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Tough tobacco transitions

Joshua Glen Lang
Iowa State University

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Tough tobacco transitions

by

Joshua Glen Lang

A thesis submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of
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Co-majors: Sustainable Agriculture; Community and Regional Planning

Program of Study Committee:
Carlton Basmajian, Major Professor
Susan Bradbury
Lisa Shulte Moore

Iowa State University

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NOMENCLATURE

| | |
|------|--|
| RAFI | Rural Advancement Foundation International |
| TTFC | Tobacco Trust Fund Commission |
| ARF | Agricultural Reinvestment Fund |
| AAA | Agricultural Adjustment Act |
| CCC | Commodity Credit Corporation |
| TRA | Theory of Reasoned Action |
| GLF | Golden Leaf Foundation |
| MSA | Master Settlement Agreement |
| ECO | Eastern Carolina Organics |
| WFRP | Whole Farm Revenue Program |
| RMA | Risk Management Agency |
| DMWW | Des Moines Water Works |
| RTP | Research Triangle Park |

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ABSTRACT

The rapid transformation of the agriculture system in the United States over the course of the twentieth century has continually challenged farmers to adjust and innovate to survive. In North Carolina, in recent decades, tobacco farmers have been forced to mechanize, diversify, or transition their farm operations. Interestingly, most tobacco farmers that have chosen to continue farming have opted for the less profitable grain and livestock industries instead of pursuing fruit and vegetable industries, which can match or exceed the income per acre from tobacco production. Research on this topic has covered the processes behind the declining tobacco industry, begun inquiring into the challenges of the fruit and vegetable industries, but has stopped short of a full evaluation of the farmer's decision making process. Through the use of in-depth interviews, this research focuses on understanding the decision making processes of small tobacco farmers that have transitioned to fruit and vegetable production. Findings reveal three major factors driving farmers to fruit and vegetable production: farmer dissatisfaction with the tobacco industry, involvement with farmer advocacy organizations, and the appeal of fruit and vegetable production. Two major challenges for this transition are the farmer's strong ties to tobacco and a range of marketing obstacles. This study has identified several major ideas that require more research but may serve as a tool for governmental and non-governmental farmer advocacy organizations: fruit and vegetable production systems can be made more viable by focusing on increasing marketing outlets per farmer; urbanization plays a significant role in the ability of farmers to access land and to access markets and customers; and other agricultural regions with major crops and agricultural production practices that have questionable public health implications, can learn from this case study.

CHAPTER 1

INTRODUCTION

Introduction

Tobacco has been produced commercially in North Carolina for over four hundred years.¹ During the twentieth century, the industry has gone through major changes and the introduction of the price support system, as part of the Agricultural Adjustment Act (AAA) in 1933, marked the beginning of the end for the small tobacco farmer.² The denouncement of tobacco by the Surgeon General in 1964 further signaled this notion and the Master Settlement Agreement in 1998 sealed the fate of these farmers.³ As the state's total number of farmers fell from 288,508 in 1950 to 50,218 in 2012, the number of tobacco farmers fell from 150,764 to 1,682.⁴ Since 1964, the small tobacco farmer has faced great difficulty in imagining any substitute for this highly profitable crop, most farmers, and especially tobacco farmers, have left agriculture. Although most tobacco farmers that have stayed in agriculture have been able to settle for less profitable commodity crops, mainly grain and livestock,⁵ some have transitioned to fruit and vegetable production. While tobacco has long been thought of as the state's cash crop, farmers have found it difficult to see the comparable value in any innovation.

¹ Hart, John Fraser and Ennis L Chestang, "Turmoil in Tobaccoland," *Geographical Review* 86, no. 4 (1996): 550.

² Ping Zhang and Corinne Husten, "Impact of the Tobacco Price Support Program on Tobacco Control in the United States.," *Tobacco Control* 7, no. 2 (1998): 176-82, doi:10.1136/tc.7.2.176.

³ Fraser and Chestang, "Turmoil in Tobaccoland," 550.

⁴ U.S. Bureau of the Census, *United States Census of Agriculture: 1950*, North Carolina Chapter A Statistics for the State. U.S. Bureau of the Census, *2012 United States Census of Agriculture*. Historical Highlights: 2014 and Earlier Census Years. Washington D.C.: Bureau of the Census. It's hard to determine how many tobacco farmers transitioned to what industries using census data because the agricultural census data does not represent movement between industries. However, given that most farmers grew tobacco in North Carolina in 1950, it is not unlikely that growth in any industry is the result of a tobacco farmer.

⁵ Fraser and Chestang, "Turmoil in Tobaccoland," 550-72.

More recently, research has shown that fruit and vegetables can match or exceed tobacco on the return per acre.⁶ The USDA acknowledges the growth of interest around fruit and vegetable production and has many publications about local food, specialty crops, and organic foods.⁷ In fact, growth in interest in local food and fruit and vegetable production and consumption has increased in recent decades. Between 2002 and 2007 in the United States, the number of farms with direct to consumer sales increased by 17 percent and by 5.5 percent between 2007 and 2012.⁸ Even more recently, the dietary guidelines for 2015-2020 show that the USDA has shifted its focus from a grain heavy diet in the pyramid diagram to a plate which is made up of half fruits and vegetables.⁹

Numerous tobacco farmers saw these trends coming and continue to transition and improve their fruit and vegetable production projects. There are several developments since the MSA that speak to this observation. One is the development of the Eastern Carolina Organics produce distributor, which is made up of mostly former tobacco farmers, and was started from funds from the MSA.¹⁰ Additionally, 550 tobacco farmers have received a cost share grant from the Rural Advancement Foundation International (RAFI), for a range of projects, many of which are for fruit and vegetable production. RAFI's cost share program has received funding from the MSA for the duration of the program, which began in 1998. The purpose of this case study is to 1)

⁶ Adams and Finger, "Vegetable and Fruit Crops: Viable Alternatives for Tobacco Farmers," 94-102.

⁷ USDA, "Local Foods," accessed on March 20th, 2016, <http://www.ers.usda.gov/topics/food-markets-prices/local-foods.aspx>. USDA, "Specialty Crop Block Grants," accessed on March 20th, 2016, <https://www.ams.usda.gov/services/grants/scbgp>.

USDA, "Organic Agriculture," accessed on March 20th, 2016, <http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=organic-agriculture.html>.

⁸ USDA, "Trends in U.S. Local and Regional Food Systems: A Report to Congress," January 2015, http://www.ers.usda.gov/media/1763062/ap068_report-summary.pdf.

⁹ USDA, "Dietary Guidelines for Americans 2015 – 2020," accessed on April 14, 2016, <http://www.choosemyplate.gov/dietary-guidelines>.

¹⁰ Eastern Carolina Organics, "What We Do," accessed on March 29, 2016, <http://www.easterncarolinaorganics.com/about.php#how+we+started>.

understand what were the major factors driving small tobacco farmers in North Carolina to transition from tobacco to fruit and vegetable production over the last 25 years and 2) to determine the challenges of the farmers during their transitions despite the general lack of interest.

The United States government has been involved with the tobacco industry since at least 1933 when the AAA began guaranteeing the tobacco farmer payment for their crop.¹¹ What the AAA did to set tobacco farmers on a course of tobacco dependency, the 1964 Surgeon General's Warning did with equally strong counteraction. John Fraser Hart and Ennis L. Chestang, notable geographers on the tobacco industry, said,

[F]or nearly four centuries the golden leaf has been one of the nation's leading cash crops. The golden leaf is no longer quite so golden, however, because tobacco farmers in the United States have been under ever increasing stress since 1964, when the Surgeon General issued the first report that lung cancer may be linked to cigarette smoking.¹²

More recently, the government has responded to the public health sector and tobacco industry in two major ways. In 1998, legislatures filed suit against tobacco companies in the MSA and distributed money to 46 of the states for costs of smoking related illnesses.¹³ North Carolina decided to dedicate 50% to the Golden Leaf Foundation (GLF), 25% to the Tobacco Trust Fund Commission (TTFC), and 25% to the Wellness Fund.¹⁴ In 2004, George W. Bush's signed off on the Tobacco Transition Payment Program, informally known as the Tobacco Buyout, officially

¹¹ Hart and Chestang, "Turmoil in Tobaccoland," 550.

¹² Hart and Chestang, "Turmoil in Tobaccoland," 550.

¹³ Steven A. Schroeder, M.D., "Tobacco Control in the Wake of the 1998 Master Settlement Agreement," *The New England Journal of Medicine* 350 No. 3 (2004): 293-301. The four states that filed their own lawsuits were Florida, Texas, Mississippi, and Minnesota.

¹⁴ The GLF addresses tobacco dependent communities; the TTFC addresses the tobacco dependent individual; and the Wellness Fund addresses teenage smoking. Wade Underwood, TTFC, phone interview, July 3rd, 2015.

repealing the tobacco price support system, freeing the tobacco market, and beginning a 10-year payment and transition program for tobacco farmers.¹⁵

While the production of tobacco was carried out on numerous small farms in the first half of the century, as a result of the Surgeon General's Warning and numerous structural changes in the agricultural industry, there has been a shift over the second half of the century toward mechanized production on larger farms.¹⁶ The United State Department of Agriculture (USDA) carried out a study in 2005, which shows that over the course of the 20th century several structural changes have occurred, including agricultural production, commodity specialization, farming-dependent counties, off-farm work, increasing importance of national and global markets, and the rising influence of the consumer.¹⁷ Linda Lobao and Katherine Meyer, notable rural sociologists, describe the result of these processes as the "abandonment of farming as a livelihood strategy...whereby most remaining farms are marginal units incapable of fully employing and sustaining families."¹⁸ Peaking in the 1930's and 1940's, in terms of the ability of families being able to maintain their livelihood from farming, rural communities in the United States have been on the decline ever since.¹⁹ Modern agriculture can be characterized by increased agricultural productivity, higher demand, lower cost of food, shrinking number of farms, an increase in

¹⁵ Blake Brown. "The End of the Tobacco Transition Payment Program" NC State University, last modified November 2013, <https://tobacco.ces.ncsu.edu/wp-content/uploads/2013/11/The-End-of-the-Tobacco-Transition-Payment-Program.pdf?fw=no>.

¹⁶ Hart, John Fraser and Ennis L Chestang, "Turmoil in Tobaccoland," 550.

¹⁷ Carolyn Dimitri et al., "The 20th Century Transformation of U.S. Agriculture and Farm Policy," accessed March 19, 2016, <http://ageconsearch.umn.edu/bitstream/59390/2/eib3.pdf>.

¹⁸ Lobao and Meyer, "The Great Agricultural Transition," 104.

¹⁹ Richard E. Wood. "Part One: The Decline of Rural Communities," in *Survival of Rural America: Small Victories and Bitter Harvests*. (Lawrence, Kansas: University Press of Kansas, 2008).

environmental degradation, loss of traditional farm culture, and reliance on governmental and non-profit organizations.²⁰

The knowledge that the tobacco industry was becoming less and less viable for the majority of small tobacco producers has prompted the concept of diversification.²¹ Finding a profitable alternative has been difficult because most crops do not match the return per acre or do not have a price support system in place as commodity crops do.²² Fruit and vegetable production has been studied as a viable alternative since at least the 1980's, but has been met with two major obstacles: lack of a price support system and difficulty in marketing.²³ Most tobacco farmers were traditionally very small because the crop was so profitable that families could survive on 5 acres, and as a result have struggled to afford transitioning to any alternative.²⁴ At the same time there has been pressure from urbanization and the price of farmland.

For the small tobacco farmer, the process of urbanization has meant a decreasing availability of affordable farmland, making it hard for farmers to purchase or rent more land.²⁵ Being able to acquire more land is a fundamental need of the competitive commodity farmer, who must justify the increasing costs of equipment and inputs.²⁶ The population in North Carolina has grown very quickly and parallels the decrease in farmer populations. For example, in 1950 the population of Raleigh was 65,679 and in 2010 was 403,892 and the acreage of the city has grown

²⁰ National Research Council's Committee on Twenty-First Century Systems Agriculture. "A Pivotal Time in Agriculture," in *Toward Sustainable Agriculture Systems in the Twenty-First Century*, (Washington D.C.: Joseph Henry Press, 2010), 43-48.

²¹ Altman et al., "Tobacco farmers and diversification: opportunities and barriers," *Tobacco Control* (5) (1996), 193.

²² Adams and Finger, "Vegetable and Fruit Crops: Viable Alternatives for Tobacco Farmers," 93-98.

²³ Adams and Finger, "Vegetable and Fruit Crops: Viable Alternatives for Tobacco Farmers," 94-102.

²⁴ *Ibid*, 551.

²⁵ U.S. Bureau of Census, 2012 Census of Agriculture, "Historical Highlights: 2012 and Earlier Census Years." Between 1997 and 2012, North Carolina farmland has decreased by 12%, from 9.44 million acres to 8.41 million acres.

²⁶ *Ibid*. Between 1997 and 2012, North Carolina's estimated market value of all machinery and equipment has increased by 68%, from \$2.8 Billion in 1997 to \$4.7 Billion in 2012.

from 10.8 square miles to 143.9 square miles.²⁷ This same growth has happened all around Raleigh, Durham, and Chapel-Hill. This region is referred to as the Triangle and is home to the Research Triangle Park. The development of this park also contributed significantly to the population growth and a large motivation for the children of farmers to leave the farm. Between 2000 and 2009, the Raleigh, Durham, Cary region was the fastest growing metropolitan area in the country, with 40% growth.²⁸ For the farmer participants this has created a huge increase in land prices making it more and more difficult to rent land. One of the study participants, Rodger, spoke of how this phenomenon was still occurring in 2015. He said,

“Say from 40 highway and 95 highway toward Raleigh, they’re building houses like crazy. It’s started back up again. All the old farm land. The kids don’t want to farm. So what are the old people going to do with the land, they’re going to sell it. Now east of 95, on the other side, it’s nothing for people to have to drive an hour and a half. There’s people that will get on 40 highway and drive an hour and a half to drive to Raleigh to work and don’t think twice about it.”²⁹

Urbanization has had a large influence on the tobacco industry and presumably because it happens very slowly and is hard to control, it has received little attention in the literature on tobacco. For example, in North Carolina the estimated market value of land and buildings average per acreage has doubled from \$2,127 in 1997 to \$4,338 in 2012, and has remained almost twice the country’s average during this period.³⁰ On the one hand, this spread-out population growth and increase in farmland price has negative effects on commodity agriculture because it causes the cost of production to go up. However, for the farmers selling direct-to-consumer, this encroaching urban

²⁷ Raleighnc.gov, “Past Raleigh Population and Acreage Date Since 1800,” google search “raleigh north carolina population 1950.”

²⁸ Jason Koebler, “10 Areas with the Largest Metro Growth,” <http://www.usnews.com/news/articles/2011/04/06/10-metro-areas-with-the-largest-population-growth>.

²⁹ Rodger Federer, interview by author, digital recording, North Carolina Piedmont, November 21st, 2015.

³⁰ U.S. Bureau of the Census, *2012 Census of Agriculture*, “Historical Highlights: 2012 and Earlier Census Years.” Washington D.C.: 2012.

population is also a marketing opportunity if farmland prices are not too high and farmers can turn a profit.

