barn to dry for roughly 1 week. After drying, the tobacco leaves are sorted by hand into large bales based on the leaf position.

The labor-intensive nature of tobacco production makes labor costs an important component of total costs. Labor—paid and unpaid—accounted for 21 percent of the total cost of production per acre for flue-cured tobacco and 38 percent for burley tobacco in 2004, the last tobacco growing season before the tobacco buyout became effective (Foreman, 2006).[2] With the elimination of quotas, the costs for quota rental vanished, pushing labor's share of total production costs per acre to roughly 30 percent for flue-cured tobacco and 50 percent for burley tobacco immediately after the tobacco buyout.

Over the years, as the number of tobacco farms declined and the remaining tobacco farms increased their tobacco acreage, producers increasingly relied on hired labor. By 2008, 75 percent of burley tobacco farms and 95 percent of flue-cured tobacco farms used hired or contract labor. Hired and contract labor provided 61 percent of all labor hours needed for burley tobacco production and 84 percent for flue-cured tobacco production (fig. 4).

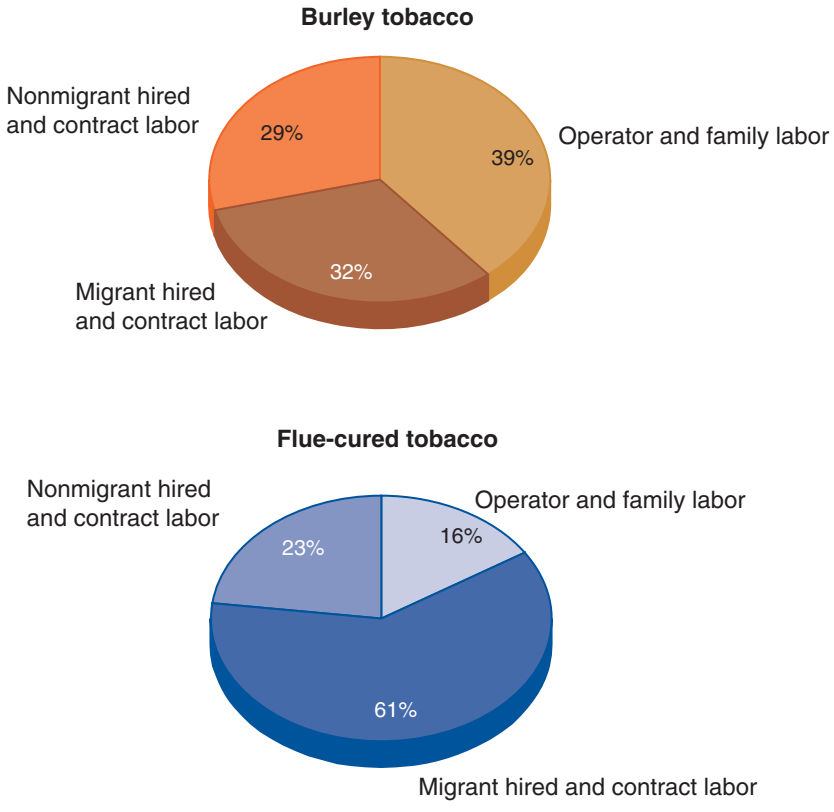
Nonmigrant hired and contract labor provided 29 percent of the labor for burley tobacco and 23 percent of the labor needed for flue-cured tobacco.

[2]The cost of production estimate includes cash and noncash items. Noncash items are usually valued using opportunity costs. For the tobacco cost of production estimate, the agricultural wage rate was used to estimate the opportunity costs of unpaid labor.

Figure 4

Sources of tobacco labor, 2008

Hired labor accounts for most of the labor on tobacco farms



Source: USDA's 2008 Agricultural Resource Management Survey, conducted by National Agricultural Statistics Service and the Economic Research Service.

According to ARMS, 29 percent of burley tobacco producers and 52 percent of flue-cured tobacco producers reported difficulty finding local workers for their tobacco operation in 2008. Local workers often prefer better paying off-farm jobs since tobacco work is difficult and seasonal.