In an effort to understand how farmers make decisions about their farms and futures, Joyce Willock and fellow researchers have developed a decision making process model, inspired by a broad range of literature.³¹ The decision making process is made up of 18 attitudes, objectives, and farm behaviors.³² Understanding farmers' decision making process, and the influences from the different attitudes, objectives, and farm behaviors is vital to understand what has driven the small tobacco farmer to transition to a fruit and vegetable industry, to acquire more land and mechanize, to diversify into other commodity crops, or to leave agriculture all together. Another way to consider the decision making process is in terms of the adoption of innovation. An innovation, as defined by Everett M. Rogers, is "an idea, practice, or object that is perceived as new by an individual or other unit of adoption."³³ Roger's model focuses on the farmer's decision making process to adopt an innovative agricultural practice by considering the farmer's perception of five attributes of an innovation: relative advantage, compatibility, complexity, trialability, and observability.³⁴ To gain an understanding for why more tobacco farmers did not transition to fruit and vegetable production, it is important to establish the decision making process across the spectrum of tobacco farmers.

³¹ Joyce Willock, Ian J. Deary, Murray M. McGregor, Alister Sutherland, Gareth Edwards-Jones, Oliver Morgan, Barry Dent, Robert Grieve, Gavin Gibson, Elizabeth Austin, "Farmer's Attitudes, Objectives, Behaviors, and Personality Traits: The Edinburgh Study of Decision Making on Farms," *Journal of Vocational Behavior* 54, no. 1 (1999): 6.

³² Willock et al., "Farmer's Attitudes, Objectives, Behaviors, and Personality Traits," 6.

³³ Rogers M. Everett, *Diffusion of Innovations* (New York: Free Press, 1962), 15-16.

³⁴ Rogers, *Diffusion of Innovations*, 12.

Research Goals & Questions

The first purpose is to understand how a tobacco farmer, in light of the norm, could successfully transition to a non-commodity industry. Using the farmer's decision making process this goal will be explored in terms of the major influences that have encouraged them to transition. A second goal is to understand the challenges that farmers have faced in their transition to fruit and vegetable production, which will employ the diffusion of innovations concept. A third goal is to understand in what ways this case study sample can be generalized to the small tobacco farmer population and to the entire tobacco farming population.

Research question for this project are the following:

1. What are the main factors that have driven small tobacco farmer study participants during their transition out of tobacco and into fruit and vegetable production?
2. What have been the major challenges for these farmers in their transition?

In addressing these questions, the factors that drive farmers to transition is explored in terms of the farmer's decision making process. The challenges to transitioning are looked at in terms of the ability of farmers to adopt an innovative fruit or vegetable project. The research is designed based on a single case study methodology. The single case study is made up of farmers that received a cost share grant from the Rural Advancement Foundation International (RAFI) between 1998 and 2015. RAFI is based in Pittsboro region of North Carolina and is a leading farm advocacy organization for tobacco farmers, and the TTFC has funded their cost share program, the Agricultural Reinvestment Fund (ARF), since the first year in 1998. In terms of the projects that they fund, the TTFC has evolved over time, but it has continued to fund the ARF. In the beginning, the majority of the funds went to help the remaining tobacco farmers modernize their tobacco barns. TTFC project descriptions and amount allocations are presented in Appendix A. But that

was only in the initial years and what has remained and continues to develop is their cost share programs. The TTFC currently has four cost share programs and among these is the ARF.³⁵ According to the TTFC representatives there has been a growing need in these communities and the cost share programs are increasingly competitive.³⁶ The decision to focus on RAFI was the result of preliminary conversations with different organizational leaders that recommended the organization. Also, the representatives at RAFI were very interested in this project and were very helpful in aiding the researcher.

Research Approach

This study attempts to address what have been the major factors driving tobacco farmers to transition to fruit and vegetable production and what have been the major challenges over the last 25 years.³⁷ As Hart has noted, the small tobacco farmer has been the most vulnerable to being forced out of the industry.³⁸ There have been four major surveys of North Carolina tobacco farmers since the creation of the MSA, but none that address the specifics of transitioning to fruit and vegetable production. Three major surveys were conducted between 1997 and 2004 that address diversification on the farm.³⁹ A third study looks at tobacco farmer perceptions of the tobacco

³⁵ Underwood, interview. The other three include, Ag Options, NC Ag Ventures, and the Mount Olive Community College. Ag Options is focused in the mountains, while RAFI is focused in the Piedmont and Coastal Plains. The other two were created to reach different clientele. NC Ag Ventures is managed by NC State Extension. The Mount Olive Community College program was designed to reach new farmers that extension has been unable to reach out to.

³⁶ Underwood, interview.

³⁷ This time frame encompasses the MSA and Tobacco Buyout and enough agricultural census years to show the recent rapid decline of the tobacco industry.

³⁸ Hart et al., "Turmoil in Tobaccoland," 551.

³⁹ David G. Altman et al., "Predictors of crop diversification: a survey of tobacco farmers in North Carolina (USA)," *Tobacco Control* (7) (1998), 376-382. Altman et al., "Tobacco farmers and diversification: opportunities and barriers," 192-198. Robert H. Beach, Alison Snow Jones and Janet A. Tooze, "Tobacco Farmer Interest and Success in Income Diversification," *Journal of Agricultural and Applied Economics* (40) no 1 (2008), 53-71.

buyout.⁴⁰ While these three studies are informative, this study is unique for its use of semi-structured interviews and the intent of gaining a rich, deep understanding of the decision making process of seven farmers in the Piedmont region. Additionally, understanding how the small farmer has been able to succeed and transition to fruit and vegetable production is of interest for two reasons. First of all, the TTFC and RAFI project awards are granted to address the needs of tobacco farming communities, which are historically made up of smaller farmers. Second, the growing local food movement across the country offers a new, robust outlet for small farming enterprises; farms that direct market have a higher rate of farm business survival; and fruit and vegetable operations, in certain production systems, are less harmful to the environment.⁴¹

Assumptions

This research project includes several assumptions. First of all, it supposes that the preservation of the family farm livelihood is a goal that our society still values and wants to work toward. As the agricultural system has become consolidated since the 1930's this ideal has struggled to be maintained. However, it is apparent that the family farm values, not only resonate with a lot of producers and consumers but is also still an occupation and food source for many.

A second assumption is that small and medium sized family farms work on a scale and can respond to customer preferences in a more positive way for society. For example, farmers that sell through local and regional channels typically have verbal agreements on the types of agricultural practices they are using. This is most pronounced at farmers' markets, when farmers have face-to-face interaction with their customers. While some farmers take the initiative and implement certain

⁴⁰ William Stader, "North Central Piedmont North Carolina Tobacco Producers' Views Towards The Federal Tobacco Buyout," *Journal of Extension* (47) No. 4 (2009), 1-11.

⁴¹ Sarah A. Low et al., "Trends in U.S. Local and Regional Food Systems, AP-068, U.S. Department of Agriculture, Economic Research Service, January 2015.

practices on their farms like “no pesticides,” other farmers respond to the customer base and the will of the market.

A third assumption is that the benefits to the community are large. The need for land stewards goes beyond agricultural practices and customer preferences. With the ever-growing population and development pressure, having an engaged and knowledgeable community of landowners is vital to maintain a community’s preferences and a safe and clean environment. Often times developers have a set of interest in mind and certainly they believe they are doing the right thing. But when you bring a group of stakeholders to the table with different opinions the desired outcome tends to change. The remainder of this thesis will be divided into a literature review, methodology, findings section, discussion section, and conclusion.

CHAPTER 2

LITERATURE REVIEW

Introduction

Small tobacco farmers in North Carolina have faced numerous obstacles over the past 50 years. Farmers have been encouraged to diversify away from tobacco in a number of ways and only over the last 25 years has fruit and vegetable production become a diversification option. While all farmers have faced a range of pressures as the agricultural system became more industrial over the last century, tobacco farmers faced another level of pressure from a declining industry on which their livelihood was based. The purpose of this case study is to 1) understand what were the major factors driving small tobacco farmers in North Carolina to transition from tobacco to fruit and vegetable production over the last 25 years and 2) determine the challenges faced by farmers during their transitions and how they are overcoming them.

The first half of this review will pertain to the macro and community level processes, based on economic and geographic literature, government and non-governmental organizational document review, and organizational leader interviews. The second half will cover a review of the decision making process and innovation concepts. While there has been a substantial amount of macro-level and community level research on North Carolina's changing tobacco industry, few studies have focused on the farmer's perspective.⁴² Understanding the farmer's decision making process and the farmer's adoption of innovative practices are the major concepts that will be

⁴² Lobao and Meyer, "The Great Agricultural Transition," 104. Lobao and Meyer note that the rural sociological discipline has researched the great agricultural transition phenomenon in terms of the macro-level transformations, community impacts, and the household response.

explored further and can help explain what motivates farmers to transition and how their transitions play out on the farm.

Agricultural Transition

To understand what has motivated tobacco farmers to transition to specialty crop production in North Carolina, it is first important to understand a few major agricultural transition concepts. The most significant is the process of agricultural industrialization that has led to an increasingly difficult climate for small farmers. Linda Lobao and Katherine Meyer developed an important concept in 2001 which looks at the 20th century country-wide trends – macro-level processes, community level impacts, and the household response, called the “great agricultural transition.”⁴³ Lobao and Meyer argue that agricultural regions in the United States have been in a state of transformation throughout the 20th century. They say,

“The exodus of Americans from farming is one of the most dramatic changes in the US economy and society in the past century. In the early 1900’s, more than one of every three Americans lived on farms, a number greater than that at any other point in our country’s history. At the century’s end, the farm population stood at under 2%, and even for those who remained in farming, almost 90% of household income came from nonfarm sources.”⁴⁴

The motivation for Lobao and Meyer’s inquiry is that rural communities have been dramatically changed and the possibility of maintaining an agricultural livelihood has been largely diminished. Over the course of the 20th century several structural changes have occurred, including agricultural production, commodity specialization, farming-dependent counties, off-farm work, increasing importance of national and global markets, and the rising influence of the consumer.⁴⁵ More

⁴³ Lobao and Meyer, “The Great Agricultural Transition,” 103–24.

⁴⁴ *Ibid.*, 103-104.

⁴⁵ Carolyn Dimitri et al., “The 20th Century Transformation of U.S. Agriculture and Farm Policy,” accessed March 19, 2016, <http://ageconsearch.umn.edu/bitstream/59390/2/eib3.pdf>.

recently, the National Research Council has found that these processes are the result of population growth, technological advancement, increased agricultural productivity, and concerns over the ability of the planet to absorb the environmental consequences.⁴⁶ Lobao and Meyer hone in on the results that show... “a decline in the number of farms and in farm population, growth of larger farms in terms of acreage, sales, and real estate capitalization, and gradual replacement of family with hired labor.”⁴⁷ These are the major trends that have occurred across the country and are of great significance to the small tobacco farmer in North Carolina.

The Small Tobacco Farmer in North Carolina

Macro-level processes

Beginning with the macro-level processes, the structural changes in North Carolina’s agricultural economy over the past 25 years can be characterized by four major processes. The first process includes several major national tobacco policies and begins with the AAA in 1933, which provides context for the last three processes. The second process to be discussed is the intensification, consolidation, and globalization that grew in strength and influence across all agricultural industries over the course of the 20th century.⁴⁸ The third process is the decline of the domestic tobacco industry, in all facets, including number of farmers, pounds produced, and amount consumed. The fourth process is the rise of commodity industries, which served as replacement industries for tobacco and, to a lesser extent, a way for tobacco farmers to diversify

⁴⁶ National Research Council “A Pivotal Time in Agriculture,” 43-82.

⁴⁷ Lobao and Meyer, “The Great Agricultural Transition,” 107.

⁴⁸ National Research Council “A Pivotal Time in Agriculture,” 43-48.

and continue growing a lesser amount of tobacco, except for a few farmers which have, for better and worse, assumed and been gifted with the majority of the market share.⁴⁹

Tobacco policy

There are four major national policy related events that have taken place over the course of the last century which are fundamental to the development of the small tobacco farmer's decision making process. These include the creation of agricultural price support systems during Franklin D. Roosevelt's New Deal programs, the 1964 Surgeon General's Warning, the 1998 MSA, and the 2004 Tobacco Buyout. There are hundreds of tobacco related policies that are sprinkled across this 85-year period of tobacco reign, but these four are significant stops along the way. These four policies signify the policymakers' role in guiding tobacco farming communities to the intensification of tobacco production and then to finally consolidate the industry.

1) 1933 Tobacco price support system

The first major macro-level national policy which affected tobacco was the AAA.⁵⁰ This New Deal policy initiative in 1933 included the creation of the price support system for the following commodity crops: wheat, cotton, corn, hogs, rice, tobacco, and milk.⁵¹ The price support system included a quota system on tobacco. For tobacco farmers, the price support system meant that they had to have a tobacco quota. As a quota farmer you were entitled to a guaranteed price on your tobacco quota allotment. Quotas were determined by three things: "intended purchases by cigarette manufacturers, average annual export for the three preceding years, and the amount of

⁴⁹ Hart et al., "Turmoil in Tobaccoland," 550–72.

⁵⁰ Hart et al., "Turmoil in Tobaccoland," 550–72.

⁵¹ G.L. Baker, " *Price-support and Adjustment Programs from 1933 through 1978: A Short History.*" In USDA Agricultural Information Bulletin No. 424, 1978.

tobacco needed to retain a reserve stock level.”⁵² While this price support system is fundamental it could not have been successful without a bank-like entity.

Paralleling the AAA in 1933, was the creation of the Commodity Credit Corporation (CCC) in an effort to “stabilize, support and protect farm income and prices,” and particularly to carry out the payments.⁵³ For the purposes of tobacco, the CCC administered payments to farmers when yields or auction prices did not meet the minimum price.⁵⁴ The price support system used a loan system to distribute payments. These loans were called non-recourse loans and essentially loaned a farmer their payment and kept their tobacco as collateral until their tobacco was sold.⁵⁵

The price support system had a huge influence on the tobacco industry and the small tobacco farmer. Not only is it indicative of the government’s involvement in the agriculture industry in general, but it is also telling of the country’s focus on tobacco. However, the tobacco price support system did more than just guarantee farmers a price on their crop, it actually created a very complex system of agriculture.

2) 1964 Surgeon general warning

The next big national policy-related event happened in 1964. The public health alarm was sounded in a real way in the United States with the Surgeon General’s Warning about the adverse health effects of smoking tobacco. The scientific discovery of the negative health impacts of smoking tobacco were beginning to surface around the time of the New Deal. Research over the

⁵² Ping Zhang and Corinne Husten, “Impact of the Tobacco Price Support Program on Tobacco Control in the United States.,” 176–82. Additionally, the secretary of agriculture was granted the power to shift the quota up or down by 3%.

⁵³ USDA Farm Service Agency, “About the Commodity Credit Corporation,” accessed September 21, 2015, <http://www.fsa.usda.gov/about-fsa/structure-and-organization/commodity-credit-corporation/index>.

⁵⁴ “Farmers (ATG) Chapter Ten – Tobacco (May 2011),” IRS, accessed September 21, 2015, <http://www.irs.gov/Businesses/Small-Businesses-&Self-Employed/Farmers-ATG-Chapter-Ten-Tobacco-1>.

⁵⁵ Ibid.