Tobacco farmers used migrant labor to supply a large proportion of their labor needs for tobacco in 2008 due to difficulties hiring local labor.[3] The ARMS data show that migrant labor supplied 61 percent of the labor hours needed for flue-cured tobacco and 32 percent of the labor hours needed for burley tobacco in 2008. Migrant labor provides a higher proportion of labor hours per acre for flue-cured tobacco even though fewer labor hours are needed per acre. Flue-cured tobacco producers, however, plant more tobacco acreage. Hence, flue-cured tobacco producers need considerably more workers to supply the labor for their operations, which may explain why 75 percent of flue-cured tobacco producers used migrant labor in 2008 compared with 38 percent of the burley tobacco producers.[4]

Although a higher percentage of flue-cured tobacco producers used migrant labor, a lower percentage of them, 12 percent compared with 15 percent for burley tobacco producers, reported difficulty obtaining migrant labor. Flue-cured tobacco producers may have had less difficulty finding migrant labor since a higher percentage of them, 35 percent versus 6 percent of burley tobacco producers, reported using a Government program, such as the H-2A Program, to obtain workers.

The H-2A Program brings nonimmigrant foreign workers into the United States for temporary or seasonal work when there is a shortage of domestic workers. To hire migrant workers under the H-2A Program, employers must become certified with the U.S. Department of Labor and document that they meet program requirements, including provisions for migrant laborers. Some producers have found the H-2A certification process burdensome and hired companies to assist them with the paperwork and, in some cases, to act on their behalf. According to the 2008 ARMS, 37 percent of flue-cured tobacco producers and 4 percent of burley tobacco producers paid a company to assist them in obtaining labor under the H-2A program. The paperwork and detailed requirements under the H-2A Program favor its use on larger tobacco operations where producers can spread program participation costs over a large number of tobacco acres.

[3] Migrant labor is defined as laborers who cannot return to their permanent home between work days.

[4] In 2008, flue-cured tobacco producers used 6,624 hours of labor per farm (92 acres x 72 hours per acre) on average for their flue-cured tobacco, while burley tobacco producers used 1,913 hours of labor per farm on average for their burley tobacco (13 acres x 151 labor hours per acre). The labor hours used per acre of tobacco vary slightly year to year depending on tobacco yields, changes in production and market preparation methods, and mix of tobacco types.

Tobacco-Related Investments in Post-Buyout Years

Many tobacco producers in 2008 invested in tobacco-related equipment and buildings after the buyout. Since tobacco production is labor intensive and requires specialized equipment and buildings, significant increases in tobacco acreage per farm required additional capital investments to handle the additional acreage efficiently. Eighty-four percent of flue-cured tobacco producers and 42 percent of the burley tobacco producers invested in tobacco-related equipment or buildings since the tobacco buyout (table 1). A higher percentage of flue-cured producers than burley tobacco producers made capital investments in their tobacco operations since the buyout, partly because more of them (76 percent compared with 42 percent) increased their tobacco acres.

Not only were flue-cured tobacco producers more likely to invest in their tobacco operations compared with burley tobacco producers after the buyout, but according to data from the 2008 ARMS, flue-cured producers invested more per farm. Flue-cured tobacco producers, who invested back in their tobacco operations, invested an average of $85,000 per farm (see table 1). In contrast, burley tobacco producers invested an average of $29,000 per farm. Flue-cured tobacco producers invested more in their tobacco operations than burley tobacco producers, partly due to greater expansion of tobacco acreage per farm on farms producing flue-cured tobacco. Flue-cured producers who invested in their tobacco operations increased their tobacco acreage by 33 acres or 52 percent compared with an increase of 5 acres or 25 percent for investing burley tobacco producers.

Buyout payments were just one possible source of funds that tobacco producers could use to make investments in their tobacco enterprises. Since buyout payments were based on the pounds of tobacco quota owned and pounds of tobacco grown, burley tobacco producers received less funds per farm from buyout payments because they planted fewer tobacco acres.[5] Flue-cured tobacco producers in 2008 were scheduled to receive an average of $378,000 per farm in tobacco buyout payments spread over a 10-year period starting in 2005.[6] Burley tobacco producers, however, were scheduled to receive an average of $68,400 per farm. Both flue-cured and burley tobacco producers reported spending or investing just over 40 percent of their tobacco buyout payments in their tobacco enterprises.