1930's, 40's, and 50's finally reached a tipping point and the government was compelled to take a stand on the health concerns with smoking tobacco.⁵⁶ In 1964, Surgeon General Luther L. Terry made public the historical 1964 Report on Smoking and Health.⁵⁷ He did this on a Saturday in January to ease the shock to the country and specifically to the stock market.⁵⁸ With this country-wide announcement, there began the rapid decline in consumer demand for tobacco.⁵⁹

3) 1998 MSA

The MSA required the four largest tobacco companies to reimburse 46 of the 50 states for lost healthcare costs of approximately \$200 billion over the next 25 years.⁶⁰ North Carolina legislatures decided to distribute their funds to the GLF, TTFC, and the Wellness Fund. Once the MSA was reached in 1998, the price support system was still in place and would continue to be for 6 more years. The MSA has had a profound impact on the tobacco industry in North Carolina and country-wide as well. The significance is at least three-fold. First of all, it confirmed the research about the negative health benefits that primarily began with the 1964 Surgeon General's Warning.⁶¹ The health research impacts are numerous and cover the law books, starting in the 1950's.⁶² Secondly, demand for and production of tobacco began declining in the United States.

⁵⁶ "The Reports of the Surgeon General The 1964 Report on Smoking and Health," National Library of Medicine. Accessed on December 3rd, 2015, <https://profiles.nlm.nih.gov/ps/retrieve/Narrative/NN/p-nid/58>.

⁵⁷ Office of the Surgeon General. Surgeon General's Advisory Committee on Smoking and Health, "Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service," 1964.

⁵⁸ Office of the Surgeon General. Surgeon General's Advisory Committee on Smoking and Health, "Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service," 1964.

⁵⁹ Hart and Chestang., "Turmoil in Tobaccoland," 550-572.

⁶⁰ Richard a. Russo, "Local Food Initiatives in Tobacco Transitions of the Southeastern United States," 55-69.

⁶¹ Gale H. Frederick Jr., Linda Foreman, and Thomas Capehart, Tobacco and the Economy: Farms, Jobs, and Communities. *Economic Research Service, U.S. Department of Agriculture, Agricultural Economic Report No. 789* (2000).

⁶² Robert L. Rabin, The Third Wave of Tobacco Tort Litigation, in *Regulating Tobacco* (New York: Oxford University Press, 2001), 202.

Thirdly, it ushered forward the need for tobacco farmers to transition to other agricultural crops or to leave agriculture all together.

4) 2004 Tobacco buyout

Six years later, George W. Bush's signature officially removed the price-support system for tobacco. In 2004, the Tobacco Buyout marked the end of a production control system which had been instituted 71 years before. The Tobacco Buyout yielded \$3.95 Billion to the nation's quota owners over 10 years. The payments came from a "transfer from product manufacturers with much the same effect as a tax."⁶³ In doing so, the Tobacco Buyout ultimately encouraged numerous tobacco farmers to leave the industry and the largest to further mechanize and expand production.⁶⁴ It was also serving a purpose of limiting tobacco imports, in addition to price support and marketing quotas.⁶⁵

Decline of tobacco

The National Research Council notes that there are four major drivers that are responsible for the huge shifts in our country's agriculture system, which have drastically changed all agricultural industries: new agricultural technologies, expansion and commercialization of markets, government programs, and research and development.⁶⁶ Hart and Chestang note that the mechanization of agriculture occurred in the tobacco industry and changed the ideal size of a

⁶³ Blake Brown. "The End of the Tobacco Transition Payment Program." Last modified November 2013, <https://tobacco.ces.ncsu.edu/wp-content/uploads/2013/11/The-End-of-the-Tobacco-Transition-Payment-Program.pdf?fw=no>.

⁶⁴Hart, "The Initial Impact of the Tobacco Buyout Program," 447-557. Blake Brown and Will Snell, "U.S. Tobacco Situation and Outlook," October (2011), <http://tobacco.ces.ncsu.edu/wp-content/uploads/2012/07/Oct-2011-Tobacco-Outlook.pdf?fw=no>. Between 2007 and 2012 there has been a 37% decline in number of tobacco farmers, from 2,622 to 1,682, and between 2002 and 2012 a 66% decline, from 7,850 to 1,682.

⁶⁵ Zhang et al., "Impact of the Tobacco Price Support Program," 176-82.

⁶⁶National Research Council, "A Pivotal Time in Agriculture," 46. All four drivers are present in Lobao et al.'s great agricultural transition as well.

tobacco farm from 30 acres with 5 to 7 acres of tobacco in 1947 to 96.6 acres of tobacco in 1995.⁶⁷ The way they grew tobacco in 1947 was also very labor intensive and did not require much equipment, so many small farmers were able to keep farming year to year. The mechanization of the tobacco industry occurred across the production process, from mechanical transplanters, cultivators, and harvesters, to curing barns controlled by smart phone, making it much more difficult for small farmers to stay in agriculture. The third driver, government programs, is rather unique as was illustrated in the Tobacco Policy section. Suffice it to say that the tobacco industry was very dependent on the government through 2004. This included the government's desire to stabilize the tobacco market, farmers' expectation of their guaranteed market, and tobacco companies' resistance to taxation and other public policy threats to their profit margins.⁶⁸

Gigi Berardi and William Finger finds that there is more complexity to the story of how farmers are able to adjust to mechanization than just small, medium, and large farmers competing and that there is actually a broader range of farmers involved.⁶⁹ In her study of 131 farmers, she found that North Carolina tobacco farmers are made up of "allotment holders, growers who own land without quotas and have to lease allotments from others, growers who lease land and quota, sharecroppers who farm someone's allotment for a portion of the profits, permanent hired labor, and seasonal workers."⁷⁰ While this may appear to be unsubstantial it actually represents the spectrum of tobacco farmers that have existed throughout the 20th century. It speaks to the idea that every tobacco farmer has a different relationship to the tobacco industry and that their

⁶⁷ Hart et al., "Turmoil in Tobaccoland," 553.

⁶⁸ Gale, Foreman, and Capehart, Tobacco and the Economy,"1-37.

⁶⁹ Gigi Berardi and William R. Finger, "Can Tobacco Farmers Adjust to Mechanization? A Look at Allotment Holders in Two North Carolina Counties," In *The Tobacco Industry in Transition: Policies for the 1980s* (Lexington, Mass.: Lexington Books, 1981), 47.

⁷⁰ Berardi, "Can Tobacco Farmers Adjust to Mechanization?," 47.

experiences were all unique. She cites technological innovations and changes in the federal price support system as causing the brunt of the displacement of the tobacco labor force.⁷¹

Politicians, businessmen, and other interested persons were pulling strings and creating an agricultural economy that increased productivity, required a small number of farmers and created an industrial agriculture system where corporations are the leaders.⁷² The fourth driver, research and development, has certainly played a role in the transformation of the tobacco industry. The involvement of North Carolina State University and North Carolina A&T are evident in the fact that most publications for farmers and academics on the tobacco industry come from these universities.⁷³ Furthermore, the extension services available to farmers are associated with these universities.

As all of these stakeholders have different positions in the industry and varying levels of power, it is easy to imagine the controversies that arise. While all farmers faced increasing pressure from these country-wide processes, tobacco farmers faced extreme struggles to remain in the industry or to wash their hands of it and move on.⁷⁴ The main reason that the tobacco farmers faced more struggles than most farmers is based on the fact that smoking tobacco faced growing scrutiny, which started in the public sphere for its health implications beginning in the 1960's.⁷⁵ On the one hand, the larger farmers were able to afford the cost of mechanization. These farmers greatly

⁷¹ Berardi, "Can Tobacco Farmers Adjust to Mechanization?" 47. In Berardi's study, the main reasons of farmers which still held allotments for discontinuing tobacco production were retirement, health, inherited quota, labor problems, off-farm employment, high costs of machinery and larger profit to be made from lease and transfer of quota.

⁷² National Research Council. "A Pivotal Time in Agriculture," 44-45.

⁷³ Department of Crop Science, "NCSU Tobacco," NC State University. Accessed January 26, 2016. <http://www.tobacco.ncsu.edu/>.

⁷⁴ Peter Benson, "Tobacco Capitalism: Growers, Migrant Workers, and the Changing Face of a Global Industry," (New York: Princeton University Press, 2012): 1-37.

⁷⁵ Surgeon General's Advisory Committee on Smoking and Health. Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service. *Office of the Surgeon General* (1964). Retrieved from <http://profiles.nlm.nih.gov/NN/B/B/M/Q/>.

benefited from the concentration of the industry for not only the fact that they were able to continue growing the most lucrative agriculture crop, but they also benefited from the available land and quotas, which many small and medium sized farmers were financially unable to utilize.⁷⁶ The smaller farmers that leased their land and quotas certainly brought in some income from this arrangement, but presumably in a less successful way because they were unable to scale up themselves and were leasing land to competing tobacco farmers that succeeded. Furthermore, these reports show trends in smoking and the development of countries. For example, China is noted as becoming a more and more developed country and with this it is experiencing a rapid increase in smoking and smoking related diseases and deaths.⁷⁷

The decline of tobacco in North Carolina was pushed by a number of forces since World War II. The most significant events were the MSA in 1998 and the Tobacco Buyout in 2004, which once and for all, pulled the rug out from under the small tobacco farmer. From 2002 to 2007 the number of tobacco farmers dropped from 7,850 to 2,622 and then to 1,282 in 2012.⁷⁸ Since 1950, when the tobacco industry was supported by its peak number of farmers in North Carolina, there have been several trends that occurred which need to be acknowledged to assess the role of these four drivers. These include rapid declines in number of farmers, acreage, market sales, and domestic tobacco demand (Table 1).

⁷⁶ Berardi, "Can Tobacco Farmers Adjust to Mechanization?," 47-62.

⁷⁷ Berardi, "Can Tobacco Farmers Adjust to Mechanization?," 47-62.

⁷⁸ U.S. Bureau of the Census, "2012 *Census of Agriculture*. Historical Highlights: 2012 and Earlier Census Years."

Table 1. Tobacco Industry Trends

| Year | 1950 | 1978 | 1982 | 1987 | 1992 | 2012 |
|----------------|-------------|---------------|---------------|---------------|---------------|---------------|
| Farmers | 150,764 | 39,854 | 29,424 | 22,213 | 17,611 | 1,682 |
| Acreage | 604,606 | 409,857 | 337,696 | 239,343 | 283,900 | 167,443 |
| Dollars | \$3 billion | \$3.5 billion | \$2.5 billion | \$1.4 billion | \$1.6 billion | \$732 million |
| Pounds | 662 million | 820 million | 690 million | 478 million | 604 million | 391 million |

Source: Agricultural Census Data 1950, 1978, 1982, 1987, 1992, and 2012⁷⁹

There is a relationship between acreage and pounds sold, because as the industry modernized, less and less acreage was needed to produce the same quantity of crop. In 2012, 1,682 tobacco farms produced 390 million pounds of tobacco on 167,443 acres. This is an impressive shift from 1950 when 150,764 farmers produced 662 million pounds on 604,606 acres.⁸⁰ On average, in 2012 each farmer was producing 231,866 pounds compared to 1950 when each farmer was producing 4,390 pounds. The decline in number of farmers is the most alarming and begs the question where did all the farmers go?

Diversification

Diversification is a term that tobacco farmers are very aware of. Altman and other contributors carried out a survey in the late 1990's, where they assessed 1200 North Carolina Piedmont tobacco farmers' attitudes and behaviors in regard to crop diversification.⁸¹ Their major

⁷⁹ U.S. Bureau of the Census, *2012 Census of Agriculture*. Historical Highlights: 2012 and Earlier Census Years. U.S. Bureau of the Census, *1992 Census of Agriculture*, "Historical Highlights: 1992 and Earlier Census Years." U.S. Bureau of the Census, *1978 Census of Agriculture*, "Historical Highlights: 1978." U.S. Bureau of the Census, "United States Census of Agriculture: 1950. North Carolina Chapter A Statistics for the State. They say that the definition of a farm has changed so much and only data between 1969 and 2012 should be compared. In fact the definition of a farm has changed nine times since 1840, however since 1974 it has remained the same. Price is adjusted for inflation to 2012 using <http://data.bls.gov/cgi-bin/cpicalc.pl>.

⁸⁰ U.S. Bureau of the Census, *United States Census of Agriculture: 1954*. "Statistics for the State: Specified Crops Harvested Census of 1920 to 1954."

⁸¹ David G. Altman et al., "Predictors of crop diversification: a survey of tobacco farmers in North Carolina (USA)," *Tobacco Control* (7) (1998), 376-382.

results included that 95% of the farmers grew a commodity other than tobacco, 60% were interested in pursuing on farm activities to supplement tobacco, and 60% had taken action in the past year to supplement tobacco.⁸² Additionally, the authors concluded that most farmers were involved in diverse operations, most were interested in further diversifying, most feared alternatives could not provide comparable profit to tobacco, and most feared international competition from foreign tobacco growers.⁸³

Diversification in North Carolina generally refers to commodity industries which are insurable, but more recently includes specialty crop industries.⁸⁴ Tobacco has long been insured and tobacco farmers apparently value that quality. Commodity crop programs have been present since the development of the AAA in 1933, and generally refer to non-perishable, storable staple crops. While these programs have evolved overtime, major North Carolina crops like soybeans, cotton, corn, wheat, and sorghum all are eligible for the Farm Bill commodity programs, which offer different insurance and price supports.⁸⁵ During the late 1990's the above survey notes that soybeans, corn, and wheat were the three crops farmers used for diversification. Hart and Chestang note that soybeans were the first alternate "cash crop" to serve as an alternative for tobacco farmers in the 1980's; however, innovators have been pushing for the commercialization of poultry since the 1950's and hog production beginning in the late 1980's.⁸⁶

While all of these industries have grown significantly since the Surgeon General's Warning, the pork industry has been the most recent, significant industry transformation. The rise

⁸² Ibid, 378.

⁸³ Ibid, 378.

⁸⁴ Chuck Canterbury, interview by author, digital audio recording, July 2nd, 2015.

⁸⁵ The National Agricultural Law Center, "Farm Commodity Programs: An Overview," accessed March 6, 2016, <http://nationalaglawcenter.org/overview/commodity-programs/>.

⁸⁶ Hart et al., "Turmoil in Tobaccoland," 554-556.

of pork production in North Carolina was industry led and began in the state as far back as the 1960's.⁸⁷ Many small and medium sized farms were actually looking for a new industry, with the decline of the tobacco industry even in the 1960's.⁸⁸ The North Carolina Pork Council began as a non-profit in 1962 and now receives a government mandated 40 cents on every \$100 of pork sold in the state to help move the industry forward.⁸⁹ In North Carolina the pork industry was already present and was an easy alternative industry for tobacco farmers to enter.⁹⁰ Hogs have actually been raised on most farms in North Carolina beginning before the turn to commercialize production, much like tobacco, vegetables, poultry, beef, and most agricultural products.⁹¹ However, the growth of the industry did not happen in a significant way until the 1990's.⁹² The growth of pork in North Carolina certainly was encouraged by both the negative health impacts of tobacco and uncertainty of the governmental price support system for tobacco.⁹³

While commodity industries, like pork, were more appealing to tobacco farmers, specialty crop production was an option early on but only recently has become a legitimate diversification strategy. The term specialty crops include fruits, vegetables, tree nuts, dried fruits, horticulture, and nursery crops.⁹⁴ The range of marketing channels for specialty crops includes consumers, retail

⁸⁷ Donnie Charleston, "Feeding the Hog Industry in North Carolina : Agri-Industrial Restructuring in Hog Farming and Its Implications for the US Periphery," *Sociation Today* 2, no. 1 (2004), 8.

⁸⁸ Charleston, "Feeding the Hog Industry in North Carolina," 8.

⁸⁹ North Carolina Pork Council, "Mission and History," accessed on November 10th, 2015, <http://www.ncpork.org/about/mission-history/>.

⁹⁰ Hart and Chestang, "Turmoil in Tobaccoland," 558-564.

⁹¹ U.S. Bureau of the Census, *United States Census of Agriculture: 1954*. "Statistics for the State: Specified Crops Harvested Census of 1920 to 1954."

⁹² Furuseh, "Restructuring of Hog Farming in North Carolina," 391-403. Ever since the establishment of this council, farmers have been leaving the tobacco industry over time. Additionally, the pork industry has been concentrated in the southern coastal region of NC - the pork industry has been criticized for focusing the environmental and social externalities in a low-income area where individuals have little political clout to prevent such a move. This type of intentional activity is better known as revealing a lack of environmental justice.

⁹³ Owen J. Furuseh, "Restructuring of Hog Farming in North Carolina, 391-403. Richard a. Russo, "Local Food Initiatives in Tobacco Transitions of the Southeastern United States," *Southeastern Geographer* 52, no. 1 (2012): 55-69, doi:10.1353/sgo.2012.0001.

⁹⁴ Usda-Ams, "USDA Definition of Specialty Crops," 2012, <http://www.ams.usda.gov/AMSV1.0/scbgpdefinitions>.

florists, retail garden centers/nurseries (excluding mass marketers, supermarkets/grocers, other mass marketers, interiorscapers, landscape contractors, wholesale florists, landscape redistribution yards, non-profit groups, and other marketing channels).⁹⁵ North Carolina is currently the 6th largest horticulture crop producer in the country with 945 farm operations and \$571 million in sales.⁹⁶ Between 1950 and 2012, horticulture and specialty crop production has been on the decline in terms of number of farmers. However, unlike most agricultural industries in the state, specialty crop production has experienced a modest uptick in number of farms between 1992 and 2012 (Figure 1).⁹⁷

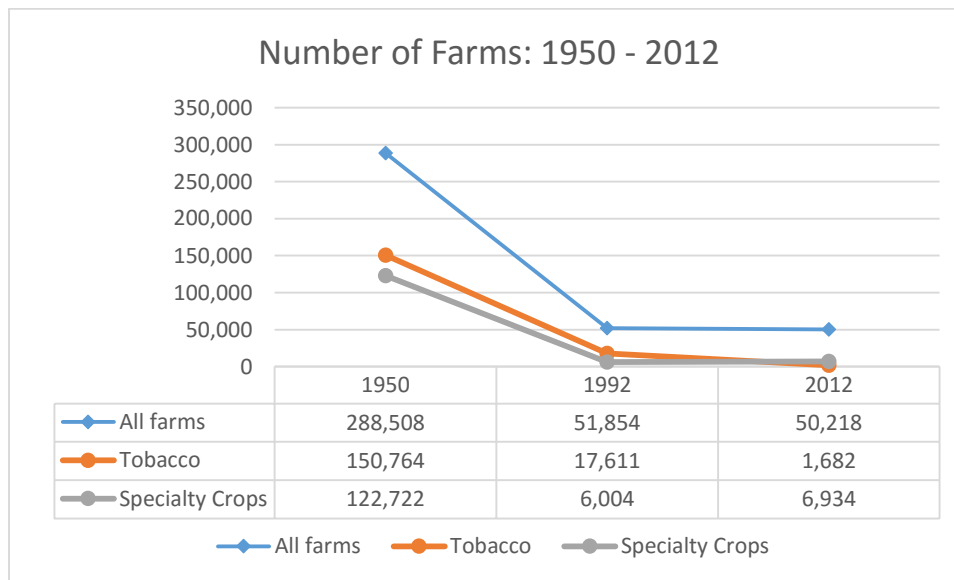


Figure 1. Specialty Crop Industry Growth - The total number of farms for specialty crops are approximate and are the sum of the following three census numbers: 1) fruits, nuts, and berries; 2) vegetables; and 3) nursery, greenhouse, floriculture, and sod.⁹⁸

⁹⁵ U.S. Bureau of the Census, "Value of Horticultural Specialty Crops Sold by Marketing Channels: 2014," Washington D.C.: Bureau of the Census.

⁹⁶ U.S. Bureau of the Census, "Value of Horticulture Crops Sold: 2014," Washington D.C.: Bureau of the Census.

⁹⁷ U.S. Bureau of the Census, *2012 Census of Agriculture*, "Historical Highlights: 2012 and Earlier Census Years." Other industries that have also seen upticks between 1992 and 2012 are beef cows, milk cows, wheat for grain, barley for grain, sorghum for grain, dry edible beans, cotton, sunflower seeds, and orchards.

⁹⁸ U.S. Bureau of the Census, *2012 Census of Agriculture*. Historical Highlights: 2012 and Earlier Census Years. U.S. Bureau of the Census, *1992 Census of Agriculture*, "Historical Highlights: 1992 and Earlier Census Years." Bureau of the Census, "*United States Census of Agriculture: 1950*. North Carolina Chapter A Statistics for the State.

In the United States total horticultural specialty crop sales have grown from \$1 Billion in 1970 to \$13.8 Billion in 2014.⁹⁹ Friedland finds that the globalization of the fresh produce market has occurred as a response to increased first world demand and notes that world exports and imports grew quite rapidly throughout the 1970's and 1980's.¹⁰⁰

The idea of transitioning to specialty crops from tobacco began decades before the RAFI cost share grant program began in 1997. Frank Adams surveyed 131 tobacco farmers in six Piedmont counties in 1978 to learn about their interest in horticulture crop production and specifically their interest in joining a distribution cooperative.¹⁰¹ While many farmers were interested in the idea, the development of the cooperative failed because of lack of membership buy-in.¹⁰² Adams reports a Land Trustees staff for the cooperative saying, "It's a chicken and egg problem... There's no doubt several hundred farmers would join in a year once they saw it going." Adams finds numerous advantages of tobacco farmers who wish to grow alternative crops, such as vegetables. He says,

"They can transfer much of their equipment to the revamped operations; in most cases, they will save on energy costs; they may receive even better profits from many of the alternative crops; and they can stay on the farm. In marketing their produce, though, they will need assistance, and that is the challenge that private and public interests must meet, cooperatively."¹⁰³

Adams' foresight into the relationship between tobacco and horticultural crops may speak to the uptick in the specialty crop industry. While Hart and Chestang found that corn, cotton, and wheat

⁹⁹ U.S. Bureau of Census, *2012 United States Census of Agriculture*. Historical Highlights: 2014 and Earlier Census Years. Washington D.C.: Bureau of the Census.

¹⁰⁰ William Friedland, Alessandro Bonanno, Lawrence Busch, Lourdes Gouveia, and Enzo Mingione. "The New Globalization: Fresh Produce," In *From Columbus to ConAgra: The Globalization of Agriculture and Food*. Lawrence, Kansas.: University Press of Kansas, 1994, 210-215.

¹⁰¹ Adams and Finger, "Vegetable and Fruit Crops: Viable Alternatives for Tobacco Farmers," 99.

¹⁰² Adams and Finger, "Vegetable and Fruit Crops," 101.

¹⁰³ Adams and Finger, "Vegetable and Fruit Crops," 101.

were most commonly taken up by tobacco farmers, there is still reason to believe that a not insignificant number chose to enter in to fruit and vegetable production.

The macro-level processes that were covered in this section include an overview of four major tobacco policies, the decline of tobacco that began around the time of the 1964 General Surgeon Warning, and lastly the idea of diversification as a way for tobacco farmers to stay in agriculture. While these processes have a large impact on the factors that drive farmers to transition, an analysis closer to the farmers' experience holds more information. This next lens of inquiry, at the community level, will fill in more gaps.

Community influence

RAFI and TTFC

RAFI is an organization that has been around since the 1930's in some capacity. RAFI began as the Sharecroppers Fund and has evolved overtime as a farmer advocacy organization. The Sharecroppers Fund created the non-profit Rural Advancement Fund in 1966 and has since maintained a consistent mission of advocating for family farmers,¹⁰⁴ following the assumption that environmental, economic, and social issues are very much connected.¹⁰⁵ While it is an international organization, the focus of their work is in North Carolina. The organization's mission statement follows:

“The Rural Advancement Foundation International-USA's mission is to cultivate markets, policies, and communities that sustain thriving, socially just, and environmentally sound family farms. RAFI works nationally and internationally, focusing on North Carolina and the southeastern United States.”¹⁰⁶

¹⁰⁴ Robert Amberg, “Rural Advancement Fund Celebrates 50 Years of Farm Advocacy,” *Southern Changes* 9, no. 5 (1987): 11–15.

¹⁰⁵ RAFI, “History of RAFI-USA,” accessed September 10th 2015, <http://rafiusa.org/aboutus/history/>.

¹⁰⁶ RAFI, “About Us,” accessed February 6th, 2016, <http://rafiusa.org/aboutus/>.

The ability of the community to help farmers transition to fruit and vegetable industries has been present since the creation of RAFI's cost share program in 1997 and the TTFC in 1998. The ARF is made available to challenge farmers to create innovative and replicable projects to aid farmers in raising their agricultural income.¹⁰⁷ Historically, to qualify for the ARF, farmers have had to be in tobacco dependent communities. However, this has been made flexible for the 2016 grant cycle and it has been opened up to the urban counties in the Triangle, somewhat shifting the focus away from tobacco dependent communities.

These farmer advocacy organizations were the major way in which small tobacco farmers in tobacco dependent communities were able to gain a voice, get advice, and a grant opportunity. In the six interviews with organizational leaders from RAFI, TTFC, and North Carolina State Extension, it was possible to get answers to the research questions from an external perspective. Examined below, are the major ideas between organizational leaders, in terms of the factors driving farmers to transition, the inherent challenges, and how farmers overcame those challenges. An important thread through all of these interviews is that the legislature orchestrated this transition which was particularly difficult for the small tobacco farmer.

In addition to the aforementioned macro-level processes, the organizational leaders spoke about three drivers to transition in terms of the push away from tobacco and the pull towards specialty crops. The major push away from tobacco has to do with the tobacco market leaving North Carolina. Jill and Bob, representatives from RAFI, spoke about the fleeting tobacco market,

JILL. We could say generically that most of them left, or transitioned, or took the buyout, or left farming. I mean we lost thousands and thousands of farms. It used to be the number one ag income and it's nowhere near #1 now.

BOB. It seems like most tobacco farmers, if they're going to stay in, I can't say this for sure, but a lot of tobacco farmers are going toward organic and signing contracts with

¹⁰⁷ RAFI, "Agricultural Reinvestment Fund," accessed September 10th, 2015, <http://rafiusa.org/grants/>.

organic producers, because that's how you can actually still turn a profit on tobacco. But, largely tobacco is being exported to places like Vietnam and Indonesia for production.

JILL. And the industry is shrinking because people are stopping smoking. The market is shrinking massively. If the farmer's not responding to the market, they are running a bad business. They should get out of that business. The market is disappearing for tobacco in the United States.

For Jill and Bob, the disappearance of the market is the main driver for farmers becoming interested in specialty crops. Another driver that Wade, of the TTFC, points out is that tobacco companies do not want to work with the smaller farmers. He says,

“And so the tobacco companies over time, they didn't want to deal with the 20-acre farm or the 50-acre farm, they wanted to deal with the 100+ acre farm. So that reduced the population of people who participated in the production of tobacco now. And that put a lot more of the population out there that had farm land and equipment, but needed some help, some ideas, some funding, to try new things.”

Wade sees the shift largely as an orchestration by the tobacco companies. This speaks to the power that the companies had in the tobacco legislation and particularly the Tobacco Buyout. A third important driver has to do with the similarities between tobacco and specialty crop production. Jill encapsulates this third point and the problem with tobacco in North Carolina in general. She says,

“This is actually a good segway into why tobacco is such a big reason why you have so many small farms all across North Carolina in the first place. Because it was the cash crop that allowed you to stay in business so that you could grow other things. You could play around growing vegetables. You could have like cattle, you could have a lot of things on the side. You could have these different things, but they were always on the side, because tobacco was paying the bills. But in a way when you look at North Carolina and you see thousands and thousands of small farms that dot the state. It has one of the highest concentrations of small farms in the country. Why are so many of those there, you know? In a way we owe tobacco. You know what I mean, we owe that industry, or how could you say that? Thanks to that industry this exists. But that was also a terrible industry that really undermined people's health that consumed that. That's why those companies got sued. They lied about how bad the health effects of tobacco were and they lost. You know. The states were paying enormous social costs for people's use of tobacco. Boom and bust.”

These three drivers highlight both the push away from tobacco and the pull toward specialty crops.

The challenges with transitioning to specialty crops from the organizational leaders' perspective generally pertain to the lack of trust in the specialty crop market and an ingrained

commodity mindset. Chuck, a Pearson County specialty crop extension agent, speaks to the general unwillingness of tobacco farmers to transition from tobacco. He says,

“Change is a dirty word to some people. I remember coming down here in 1994 and talking to tobacco growers and I would say ‘oh... well’... I’d talk about growing fruits and vegetables and [they would say]‘oh that’s nice, but tobacco’s gonna be here for a long while.’ Well guess what. Now anybody can grow tobacco because the government is completely out of it. But now the only ones that are left are the real big ones because you negotiate directly with the tobacco companies. And they say we will pay you so much per pound. Take it or leave it. That’s it. So to me that would be very, very shaky.”¹⁰⁸

Chuck has had a difficult time communicating the possibilities of specialty crop industries to tobacco farmers. So much so that he has essentially given up on them as a likely specialty crop grower. Instead he focuses on retired couples, whom he believes is the future of the specialty crop industry, not tobacco farmers. However, he does admit that the farmers with a plan and a RAFI grant could do well, but he does not foresee it being a widespread phenomenon.

In terms of the possible ways to overcome this challenge of distrust in the market and the already established macro-level challenges, RAFI and TTFC are well on their way to bridging the gaps. The TTFC has six program focuses, including cost share programs, forest/landowner projects, farmers’ markets, value-added projects, marketing, and livestock markets. All of these will help with the development of the specialty crop industry because of the small scale at which the organizations are working. In a recent follow-up conversation with Wade, it was discovered that TTFC has always been underfunded from the initial MSA promise and this has led to the development of what he called “micro-grants.” While all of their projects can be thought of as micro-grants, it is understood that he was specifically referring to their four cost share programs. Having gone through the external market and policy forces, in order to understand the factors

¹⁰⁸ Canterbury, interview.

driving their transition and the inherent challenges, an understanding of urbanization should be established.

Urbanization

Urbanization is a process that has been at play in North Carolina more significantly since the end of World War II, when the soldiers returned home and sought a better life in the city,¹⁰⁹ and since the beginning of the 19th century people have sought the amenities of the city.¹¹⁰ Of concern for the state and any urbanizing region is the “increasing share of a nation’s population living in urban areas (and thus a declining share living in rural areas).”¹¹¹ While these issues are very complex and involve social trends that are not easily controlled, there are several organizations in North Carolina addressing farmland loss, access to farmland, preservation and conservation.