Producers invest in their tobacco operations for many reasons. The ARMS survey provided producers with a list of eight possible reasons they may have had for making investments in tobacco equipment and buildings and asked producers to select which were most important to them for each type of investment they made after the tobacco buyout.

The top three reasons producers gave for these capital investments were to expand tobacco production, to increase production efficiency, and to replace production items (table 1). In general, tobacco producers ranked expanding the tobacco operation as the main reason for capital investments in physical structures, while improving production efficiency was the top reason given for investments in tobacco-related equipment.

[5]Under the buyout program, tobacco quota owners received $7 per pound while tobacco growers received $3 per pound.

[6]Tobacco producers could opt to receive a discounted lump sum buyout payment by contracting with a financial institution rather than waiting 10 years to receive the full payment.

Table 1

Post-buyout investments made by farms planting burley and flue-cured tobacco, 2008

Flue-cured tobacco producers were more likely than burley tobacco producers to invest in their tobacco operations, and their investments per farm were greater

	Percent of farms investing in		Amount per farm for those investing		Top-ranked reason for the investment (percent citing reason)
	Burley	Flue-cured	Burley	Flue-cured	
	—— *Percent* ——		— *1,000 dollars* —		
Purchased at least one of the following items:	42	84	29	85	
Greenhouses	14	21	7	30	Replacement (31 percent)
Planting/transplanting equipment	13	43	3	9	Replacement (48 percent)
Mechanical harvesting equipment	1	33	42	49	Increased production efficiency (42 percent)
Barns for drying tobacco	12	59	54	56	Expand tobacco production (51 percent)
Field curing structures	3	5	12	17	Expand tobacco production (88 percent)
Other drying or curing equipment	2	11	17	29	Increased production efficiency (32 percent)
Tobacco stripping rooms	6	1	14	1	Expand tobacco production (41 percent)
Baling equipment	16	39	4	8	Increased production efficiency (23 percent)
Equipment for transporting bales	5	29	6	11	Increased production efficiency (34 percent)
Housing for labor	5	13	26	14	Expand tobacco production (42 percent)

Source: USDA's 2008 Agricultural Resource Management Survey, conducted by National Agricultural Statistics Service and the Economic Research Service.

Many producers needed to expand their physical capacity to dry, cure, or strip tobacco and to house farm labor they hired to handle the increased tobacco grown per farm after the buyout. Therefore, producers ranked expansion of the tobacco operation as the main reason for capital investments in physical structures with the exception of greenhouses (see table 1). Replacement rather than expansion was the top reason for investing in greenhouses. In 2008, approximately 60 percent of burley and flue-cured tobacco producers raised their own tobacco seedlings. The 2008 ARMS showed a small decline in the percentage of flue-cured and burley tobacco producers raising tobacco transplants after the tobacco buyout.

Increased production efficiency was the top reason cited by tobacco producers in 2008 for investing in tobacco equipment for harvesting, curing, and baling. Since labor accounts for a large percentage of tobacco's production costs and over half of this labor is needed for the harvest and preparation of tobacco for market, it is not surprising that tobacco producers focused on improving labor efficiency. Increasing labor's efficiency allowed producers to more easily handle additional tobacco acreage and reduce the need to hire additional labor.

The additional tobacco acres per farm may have prompted some producers to adopt more capital-intensive production methods since the fixed-investment cost of tobacco-related farm equipment would be spread over more acres. Data from the 2008 ARMS showed a small increase in the percentage of flue-cured tobacco producers who mechanically harvested their tobacco and who baled their tobacco in the 4 years after the tobacco buyout.

Tobacco Producers Rely on Marketing Contracts

Tobacco producers faced greater market and price risks after the tobacco buyout. The Fair and Equitable Tobacco Reform Act of 2004 not only eliminated tobacco quotas, but also the tobacco price support system. Under the price support system, if a producer received an offer at or below the price support level or did not receive an offer, the price stabilization cooperative would buy the tobacco at the price support level. Without the price support system, tobacco producers no longer have a guaranteed purchaser for their crop or a guaranteed minimum price.

The use of tobacco marketing contracts began in the 1990s and became popular early in the decade. Tobacco marketing contracts decrease the market and price risks of tobacco production by ensuring buyers for tobacco and, frequently, specifying the amounts of tobacco to be purchased and prices for each tobacco grade. Since most tobacco marketing contracts are signed prior to planting, producers know in advance how many tobacco acres to plant.