The urban population in North America has grown from 63.9% in 1950 to 82.1% in 2010.¹¹² Among the current concerns related to agriculture are the increasing stress on agricultural land from the growth of urban areas, education and technological progress.¹¹³ These trends continue to pull people away from rural areas, and requests the difficult task of simultaneously increasing the efficiency of agriculture and improving environmental and human health.¹¹⁴ Another major process characteristic to urbanization is the involvement of economics

¹⁰⁹ J. Paul Lilly, “Agricultural History of North Carolina,” North Carolina Department of Agriculture, Accessed on March 9, 2016, <http://www.ncagr.gov/stats/general/history.htm>.

¹¹⁰ Christopher Watson, “Trends in World Urbanisation,” *Centre for Urban and Regional Studies, The University of Birmingham, UK*, accessed on March 30, 2016, <http://www.icup.org.uk/reports%5CICUP601.pdf?>

¹¹¹ David Satterthwaite, Gordon McGranahan, and Cecilia Tacoli, “Urbanization and its implicaitons for food and farming,” *Philosophical Transactions of the Royal Society*, 365, (2010), 2809-2820.

¹¹² Satterthwaite, McGranahan, and Tacoli, “Urbanization and its implications for food and farming,” 2812.

¹¹³ Anita Regmi, “The push-pull effects of urbanization on agriculture,” CGIAR, accessed on March 30, 2016, <http://www.cgiar.org/consortium-news/the-push-pull-effects-of-urbanization-on-agriculture/>.

¹¹⁴ Regmi, “The push-pull effects of urbanization on agriculture.”

and politics in the determination of who lives where and under what conditions.¹¹⁵ David Satterthwaite and colleagues from the International Institute for Environment and Development succinctly express the major areas of interest within the relationship between urbanization and agriculture:

“Urbanization is often considered as having negative impacts on agriculture—for instance, from the loss of agricultural land to urban expansion and an urban bias in public funding for infrastructure, services and subsidies. But the scale of urban poverty suggests little evidence of urban bias for much of the urban population—and clearly, urban demand for agricultural products has great importance for rural incomes.”¹¹⁶

What can be taken away from the idea of urbanization is that there are numerous and complex processes constantly changing that affect the agriculture industry and rural communities. More importantly, the rural and urban communities are inextricably linked. While these processes make sense, they are hard to pin down which makes it very difficult for the farmer to consider such processes. However, these processes are intrinsic to the farmer’s ability to remain in agriculture and should be considered to ensure their survival for the long term.

Three notable organizations attempting to preserve farmland in North Carolina are the Conservation Fund, the Triangle Land Conservation, and the NC Agricultural Development & Farmland Preservation Trust Fund. The Conservation Fund is a national organization which has preserved 221,985 acres in North Carolina since 1985.¹¹⁷ The Triangle Land Conservancy has preserved over 17,000 acres since 1983.¹¹⁸ The Farmland Preservation Trust Fund has preserved

¹¹⁵ Satterthwaite, McGranahan, and Tacoli, “Urbanization and its implications for food and farming,” 2812-15.

¹¹⁶ Satterthwaite, McGranahan, and Tacoli, “Urbanization and its implications for food and farming,” 2818.

¹¹⁷ Conservation Fund, “North Carolina,” accessed on April 14, 2016, <http://www.conservationfund.org/where-we-work/north-carolina>.

¹¹⁸ Triangle Land Conservancy, “Improving Our Lives Through Conservation: 2014-15 Annual Report,” accessed on April 14, 2016, https://www.triangleland.org/cms/wp-content/uploads/2015/12/TLC_AR15.pdf.

over 10,000 acres since 2005.¹¹⁹ The work that these organizations do shows the need for creative and collaborative efforts to preserve farmland.

Decision Making Process

The decision making process is central to the discussion of how farmers are driven to transition. Among the existing research on farmer decision making are several recent studies which demand attention. The main line of reasoning that will be followed in this section is that of the behavioral approach. The theoretical models established by Icek Ajzen and colleagues, including the Theory of Reasoned Action (TRA)¹²⁰ and the Theory of Planned Behavior,¹²¹ are foundational to the major studies on the decision making process.

Joyce Willock and colleagues carried out two important studies in 1999 on the farmer's decision making process. In their first study, they were partially responding to the request of G. Edwards-Jones et al. for a better understanding of how farmers make decisions for policy makers.¹²² This study used multivariate modeling to create "psychometrically sound scales" for farming attitudes, objectives, and behaviors, which their study finds were "associated with widely validated personality variables."¹²³ They developed a rather simplistic but very significant model for the farmer's decision making process (See Figure 2).

¹¹⁹ NC Agricultural Development & Farmland Preservation Trust Fund, "Celebrating Ten Years of Farmland Preservation," accessed on April 14, 2016, <http://www.ncadfp.org/>.

¹²⁰ Icek Ajzen and M. Fishbein, *Belief, Attitude, Intention and Behavior: Introduction to Theory and Research*, (Reading, Massachusetts: Addison-Wiley, 1975).

¹²¹ Icek Ajzen, "The Theory of Planned Behavior," *Organizational Behavior and Human Decision Process* (50) (1991), 179-211.

¹²² Willock et al., "Farmer's Attitudes, Objectives, Behaviors, and Personality Traits," 6. G. Edward-Jones and M.J. McGregor, "The necessity, theory and reality of developing models of farm households," In *Rural and farming systems analysis – European Perspectives* (United Kingdom: CAB, 1994), 338-352.

¹²³ Willock et al., "Farmer's Attitudes, Objectives, Behaviors, and Personality Traits, 31.

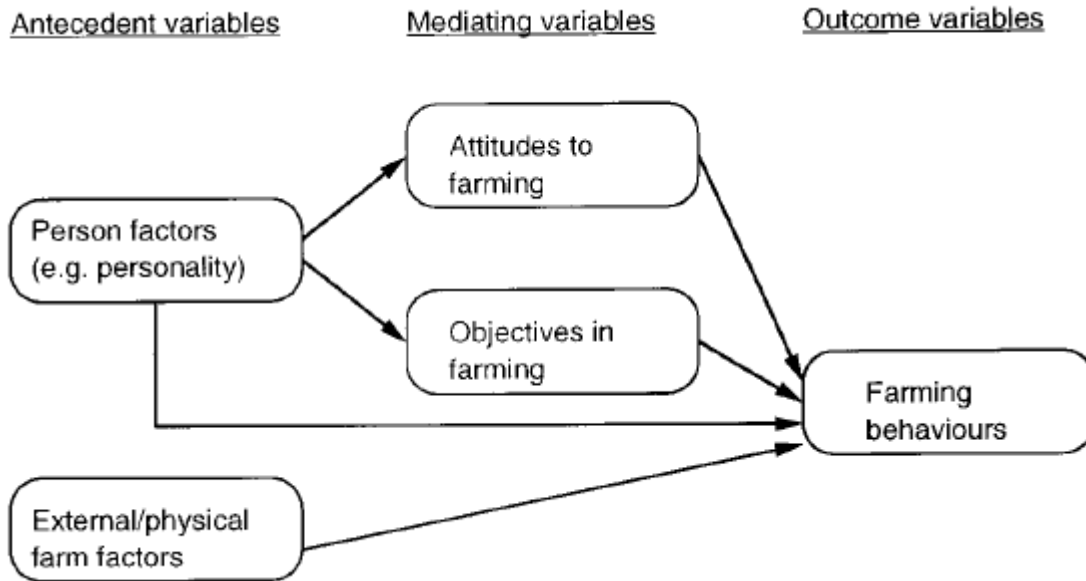


Figure 2: Schematic relationship among individual differences in personality traits, attitudes, objectives, and behaviors¹²⁴

This diagram shows the major factors that make up the decision making process and determine a farmer's behavior. The authors' do not readily account for the fact that the external factors become internalized and contribute to the farmer's attitude. However, their approach is not focused on the external factors and is geared towards the attitudes, objectives, and behaviors.¹²⁵

Willock and company uses data from the first study in Edinburgh to refine their study in Scotland and acknowledge the TRA theory. Both studies carried out questionnaires, using Likert scales, to determine their level of agreement with three types of factors: attitudes, objectives, and farming behavior: *attitudes*: risk aversion, innovation, diversification, off-farm work, environment, production, management, legislation, stress, pessimism, and satisfaction toward farming; *objectives*: job satisfaction, status, and quality of life; and farming behavior: information gathering, diversification, off-farm employment, and status of each.¹²⁶

¹²⁴ Willock et al., "Farmer's Attitudes, Objectives, Behaviors, and Personality Traits," 6.

¹²⁵ Ibid.

¹²⁶ Willock et al., "The Role of Attitudes and Objectives in Farmer Decision Making: Business and Environmentally-Oriented Behavior in Scotland," *Journal of Agricultural Economics* (50) No. 2 (1999), 286,303.

R.J.F. Burton has determined six major influences on the farmer's decision making process, in particular regard to the adoption of innovations. These include the "socio-demographics of the farmer, psychological make-up of the farmer, the characteristics of the farm household, structure of the farm business, the wider social milieu and the characteristics of the innovation to be adopted."¹²⁷ Burton covers similar ground as Willock and colleagues but distills it down and focuses on innovation.

A study conducted by Lee-Ann Sutherland et al. on farm decision making, goes one step further by looking at how the decision to innovate can be triggered. Farmers go through a set of stages toward the realization that they need to transition. These stages, chronologically, are path dependency, trigger event, active assessment, implementation, and consolidation.¹²⁸ The authors note that there has been little research done on transition management concepts, and typically are interested in the system level and not the farm-level.¹²⁹

This study will follow a similar line of reasoning as the previous literature, but will be differentiated in terms of the subject, geography and methodological approach. The Lee-Ann Sutherland et al. study is the closest to this study because of the authors' focus on qualitative research and their interest in the farmer's decision making process toward transition. However, the previous studies have been carried out in the UK and the subject matter is unique to Europe. This study's focus on the North Carolina tobacco farmer's decision making process is unique just for the geographic differentiation. Place on top of that the fact that no other industry has been castigated like tobacco and an additional level of complexity is hoisted on this case study.

¹²⁷ G. Edward-Jones, "Modelling farmer decision-making: concepts, progress and challenges," *Animal Science* (82) no. 6 (2006): 783-790.

¹²⁸ Lee-Ann Sutherland, Rob J.F. Burton, Julie Ingram, Kirsty Blackstock, Bill Slee and Nick Gotts, "Triggering change: Towards a conceptualisation of major change processes in farm decision-making, *Journal of Environmental Management* 104 (2012): 1-24.

¹²⁹ Lee-Ann Sutherland et al., "Triggering change," 16.

Innovation

To understand the challenges that the small tobacco farmer faces while transitioning to fruit and vegetable production, the innovation concept will be of use. Innovation, as defined by Everett M. Rogers, is “an idea, practice, or object that is perceived as new by an individual or other unit of adoption.”¹³⁰ There are two major types of innovation; embodied and disembodied. Embodied innovations are physical and require investment in new equipment and technology and disembodied innovations are non-physical technological improvements that do not require the purchase of new equipment and technology.¹³¹ In his book, *Diffusion of Innovations*, Rogers notes that there are five attributes of innovation: relative advantage, compatibility, complexity, trialability, and observability.¹³²

¹³⁰ Everett M. Rogers, *Diffusion of Innovations*, 15-16.

¹³¹ David Sunding and David Zilberman, “The Agricultural Innovation Process: Research and Technology Adoption in a Changing Agricultural Sector,” <http://www.cpahq.org/cpahq/cpadocs/Agricult%20Innovation.pdf>, 1-47. Sunding and Zilberman are interested in commodity crop production and mainly the improvement of current industries and not the transition to new industries. Commodity crops can be differentiated from specialty crops, which have never been eligible for the Farm Bill crop insurance and subsidies. Insurance companies, banks, USDA, and organizations like RAFI are figuring out how to provide these services for specialty crop producers. The Whole Farm Revenue crop insurance program started in the 2014 Farm Bill and helps certain farmers, but still single specialty crops are not able to be insured. Additionally, these authors show how the processes involved in innovation are concentrated in the hands of a few and innovations are not always beneficial for farmers and farming communities.

¹³² Rogers, *Diffusion of Innovations*, 12.

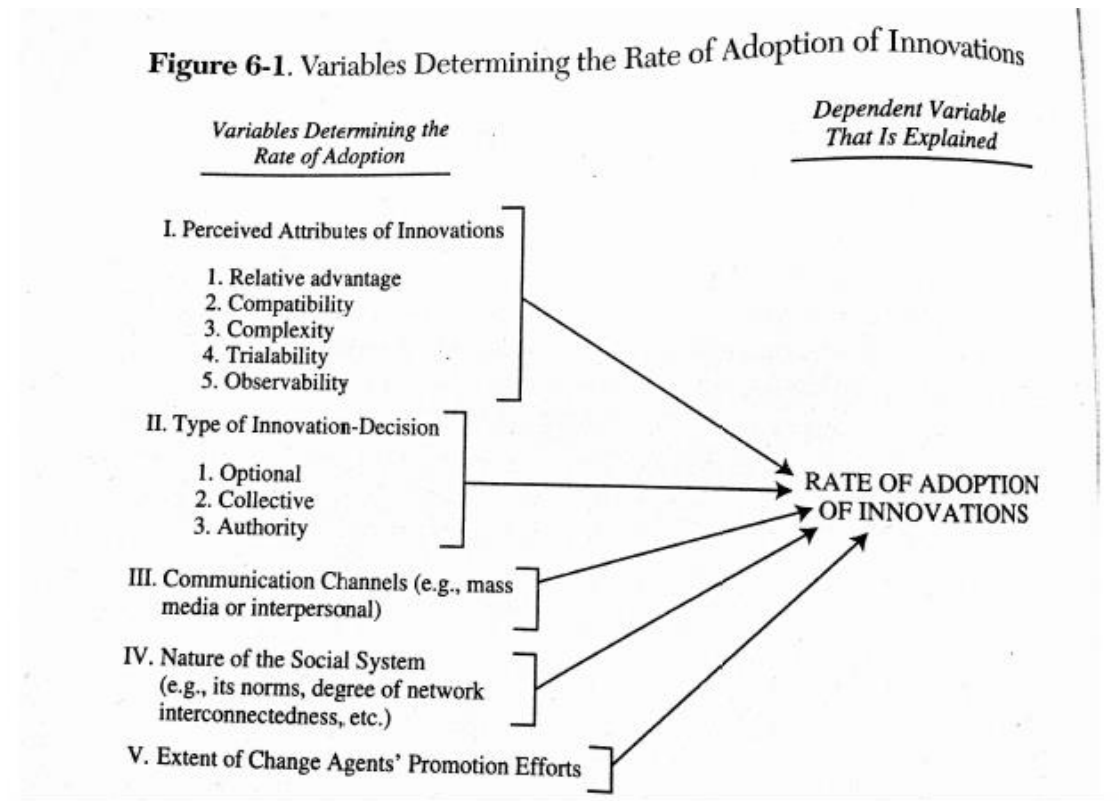


Figure 3. Variables Determining the Rate of Adoption of Innovations¹³³

Rogers notes that the first variable, the perceived attributes of innovations, makes up for half of the variance in rate of adoption, meaning that half of the farmer's decision to adopt is determined by these five attributes. The fourth variable, nature of the social system is also very important for this research project because the social relationships which influence the farmers toward or away from certain types of agricultural production systems is very important. Mark Granovetter builds on Roger's work regarding diffusion of innovations and considers the relationship between individuals' social ties and their ability to adopt an innovation or to diffuse an innovation. He finds that, on the contrary, weak social ties can aid in an individual's ability to adopt or diffuse an innovation.¹³⁴

¹³³ Rogers, *Diffusion of Innovations*, 222.

¹³⁴ Mark S. Granovetter, "The Strength of Weak Ties," *American Journal of Sociology* 78, No. 6 (1973): 1360-1380.

While these previous studies tend to have a macro-level view of agricultural transitions, others focus on the farmers' perspective through the use of interviews. Iris Bohnet and her collaborators asked farmers to describe their "businesses and land management trajectories" and connected this to the individual's personal narrative. Using biographical analysis the authors look at how the farmers perceive the macro-level processes and how they respond on their farms.¹³⁵

Research on decision making process and innovation overlaps in a number of ways. It is surprising that some of the innovation research does not acknowledge the decision making process research. While innovation does not always pertain to the decision making process, the decision making process does pertain to innovation. Meaning that the decision making process is intrinsic to the adoption of an innovation. Julian Clark's article synthesizes research on agricultural diversification and innovation, but still overlooks the importance of the decision making process. His exploration of English farmer's perceived needs and efforts to diversify their agricultural businesses, for policy makers, acknowledges the decision making process throughout his study but does not explicitly cover the concept.¹³⁶ For example, Clark says, "This suggested that promotional activities had been generally quite successful in attracting the attention of farmers and in informing their subsequent decision-making,"¹³⁷ but only explores the literature on diversification and innovation and leaves out the decision making process. This may be problematic because Clark is possibly overlooking more important factors than promotional activities. While promotional activities may be very important for their diversification efforts, Willock et al. has established 18

¹³⁵ Iris Bohnet, Clive Potter and Eunice Simmons, "Landscape change in the multi-functional countryside: a biographical analysis of farm decision-making in the English high weald," *Landscape Research* 28, no. 4 (2003), 354-355.

¹³⁶ Julian Clark, "Entrepreneurship and diversification on English farms: Identifying business enterprise characteristics and change processes," *Entrepreneurship & Regional Development* (21) No. 2 (2009), 213-236.

¹³⁷ Clark, "Entrepreneurship and diversification on English farms," 228.

attitudes, objectives, and farming behaviors that may contribute to their diversification decision making process and should be considered.

Conclusion

The literature review began with a history of the tobacco industry in terms of the macro-level processes and community level processes. This literature was found in the economic and geographic disciplines, governmental and non-profit document reviews, and organizational leader interviews. The later portion of the literature review was focused on the decision making process and innovation. This portion involved a higher level of scrutiny and employed the qualitative researchers interested in gaining deep insights that are only possible through interviews.

While this research topic and region of interest is under developed, there are good examples from other regions where farmers' perspectives have been the basis of inquiry. Researchers in the United Kingdom and New Zealand have based their research on farmers' perspectives to answer questions to inform policy in several ways. At the same time, although research on farmer decision making has mostly been grounded in quantitative research methods, researchers have begun mixing methods since at least Burton's 2004 literature review. Semi-structured interviews as a sole method of inquiry has been justified on its own, but has received a lot of criticism. For example, a study conducted by Sutherland et al. is one among numerous, often cited, studies that solely uses this method. The methodology of this research study will now be considered.

CHAPTER 3

METHODOLOGY

Methods

North Carolina, as an agricultural region, has been in a state of transition since the beginning of the twentieth century. Since 1964 when the Surgeon General denounced the state's cash crop, tobacco communities have been struggling to maintain their family farms. At the same time urbanization has occurred at a very fast rate. Since then there has been a huge exodus from tobacco farming and agriculture in the state. Understanding the motivations and challenges of tobacco farmers who have decided to transition to specialty crop production will potentially illuminate thematic areas of concern for all four cost share programs managed by the TTFC, particularly RAFL. It will also serve to benefit the growth of the fruit and vegetable industries which are supported by former tobacco farmers. This research has been designed to address two major questions:

1. What are the main factors that have driven small tobacco farmers during their transition out of tobacco and into specialty crop production?
2. And what have been the major challenges for these farmers in their transition?

This chapter cover the design of the study, sample selection, data collection, and data analysis.

Design of the Study

These research questions can best be answered using an exploratory collective case study. Yin says the goal of an exploratory case study is to “develop pertinent hypotheses and propositions for further inquiry.”¹³⁸ The exploration of the factors driving the farmer’s transition and the challenges of transitioning to fruit and vegetable production can serve as a tool for the further development of the four TTFC cost share programs. This qualitative research is unique in that the researcher is the primary data collection tool, carried out semi-structured interviews, and performed a meticulous data analysis regiment to uncover the major themes answering each research question.

To further illustrate the aim of this case study, it should be differentiated from an intrinsic and instrumental case study. The goal of an instrumental case study is to understand an issue or generalization. An intrinsic study is interested in a particular individual or program. While this project will evaluate the RAFI program to a certain extent, that evaluation will only provide context for the focus on the farmer’s experience in their transition. Thus this project will be most closely aligned with Stake’s collective study, which aims to understand a particular population.¹³⁹ Stake’s three types of case study approaches can also be differentiated between instrumental and collective in terms of the number of participants as well.¹⁴⁰ Glynis Cousin uses an example of studying students on a field trip. In an instrumental case study only one class field trip is studied, whereas in a collective study numerous field trips are analyzed. In this regard, this research project is a collective study, in which seven farmers are the focus of analysis.

¹³⁸ Yin, Robert *Case Study Research: Design and Methods* (New York: Sage, 2014), Kindle edition, 800.

¹³⁹ Robert E. Stake, *The Art of Case Study Research* (Thousand Oaks, CA: Sage, 1995), 437.

¹⁴⁰ Glynis Cousin, “Case Study Research,” *Journal of Geography in Higher Education* 29, No. 3 (2005): 422.

Case Selection

All three regions of North Carolina (the Mountains, Piedmont, and Coastal Plain; Figure 4) have a rich tradition of growing tobacco. The Piedmont region is the focus of this study. The decision to focus on the Piedmont region came out of the interest in the most vulnerable tobacco farming population. The Piedmont is made up of relatively small tobacco farms, which have “lower tobacco yields, higher costs, and fewer profitable alternatives to tobacco.”¹⁴¹ It is centrally located and is home to the two largest cities in the state, Charlotte and Raleigh. The capital city is the home of the Research Triangle Park, which has been very influential in the evolution of the state’s economy. Additionally, with this larger population density comes a larger market for local food, which may provide more fruitful results as the local food industry continues to grow.



Figure 4: North Carolina Regions - Source: <http://www.jacksonvilleonline.org/ourstate2.html>

A second decision was made to hone in on farmers that had transitioned to fruit and vegetable production. I decided to narrow the scope of the sample to former and current tobacco farmers that

¹⁴¹ Gale, Foreman, and Capehart, Tobacco and the Economy,”1-37.

have received a cost-share grant from RAFI (Table 2). RAFI's cost share program is of interest because it has experienced a rapid growth in demand for its grants. Additionally, the initial idea was that the farmers receiving grants from RAFI are small scale farmers whom would be more likely to have success with larger scale fruit and vegetable production, with assistance and advisement of a farmer advocacy organization. As this project is following only farmers who have received RAFI grants, this excludes the Mountain region, which is covered by a very similar but separate organization, AgOptions.

Table 2: Farmer and Project Descriptions

| Grant Recipient | Age | Year Granted | Grant Project Focus |
|------------------------|------------|---------------------|----------------------------|
| Matthew Milestone | 47 | 1998 | Hay |
| Rodger Federer | 65 | 1999 | Sod |
| Randy Curtis | 60 | 2008 | Fruit Bush Establishment |
| Alex Frank | 41 | 2009 | Greenhouse |
| Charles Sunday | 70 | 2011 | Hoop houses |
| Rickie Vance | 47 | 2015 | Educational Tour |
| Jared Walters | 23 | 2015 | Mobile Market |

Data Collection

Data collection included two rounds of on-farm, semi-structured interviews. There was a range of interviews from highly-structured to unstructured. A highly structured interview is used in much the same way as a survey, whereas, unstructured interviews are used in ethnography and participant observation.¹⁴² The decision to use semi-structured interviews was inspired by the exploratory nature of this study. All of the initial interviewees were grant recipients after 2006. I returned over Thanksgiving break 2015 to interview two more farmers, which received their grants in 1998 and 1999 and to meet again with the RAFI representatives. While covering the interview protocol (Appendix B) within each interview, the interviewee was allowed the freedom to take the conversation in the direction of their choosing. In summary, the interview protocols for both farmers and organizational leaders were designed to understand the history of the seven tobacco farmers, what pushed and pulled them away from tobacco and fruits and vegetables, and what challenges they experienced with both industries. The organizational leader protocol differed in that the questions were also to understand the organization's role in helping farmers transition and to gain a sense of their overall perspective of the changes in the tobacco industry. The initial 11 semi-structured interviews¹⁴³ were performed during July of 2015, included six organizational leaders and nine farm interviews. One farmer interview and two organizational leader interviews were conducted over the phone. The two extension agents were interviewed at their respective offices in Alamance and Pearson County. The two RAFI staff were interviewed at the local food cooperative in Chatham County. Two more interviews were carried out in November to broaden the depth of understanding by talking to farmers that had more experience with mechanized

¹⁴² Sharon B. Merriam, *Qualitative Research: A Guide to Design and Implementation* (San Francisco, CA: Jossey-Bass, 2009), 89.

¹⁴³ Merriam, *Qualitative Research*, 89.

tobacco production, but also grew fruits and vegetables. This was a useful practice and worthwhile to take the time and go back out in the field for a second round of interviews.

Data Analysis

Data analysis follows and parallels the two rounds of data collection using the constant comparative method.¹⁴⁴ Several of Johnny Saldaña's coding practices were used including axial, descriptive, exploratory methods, focused, hypothesis, narrative, and pattern coding.¹⁴⁵ Data collection included two rounds of writing reflective memos after each interview day.¹⁴⁶ In Microsoft NVivo 10 codes were created for the literature review, prior to the interviews, which provided a base of inquiry. For example, Lobao and Meyer's agricultural transition concept has influenced the data analysis.¹⁴⁷ The three levels of inquiry (macro, community, and household) have helped keep the themes and the farmer's responses organized. Transcriptions were written and at the end of each transcription writing day an updated memo was written. For the first round of analysis, one reflective memo was written at the end of each interview day, or after 1-3 interviews. All interviews from the initial visit were transcribed by the end of the month. After the initial interviews were complete, the transcribed data was coded using the constant comparative method, and attempted to remain as open as possible to new ideas.¹⁴⁸ For the second round of analysis, a reflective memo was written for each of the two interviews. Both interviews were then transcribed during the secondary trip to North Carolina.

¹⁴⁴ Merriam, *Qualitative Research*, 30-31.

¹⁴⁵ Saldaña, "The Coding Manual for Qualitative Researchers," 261-265.

¹⁴⁶ A reflective memo is a letter written by the researcher to the researcher to retain important details from the day and begin forming ideas and data analysis.

¹⁴⁷ Lobao et al., "The Great Agricultural Transition," 101.

¹⁴⁸ Merriam, *Qualitative Research*, 178.

The final round of analysis included taking the written coded transcript to NVivo and updating the first round of coding. Using analytical coding, the analysis was extended toward “interpretation and reflection.”¹⁴⁹ Upon initial importation of all codes, a total of 313 interview codes and 17 categories were collected. Merriam says,

“categories should be responsive to the purpose of the research. In effect, categories are the answers to your research questions...categories should be exhaustive...mutually exclusive...be sensitizing...[and] be conceptually congruent.”¹⁵⁰

Following this logic, the 17 categories were fit into 5 themes, or broader categories.¹⁵¹ This was done using a range of qualitative data analysis methods as suggested by Yin and Merriam. Yin notes there are four general strategies for data analysis: “rely on theoretical propositions, work your data from the “ground up,” develop a case description, and examine rival explanations.”¹⁵² Yin adds that there are five specific techniques which can be used with any of these general strategies. Those include pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis.¹⁵³ Cross-case synthesis, however, will not be utilized because this is a single case study. Also, as noted in Lofland et al., there are six major *units* of social organization.¹⁵⁴ The relevant unit for this study is cultural practices which Saldaña describes as “daily routines, occupational tasks, microcultural activity, etc.”¹⁵⁵

Analysis results are presented in the Findings section and the Discussion section. For the findings, Merriam discusses the deliberation process in deciding what type of evidence to provide (concrete description or analysis and interpretation) and recommends a balance between the two

¹⁴⁹ Merriam, *Qualitative Research*, 180.

¹⁵⁰ Merriam, *Qualitative Research*, 185-6.

¹⁵¹ Merriam, *Qualitative Research*, 187.

¹⁵² Yin, “*Case Study Research*,” Location 3415.

¹⁵³ Yin, “*Case Study Research*,” Location 3419.

¹⁵⁴ Lofland, Snow, Anderson, and Lofland, 2006

¹⁵⁵ Johnny Saldaña, “The Coding Manual for Qualitative Researchers,” (Thousand Oaks, CA: SAGE, 2014), 15.

extremes to convince the reader of the plausibility of the research findings.¹⁵⁶ The findings are primarily descriptive, however, some interpretation was utilized when the farmers were not explicit about their answers. In a lot of instances the farmers did not directly answer the questions and the answers appeared, at first, unrelated. The answer to the research questions were often hidden within the farmer's narrative, which required more interpretation.¹⁵⁷

This discussion section follows a repetitive logic. First, each theme's discussion begins with either a decision making process or innovation theory. The decision making process addresses the first research question (the drivers to transition) and the innovation theories address the second research question (the challenges with transitioning). Second, the established knowledge on the particular theme is established and expanded upon. Third, the findings for each theme are explored in consideration of the decision making process or innovation theory and the established knowledge on the theme.

Validity and Reliability

There are four tests to ensure validity and reliability: construct validity, internal validity, external validity, and reliability.¹⁵⁸ The first test is construct validity and is absolved in this study through the use of multiple sources of evidence and a chain of evidence. Numerous disciplines are engaged with in the literature review, including rural sociology, geography, psychology, agricultural economics, and planning. Additionally, agricultural census data, news articles, and organizational documents are referenced throughout the thesis. There is also a chain of evidence

¹⁵⁶ Merriam, *Qualitative Research*, 254-256.

¹⁵⁷ Catherine Kohler Riessman, "Analysis of Personal Narrative," Google, (2000), 1-41.

¹⁵⁸ Yin, *Case Study Research*, Location 1623-1714.

followed throughout this thesis, from the research questions to the suggested areas for future work. For example, the suggestion that research needs to be focused in developing highly diversified fruit and vegetable farms can be traced back through the discussion, findings and literature review.