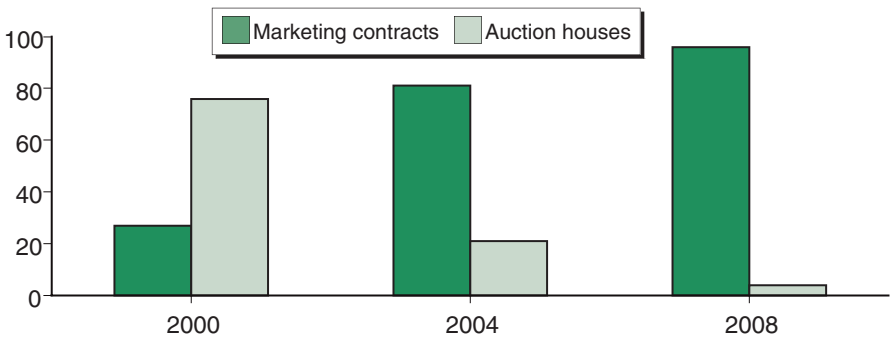
Following the tobacco buyout, a larger share of the 2008 tobacco producers signed tobacco marketing contracts. Analysis of ARMS data shows that 95 percent of burley and flue-cured tobacco producers sold some tobacco under a marketing contract in 2008, compared with the 80 percent that opted for a marketing contract in 2004 and 27 percent in 2000 (fig. 5).

In 2008, most tobacco marketing contracts were agreements with cigarette manufacturers or leaf dealers. Ninety percent of all tobacco producers sold their tobacco under a 1-year tobacco marketing contract, up from 75 percent in 2004. Just 5 percent of producers held longer term tobacco marketing contracts lasting 2 or more years in 2004 and in 2008. Less than 3 percent of tobacco producers in Kentucky and Tennessee held marketing contracts of 2 or more years in 2008, compared with 12 percent of North Carolina tobacco producers and 9 percent of Virginia tobacco producers. Longer term

Figure 5

Importance of marketing contracts to tobacco production in 2000, 2004, and 2008

Tobacco marketing has shifted toward contracts and away from auction houses



Source: USDA's 2008 Agricultural Resource Management Survey, conducted by National Agricultural Statistics Service and the Economic Research Service.

marketing contracts provide stability, which is an important consideration in investments and loans.

The number of tobacco manufacturers, leaf dealers, auction markets, and cooperatives willing to purchase tobacco within a reasonable driving distance from tobacco farms declined rapidly after the shift in tobacco policy.[7] Producers who grew tobacco in 2008 had an average of 4.1 marketing options for their tobacco in 2004 (fig. 6). Tobacco companies and auction houses constituted most of the available marketing options, with slightly less than two choices of each available to the typical tobacco producer. By 2008, the typical tobacco producer had 2.6 options, with most of the decline due to the loss of auction houses located within a reasonable driving distance from the farm. Producers of flue-cured tobacco had an average of 2.8 marketing options for their tobacco in 2008, slightly more than the average 2.5 marketing options available to burley tobacco producers. Not only did the number of available marketing options differ between flue-cured tobacco and burley tobacco producers in 2008, but the composition of their marketing options differed. While flue-cured tobacco producers had more tobacco companies willing to purchase their tobacco than burley tobacco producers, flue-cured tobacco producers usually did not have auction markets available to them. Flue-cured tobacco producers had an average of 2.2 tobacco companies willing to purchase their tobacco in 2008 compared with 1.8 companies for burley tobacco producers. On the other hand, burley tobacco producers could more often market their tobacco in auction houses. As tobacco contracting increased after the buyout, tobacco marketed through auctions declined. With less tobacco available to sell, many auction houses could not afford to remain in business.