Yin's second test looks at internal validity, and suggests that a good case study should do pattern matching, do explanation building, address rival explanations and do use logic models.¹⁵⁹ All four of these methods were carried out during data analysis. One example of pattern matching in this project is the comparison between the preconceived difficulty of transitioning to fruit and vegetable production that was gathered from a study in 1981 and the findings from this study. Explanation building has occurred by tracing the thread of events causing the decline of the tobacco industry. Beginning with the initiation of the country's price support system in 1933 with the AAA, the thread goes through the 1964 Surgeon General Warning and meets the MSA and Tobacco Buyout in 1998 and 2004, respectively. This project addresses rival explanations by necessity because the seven farmer participants have differing views on the tobacco industry and fruit and vegetable industries and have had different amounts of success with their transitions. Lastly, logic models were used extensively to draw connections between the codes, categories and themes. For example, the initial themes were not separated into the drivers and themes and were thought about across both research questions. It happened after several iterations of logic models that the themes were split in two.

External validity is a measure of how a study can be generalized. Within the researcher's peer review group, generalizability was often discussed. Even if reliability can be established, we have found that generalizability may not always be possible. Yin addresses these concerns. Yin says that "generalizations in science are rarely based on single experiments; they are usually based

¹⁵⁹ Yin, *Case Study Research*, Location 1620.

on a multiple set of experiments that have replicated the same phenomenon under different conditions.”¹⁶⁰ This is important to keep in mind, especially during qualitative research. While the calculation and manipulation of agricultural census data was an important aspect of the researcher’s project, understanding the intricacies of human emotion are much more significant and require a different aspect of the individual’s thought process to be engaged. The researcher found creating diagrams and flow charts to be an invaluable exercise while seeing how codes and themes connect.

For a more robust study, a wider range of tobacco farmers and fruit and vegetable growers would have been interviewed. Though a legitimate understanding of the story through the small farmers, organizational leaders, and text was gained, a consultation with more large-scale farmers who were able to continue growing tobacco could have yielded a deeper analysis. Similarly, had the most successful fruit and vegetable growers been interviewed, regardless of their tobacco history, a better understanding of the challenges and successes of growing fruits and vegetables could have been attained. While these two aspects would enhance the study, the organizational leaders and literature review provided a foundation for the research and rigorous review into the scenarios of the seven farmers.¹⁶¹

In Yin’s reliability test, he is interested in making the case study design easily replicable. Part of the concern here lies in the fact that creating themes and drawing thematic conclusions can be a subjective process. This is a possibility and researcher bias and assumptions certainly play a role in these determinations, which are discussed in the next section. Merriam indicates that

¹⁶⁰ Yin, *Case Study Research*, Location 1068.

¹⁶¹ The organizational leader interviews have been left out of the data analysis but are present in the literature review to help tell the background story.

reliability and validity measures will depend on the type of qualitative research and prefers Wolcott's idea of understanding. Merriam says,

“Instead of validity, what he seeks “is something else, a quality that points more to identifying critical elements and wringing plausible interpretations from them, something one can pursue without becoming obsessed with finding the right or ultimate answer, the correct version, The Truth (pp. 366-367). For Wolcott that “something else” is understanding.”¹⁶²

While the goal has been to establish what the drivers and challenges of transitions are, the reality is a complex interrelationship of many factors internal and external to the farm. In creating broad themes, it has been possible to encapsulate the drivers and challenges of transition. Depending on the background of the reader, the findings and conclusions of this study will be interpreted differently. The main target audience is the committee and students at Iowa State University who will be writing a thesis. In this case, reliability and validity are aspects of thesis research which can be accounted for to a high degree in qualitative research. While the methods for writing a qualitative research study are more flexible than quantitative studies may be, the use of different strategies to increase credibility are crucial for the more nuanced field. The strategies undertaken are triangulation, adequate engagement with data collection, expression of researcher's position, and the use of peer review.¹⁶³ Triangulation of farmer interviews was achieved two ways; first, with the organizational leaders and second, with agricultural census data and literature review. Saturation was reached with the second round of data collection after interviewing Rodger and Matthew. As Rodger and Matthew were the largest farmers and knew a lot about the current experiences of tobacco farmers, they helped make crucial connections between the existing literature, which speaks about the tobacco industry in general, and the other five farmer participants, who had a lot of success transitioning to fruit and vegetable production. The third

¹⁶² Merriam, *Qualitative Research*, 211-212.

¹⁶³ Merriam, *Qualitative Research*, 215-220.

strategy used was to recognize and understand the role as researcher and the bias that one brings (details provided in the researcher bias and assumptions section). The fourth strategy utilized was the University writing center's Peer Review Group. Meeting weekly with other qualitative research master and PhD students was an invaluable tool to keep motivated, understand how each section of a thesis should be written, and most importantly to double and triple check methods, data collection, and analysis. The second audience is the organizational leaders of the TTFC and RAFI who will likely be interested to know whether this study confirms or refutes their experiences with farmers. Although each farmer's experience is unique, based on conversations, the researcher expected that these broader themes will encapsulate any small tobacco farmer's experience in transitioning to fruit and vegetable production. For other students researching the topic of the recent changes in the tobacco industry, this study will be of interest as a thematic baseline for the drivers of transition and the range of difficulties tobacco farmers and fruit and vegetable farmers' experience.

Researcher Bias and Assumptions

The researcher became interested in this case study through his initial inquiry into the food hub, ECO, to understand their recent growth as a way to distribute local food products. After preliminary conversations with this organization and faculty at North Carolina State University the researcher learned that ECO began from a TTFC grant, that most of the growers for ECO are former and current tobacco farmers, and that he should talk to the people at RAFI. Receiving encouragement from the representatives at RAFI he decided to pursue how the tobacco farmers have transitioned to fruit and vegetable production with the help of their cost share program.

The researcher's perspective is biased toward the assumption that the agricultural system's pendulum has swung too far right into the favor of profit-driven interests. The industrial agriculture

system has become entrenched in our society and many people are heavily reliant on it, especially farmers and industrial agricultural professionals. The agroecological model is a very different approach with a different set of priorities, namely putting power in the hands of farmers and communities.¹⁶⁴ His interests lie within the gray area of how farmers who have been long involved in the industrial system are discovering the benefits of an agroecological approach. For this particularly case study, it means understanding how tobacco farmers have become reacclimated with growing fruit and vegetable production, but on a commercial scale and not just for their own consumption.

The agroecological approach overlaps with principles of civic agriculture, sustainable agriculture, organic agriculture, and local food systems. All of the models, in their purest form, create an agricultural system that is good for the land and the people. While there is plenty of criticism about the efficacy of these concepts, there is just as much that show the benefits. Critics worry about the limits to these production systems and the price of food. To me this view is short-sighted and with innovation and time the price will come down. The appeal to farmers lies within the freedom to transfer reliance from corporations in a commodity system to the local and regional community in a local food system. When farmers direct market their products, even the largest producers are dealing with rather small regional companies.

The industrial agriculture system is undoubtedly here to stay and may be part of a sustainable agricultural future. For example, production of grain crops is reasonably more functional in a commodity production system. The civic agricultural perspective supposes that there is both room for growth of alternative agricultural systems and is also the sustainable way

¹⁶⁴ Parmentier, Stephane. *Scaling-Up Agroecological Approaches: What, Why and How?* (2014). Oxfam Solidarity. Accessed on December 26, 2015. Retrieved from: <http://static1.squarespace.com/static/52f220cbe4b0ee0635aa9aac/t/530e1c9ee4b06c2c32936b66/1393433758888/1390912349733-201401+Scaling-up+agroecology%2C+what%2C+why+and+how+-OxfamSol-FINAL.pdf>.

forward. Finding ways to swing the pendulum back more in favor of our family farmers seems to be the most uncontroversial and diplomatic way forward.

CHAPTER 4

FINDINGS

While all tobacco farmers have faced difficult decisions over the last century, the small tobacco farmer has had it the hardest. Tobacco farmers have been pursuing ways to diversify their operations since the tobacco industry began its decline. Most that have remained in agriculture have diversified into other commodity crops over the last several decades, but recently the number turning to fruit and vegetable industries has experienced substantial growth. The interest for this case study comes from this recent development and has been designed to answer the following research questions: 1) What are the main factors that have driven small tobacco farmers during their transition out of tobacco and into fruit and vegetable production? and 2) what have been the major challenges for these farmers in their transition? To answer these questions, the farmer interview protocol was designed to gain a sense of the farmer's family history in tobacco farming, their recent involvement in both the tobacco and specialty crop industries, and how they made the transition to fruit and vegetable crops from tobacco. The interviews reveal that the major factors driving farmers to transition were the farmer's dissatisfaction with the tobacco industry, the influence of RAFI, and the appeal of the fruit and vegetable industries. The major challenges preventing transitions were the farmer's strong ties to tobacco and the difficulty of marketing specialty crops. Each farmer will be introduced, revealing their personalities, generational context, and interest in agriculture. Figure 5 shows the range of farmer's interest in tobacco and fruit and specialty crop production. For a diagram of the major findings see Appendix C.

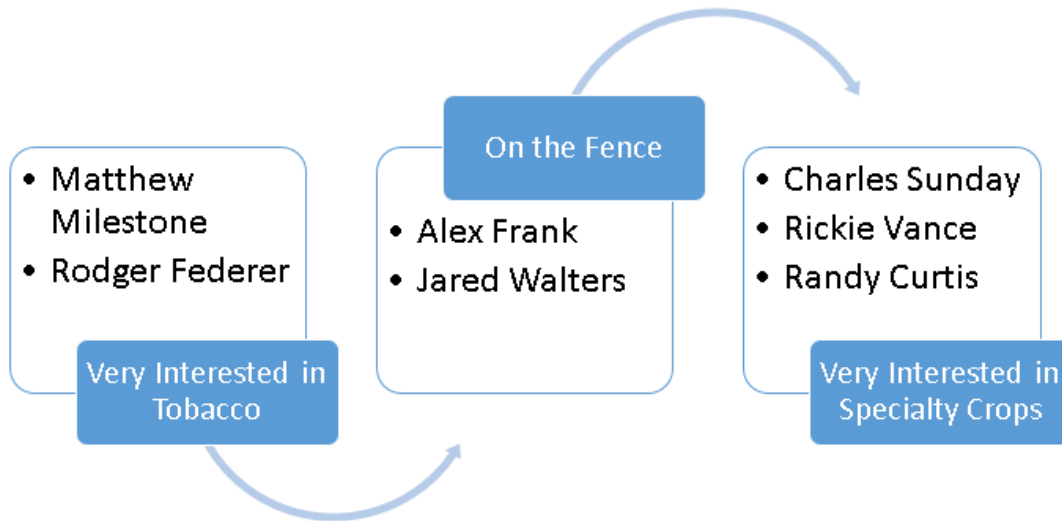


Figure 5: Farmer Interest Range

Matthew Milestone is 47 years old, and is still farming with his father. He and his family manage and employ a year-round work crew. Matthew has been reasonably successful with tobacco, soybeans, corn, wheat, sorghum, and sweet potatoes throughout his working lifetime. In 1999 Matthew received an ARF grant to purchase a square baler for hay, inspired by RAFI as a way to reach a different market and add value to their crop. He was asked:

INTERVIEWER. So do you think you'll keep doing the same thing into the future? You think you'll be doing tobacco, sweet potatoes, and soybeans...?

MATTHEW. Me personally, I think there's a big increase in potato acres being grown; I reckon in the United States but in this part of the world it has increased dramatically. It's basically because of the sweet potato export is booming as well as domestic. I could see and I'm hoping that the guy that I was tied up with this past year that I can have at least what I had last year and more. I'm hoping I can increase my potatoes a little. I don't want to go from 14 to 240, but I would like to ease up a little bit. As far as tobacco's concerned, I would actually like to see us decrease. Maybe just trying to make more on less - more per acre. I guess what it is, tobacco takes up so much energy, as far as personal energy. To get it planted, get it growing, get it harvested and sold. For what you're making on it now, I think we'd be better off reducing the amount of energy. Just plant for less acres. Have a little bit of energy left to go around to the other stuff we're trying to do.¹⁶⁵

¹⁶⁵ Matthew Milestone, interview by author, digital recording, North Carolina Piedmont, July 2nd, 2015.

His focus remains on these commodity industries and for the future he sees a lot of potential in sweet potatoes, but is only willing to slowly increase acreage. His focus on tobacco and the other commodity crops he grows typically takes up all of his time and it is unlikely in the near future that he will transition to specialty crops.

Rodger Federer is 65 years old, at least a second generation tobacco farmer, and received his ARF grant to grow sod in 1999. More recently, he started a 2-acre pick-your-own berry business, planted six acres of pecans, 140 wine grape plants, plans to plant eight more acres of pecans and has also experimented with hops. Rodger spoke for three hours in total and was very excited to share his experiences. Unlike Matthew, he was unable to stay in the tobacco industry and struggled with sod. He is very certain of the economic and social forces that caused his difficulties. His interest in growing fruits and vegetables came about in his retirement and he was very interested in telling about the tobacco industry and his experiences with it. While he was pressed on issues of growing fruits and vegetables during the interview he kept returning to his tobacco experiences. For example, the interviewer tried to steer the conversation away from a detailed analysis of the cost of curing tobacco and back toward specialty crop production. The conversation was as follows:

INTERVIEWER. That's why I'm really interested in fruit and vegetable production and you know your customers and they live around you. It just seems like a much more stable market. I know it's not as profitable, but you can make it profitable.

RODGER: Well I don't work it that hard. I do what I want to do around here, spend like I want, if I do make it back fine. I'm not waiting for that customer to come so I can eat.

INTERVIEWER. You're not relying on it like some people are. If you wanted to scale it up, and you could, and it's more reliable than tobacco ever was? Or maybe not ever was because it was going strong for a while it seems like?

RODGER. Tobacco farmers made more money on tobacco when they were getting a \$1 a pound or less because you didn't have [as much costs]. Now you get \$2 for it, you got a dollar and a half or more in it..."

This type of dialogue happened a lot with Rodger because he is more interested in his tobacco growing days. The fruits and vegetables are just a pass-time in his older age and he much prefers reminiscing about the tobacco days. Additionally, Rodger was very defensive about his agricultural practices that he felt were under attack. For example, Rodger said,

RODGER. Farmers here are gonna put what they need to put the least amount the least number of times. Cause it's not cost effective to put double the application or double the amount of the stuff. So farmers are gonna use the least they can. Now everything that's illegal here is legal in South and Central America. But it's down there and you grow it and ship it up here and American people are happy to eat it from down there. There's DDT and everything that's been illegal is used on crops down there.

INTERVIEWER. Yea.

RODGER. But it's not in your backyard so it's fine. Why don't they give us credit for trying to do a good job here?

He went on to defend a range of industrial agricultural operations and how there are holes in the organic agriculture philosophy. In summation, Rodger felt that North Carolina farmers do not get enough respect for growing vegetables the conventional way, even following the best management practices as suggested by North Carolina State University, and feels that he is still unable to make a living at it. Both of these examples suggest Rodger is pulled back toward explaining the reasons why he is no longer a tobacco farmer and the pressures between conventional and organic fruit and vegetable production speak to his frustration as a small farmer never able to fully realize a stable farm.