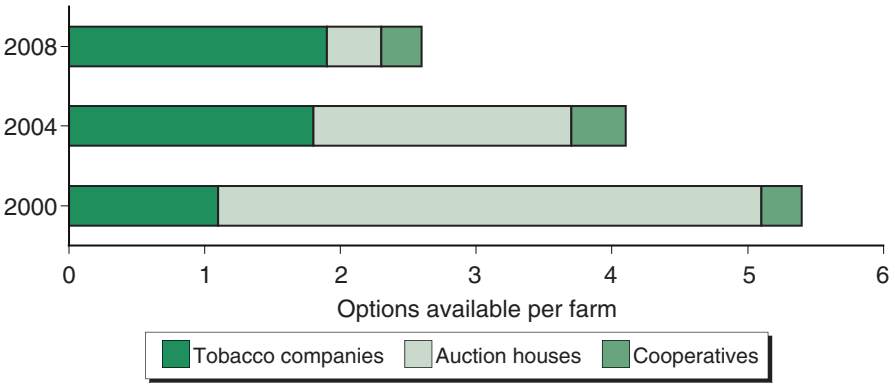
With auction houses virtually gone in several States and with limited ability to market tobacco through cooperatives, many tobacco producers had no other alternative to marketing contracts in 2008. Sixty percent of tobacco producers had only one or two buyers available to them in 2008 and, if one of the buyers left the local market, these producers either had to discontinue tobacco farming or, if available, sell their tobacco to the one remaining buyer.

[7]Tobacco producers determined whether a buyer was within a reasonable driving distance from farms. Tobacco companies include manufacturers and leaf dealers.

Figure 6

Marketing options available to tobacco producers in 2000, 2004, and 2008

Marketing choices declined after the buyout



Source: USDA's 2008 Agricultural Resource Management Survey, conducted by National Agricultural Statistics Service and the Economic Research Service.

The number of tobacco producers who only had one tobacco buyer available to them rose from 27 percent in 2004 to 37 percent in 2008. Also, fewer tobacco buyers per farm likely forced some tobacco farmers to drive longer distances to market their tobacco. The ARMS data show that producers traveled an average of 37 miles to the nearest tobacco receiving station in 2008.

Conclusions

The Fair and Equitable Tobacco Reform Act of 2004 eliminated the restrictions on volume and location for tobacco growers and removed tobacco price supports. Data from the 2008 Agricultural Resource Management Survey (ARMS) show that, compared with burley tobacco producers, flue-cured tobacco producers made greater adaptations in their tobacco operations after the change in tobacco policy.

Operators with more tobacco acreage were more apt to remain tobacco producers after the change in tobacco policy than operators with fewer acres of tobacco. While farm consolidation occurred for both flue-cured and burley tobacco producers, a higher percentage of flue-cured tobacco producers in 2008 increased their tobacco acreage and increased their tobacco acreage per farm by a greater percentage. Flue-cured tobacco producers were more likely to invest in tobacco-related equipment and buildings, compared with burley producers, and invested more per farm. Farm consolidation is expected to continue through 2013 with tobacco acreage per farm rising. Most of the rise in acreage is due to producers with fewer than average planted acres exiting the industry.

Since most tobacco is sold under marketing contracts to tobacco companies, the acreage planted to each tobacco type is determined by tobacco companies' demand for each type. Hence, the pace of future structural changes made by tobacco producers are tied to long-term changes in demand for the type of tobacco being grown.

Labor issues have taken on greater importance for tobacco producers after the tobacco buyout. Increases in the average tobacco acreage per farm, combined with the high number of labor hours per acre required by tobacco production, suggest an increasing reliance on hired labor and a decreasing reliance on family labor. Consequently, changes in nonmigrant or migrant labor costs and availability have a larger impact on tobacco operations following the tobacco policy reform.

After the tobacco buyout, producers invested in their tobacco operations to expand production and increase production efficiency. Achieving these investment goals may help them remain competitive in the post-buyout environment. Expansion of tobacco acreage usually results in lower fixed production costs per unit through economies of size, while increased production efficiency often lowers variable production costs per unit of output. The adoption of capital-intensive machinery can also improve production efficiency by replacing some of the labor required for tobacco production.

Tobacco producers increasingly turned to contracting to ensure a buyer for their tobacco as auction houses disappeared. A significant number of producers have two or fewer buyers available for their tobacco. The loss of a single buyer within a region may leave tobacco producers with no buyers at a reasonable driving distance from their farm or leave them with no other option but to accept the terms of the remaining buyer. Producers with one marketing option, especially those with a 1-year marketing contract, may be reluctant to invest further in their tobacco enterprises.

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