Alex Frank is 42 years old and a fourth generation tobacco farmer. In 2015 he grew 50 acres of tobacco and he lives in the western, mountainous portion of the Piedmont. The researcher was greeted with a serene chorus of birds, a friendly dog and invited to sit on his front porch and

look out over his tobacco field, vegetable greenhouse, and a once thriving factory. The researcher's main take away is that Alex just wants to farm and is not too concerned with whether or not it is tobacco or vegetables, as long as the farm stays in operation. He said,

“Yea you know. I really do like doing produce. I'm a real geeky guy. I really like the science part of it. And really the tobacco; we would go to these tobacco meetings and it's all these old guys; these old gruff, coverall guys. And then I go to all the produce conventions and it's all the khakis and polo crowd and they're really into the science of it and what's new and what's changing. I really like that part of it. I like the geeky part of it, but it's just tough - it's tough growing. Tough selling it. Getting a good price for it. It's really inconsistent. Getting money. Me starting out. It's real tough for me to borrow money just because I've only been growing for a couple of years. I really don't have the track record yet with the banks and everything.”¹⁶⁶

While Alex experienced some success with growing vegetables, as is explored more in the market opportunities section, his biggest motivation was to keep his farm profitable and maintain his agricultural livelihood. He began growing vegetables in 2006 and continued growing until 2014, at which point he lost his market. So now he has a 5-year contract for tobacco and he's focusing on that.

Jared Walters is 23 years old, his farm is located in the Central Piedmont, and he is a third generation tobacco farmer. The researcher first saw Jared speak at RAFI's Come to the Table annual conference.¹⁶⁷ Jared was observed as a very entertaining and expressive speaker and captivated the church full of listeners with his story of hardships in dealing with the tobacco and insurance companies since his grandfather passed away in 2012. He introduced his mother and grandmother and admitted that he took on these farm responsibilities for them and to keep the family farm together.

Jared not only inherited the responsibility of keeping the farm going, he also inherited a lot of debt. In his efforts to recover the farm, he initially was able to receive another tobacco contract,

¹⁶⁶ Alex Frank, interview by author, digital recording, North Carolina Piedmont, July 2nd, 2015.

¹⁶⁷ Come to the Table Conference: Piedmont Region 2015. Elon Community Church. May 28, 2015.

but in 2014 he had difficulty securing a contract and a farm loan. At the time of the interview, he was also a student at North Carolina State and had recently received a grant from RAFI for a mobile farmers market, which motivated him to plan his first acre of vegetables in 2015. In speaking about his new vegetable production plan he said,

“The only thing with the vegetables is I don’t have a lot right now. I’m assuming once I can have like an acre of vegetables - like there’s one guy now that says you can make 4-6 thousand an acre for vegetables. I’m waiting to go see that now. I guess depending on how you manage it. I’m assuming he had a contract for someone to take it right when it was ready. Being able to sell it out at the farmers’ market like that. I don’t see it as feasible. I’m assuming you can. He has a whole talk on it, I’m going to listen to it. But with my experience with finances with tobacco. If I have the capital I know I can work out a way where I can have it all rotating out, you know I can put certain vegetables to come out sooner. And the only thing is with tobacco, I know it’s contracted. Once it’s cured it’s gone. With vegetables it’s not quite the same, if you don’t have the contract. If you have to sell at the farmers’ market, it might go this week, it might go next week or it could go bad. Then you lost money. That’s the only part with the finances with the vegetables that I haven’t quite tweaked out. Like with my mobile farmers’ market I think it’s going to go pretty good. But then there has to be a demand for what I have, so I have to kind of figure everybody’s demand.”¹⁶⁸

Jared was just beginning to discover the fruit and vegetable industry. 2015 was his first year and he acknowledges that he will need to plant much more in the future to make the project profitable. He is very aware of his abilities as a marketer and also knows how to reach out to other organizations and resources.

Randy Curtis is 60 years old, his farm is in the Central Piedmont, and he is a first generation tobacco farmer. He got out of tobacco, unable to scale up, but did not appear to be too distraught by it as Rodger was, for example. Randy received his RAFI grant to establish a blackberry crop and also to build a cooler. At the time of the interview, he was growing strawberries, blackberries, blueberries, squash, corn, watermelon, snap peas, and a few other vegetable crops. He found it

¹⁶⁸ Jared Walters, interview by author, digital recording, North Carolina Piedmont, July 2nd, 2015.

hard to attract customers to the farm, but said his son may return to take over the operation in the future. He was asked what he saw in the future with his farm and he replied,

“Pretty much, hopefully, just keep on going where we are going now. Pretty much the same direction we’re heading. Unless something comes up that we can’t anticipate. But if things stay like they are we’ll keep right on doing what we’re doing now.”¹⁶⁹

Randy had a hopeful outlook for the future despite some apprehension about his ability to bring customers out to the farm. This could be because he has figured out how to make the fruits and vegetables work for him, even though he wishes he could attract more customers.

Rickie Vance is 47 years old and a fifth generation tobacco farmer. At the time of this interview, his farm was a medium-sized certified organic produce farm, approximately 15 acres in production, and located in the Central Piedmont. What drives Rickie are his educational tours and teaching children and adults about the benefits of eating produce and supporting local farmers. He received his ARF grant, in 2015, for the development of his educational tour. Upon arrival to the farm, the researcher was greeted by Rickie’s 20-year old son and two school buses full of excited summer camp children. For the first hour the researcher walked around and listening to Rickie and his son’s tour, which involved learning about chickens, a tractor ride, a walk through the greenhouses and of course fun on an inflated jumping bean that can hold 30 children, slides, and sprinklers, and finally finishing up with lunch. During lunch the researcher was able to interview Rickie and the farmer explained how his family transitioned out of tobacco and why educating the next generation of farmers and consumers is so important. Rickie said,

RICKIE. [I]f we ever have a chance to truly change our food system, from a more agribusiness model – big corporate model, to more of a smaller, sustainable model, its gonna happen with this younger generation...

INTERVIEWER. So that’s a central piece for you is the education?

¹⁶⁹ Randy Curtis, interview by author, digital recording, North Carolina Piedmont, July 3rd, 2015.

RICKIE. Big time. Because we can affect and be a catalyst for that change if we're smart enough to be talking to these kids that way.¹⁷⁰

His interest in agriculture is to expand opportunities for not only his farm, but for other small farmers as well, and for him education is a key piece of the puzzle for the future of his farm.

Charles Sunday is 70 years old and lives in the Central Piedmont as a second generation tobacco farmer. He and his wife were managing an 8-acre certified organic farm. They started their farm in retirement on the land where he grew up. Charles was actually away from his family's farm for 30 years while he was an executive director for a non-profit in the mountains of North Carolina. For Charles he is very confident in his produce farm, his market, and is focused on improving his agricultural practices and gets excited about it. He was asked,

INTERVIEWER. So are tomatoes what you grow the most of?

CHARLES: Yea we probably make more money on them than anything else. I grow them in hoop houses or high tunnels. We start them early and they're protected from the rain. Most of what that means is that you never have to spray them with fungicide because you don't have any early blight. So it's much more sustainable in that respect. And the tomatoes are all just really nice. They don't get beat up in the rain and the sun. Also with the hoop houses we can grow tomatoes late into the season. So we are really extending the season on both ends. I started picking tomatoes in late May and if everything goes well, if we don't have an early freeze, we'll be picking tomatoes up until the middle of November. Which is really a big season cause traditionally you would have tomatoes in, maybe the third week of June, not very many, and then they would all be gone by September.¹⁷¹

Charles was the least concerned with his tobacco farming history and was very focused on his current organic produce farm. Part of the reason is he had a different career for 30 years and did not experience the decline of the tobacco industry. His family's last tobacco crop was in 1968 and besides his garden that he kept throughout his non-profit career, he was largely removed from the agriculture industry.

¹⁷⁰ Rickie Vance, interview by author, digital recording, North Carolina Piedmont, July 8th, 2015.

¹⁷¹ Charles Sunday, interview by author, digital recording, North Carolina Piedmont, July 8th, 2015.

Farmer Dissatisfaction

While each farmer has a unique relationship to the tobacco industry and to their fruit and vegetable project and farm, they all expressed dissatisfaction with the tobacco industry. The major points of conflict that the participants experienced during the tobacco industry consolidation were frustration working with tobacco companies, contracts, rising costs of equipment, and renting land. Rodger, Alex, and Jared all still grow tobacco and have current relationships with the companies, insurance agents, and banks. The other farmers have a different set of problems that pertain to the fruit and vegetable industries, but generally appear happier and more in control of their futures.

Rodger and Matthew both spoke to the difficulties of working with the tobacco companies. Rodgers' concerns have to do with increased regulation and the international competition that the companies pursued.

RODGER. You're supposed to harvest four times, you're supposed to not use but so much chemical, your labor has to be over 18. Truthfully, I couldn't have a child work. I was 6 years old driving a tractor. You've got to be at least 16 to work for your father on the farm now... You've got to have a list of all your labor. They're going to audit you three times a year, chemicals, labor, where they're from. You've gotta jump through all these hoops before they'll buy tobacco from you. Now they'll buy tobacco from South America and they're still small farms; 20 acres by hand like we did 50 years ago, 89 years ago by hand and they still got child labor and they'll buy from him, but they won't buy from us if your son works for him at 16.¹⁷²

Matthew had similar concerns with the increased regulations that tobacco companies have put on the farmers.

MATTHEW. They'll still buy good tobacco but it seems like the tobacco companies are pickier and there is a whole lot of red tape if you have H2A workers or basically with any tobacco contract, there's just a whole lot of paper work and stuff like that.¹⁷³

¹⁷² Federer, interview.

¹⁷³ Milestone, interview.

While Rodger has not grown tobacco as recently as Matthew, Rodger is very connected in his community and keeps up with the current tobacco industry trends. Rodger and Matthew would likely agree with Randy that it has become increasingly difficult to stay in tobacco because of the need to increase acreage and the distrust in the tobacco buyout.

RANDY. My daddy didn't raise tobacco, I started probably 5 or 6 years before the buyout. Either it was getting so you had to step up through a bunch of acres or either you were gonna get left out. And I didn't have the financials and I didn't see the buyout and the business to be far enough along.¹⁷⁴

Randy's situation is unique because he seemingly had very little difficulty transitioning. His father raised cattle and he continued to do the same. His interest in tobacco initially was for supplemental income. Similarly, his ability to get a grant for his interest in fruits and vegetables was likely a fortunate result of his short stint in the tobacco industry. Rodger, Matthew, and Randy would all be very impressed with Rickie's ability to overcome the difficulties of staying in the tobacco industry. Rickie's father made the decision to get out of tobacco and into fruit and vegetable production and Rickie tells about the reasons for that decision:

RICKIE. Well he was heavily involved in the tobacco growers' association. He saw early signs of research and results that were coming out in regards to the health. You know the health aspects of smoking tobacco. He also knew that domestic consumption was slowing down. K. And realizing that the U.S. leaf, which was the highest quality leaf, that the world markets would not be able to take as much U.S. tobacco. U.S. tobacco. Their one real strong play was their quality. Now there's other countries around the world were getting better in making quality leaf, it made the value of U.S. leaf a little bit less. So all those things kinda went into play of him really being able to see that early on.¹⁷⁵

¹⁷⁴ Curtis, interview.

¹⁷⁵ Vance, interview.

On the one hand, the price of tobacco that farmers were receiving was going down because of policy changes like the approval of regulating cigarette advertisements in 1996.¹⁷⁶ On the other hand, the tobacco market was decreasing for the U.S. as tobacco companies began buying tobacco from other countries.¹⁷⁷ These four participants highlight the major frustrations that the study participants faced over the last 25 years, which pertain to the general difficulty of staying in the industry and the specific hoops that farmers have to jump through each year. The next dissatisfaction with the industry, wild cat tobacco, is interesting because it is actually controversial among the participants.

Wildcat tobacco is a phenomenon that developed after the Tobacco Buyout, in which farmers would grow tobacco without a contract, but still get it insured. This works if the farmer has a really good year because the tobacco companies are only going to buy wildcat tobacco at a much lower price than what they've already promised to the farmers with contracts. So they are betting that they will have a great year and will still make money at the price lower than the contracted price. However, if they have a bad year they will still collect 85% from the insurance companies.¹⁷⁸ As Rodger put it, "[J]ust big gamblers, that's what farmers are."¹⁷⁹ Rodger and Alex think this practice is dishonest and feel that it is an unnecessary stress on their market that is already constrained. Alex said:

ALEX. Everybody's getting old and getting out. Yea either that or they're just planting insurance crops every year. Doing nothing but getting insurance money off of the tobacco insurance every year. That's what a lot of the farmers on the other side of the county are doing. They don't have contracts. They know they're not going to make anything on their tobacco but they've got insurance.

¹⁷⁶ Peter T. Kilborn, "Clinton Approves a Series of Curbs on Cigarette Ads," accessed on November 15th, 2015, <http://www.nytimes.com/1996/08/24/us/clinton-approves-a-series-of-curbs-on-cigarette-ads.html>

¹⁷⁷ Zhang et al., "Impact of the Price Support System," 176-82.

¹⁷⁸ USDA, "Tobacco (Burley, Flue) North Carolina," accessed on March 26, 2016, http://www.rma.usda.gov/fields/nc_rso/2014/2014nctobacco.pdf.

¹⁷⁹ Federer, interview.

INTERVIEWER. They don't have contracts with the tobacco companies?

ALEX. Nope.

INTERVIEWER. They take it down to the auction barn?

ALEX. Well they have an auction house in Winston Salem. I know people around here that sold their whole crops for less than 50 cents. But they get the insurance money.

INTERVIEWER. So you can get insurance without a contract?

ALEX. Yea. I don't know how much longer it's going to stand. I keep hearing rumors every year that they're not going to insure, non-contract tobacco –wildcat tobacco. I know my neighbor...It just kills us. The companies know. Why pay? I average \$2.10 a pound on my tobacco last year. I know the companies are having to say that they have millions and millions of pounds of tobacco every year, so why do we have to pay \$2 a pound, when we can buy all of this cheap tobacco from these insurance crops?¹⁸⁰

This practice is frowned upon because it actually lowers the price that contracted farmers get for their tobacco because companies will go buy the wildcat tobacco for much less. Rodger explained the relationship between the tobacco buyout, crop insurance, and this idea of wildcat tobacco:

INTERVIEWER. So the tobacco companies were very happy about the tobacco buyout right?

RODGER. Yea they still got control of you. Now if this year would have been a bad year and been light, that dollar grade of tobacco would have brought two dollars. They don't really care about the quality – they do and they don't.

INTERVIEWER. It depends on the year?

RODGER. If it's a bad year, bad crop, short pounds, all of them make the grade. Does that make sense?

INTERVIEWER. A little bit. But it's unfortunate?

RODGER. It's for them no...And now they've taken away a lot of peoples' contracts. There was a lot of what you call wild cat tobacco. People grew it out of contract. Well...And they opened up a few options instead of it going to a buying station with your baled tobacco they had baled tobacco but it was auctioned off. Well they could buy that same \$2 grade tobacco for \$1 because this guy had no contract... or you can take it home.

INTERVIEWER. And he still had the price support?

¹⁸⁰ Frank, interview.

RODGER. No he ain't got nothing.

INTERVIEWER. Well why would they do that?

RODGER. Just big gamblers. That's what farmers are...But there's something that needs to be done about the crop insurance. There's too many loopholes in it. This year they have found out that they are rewarding you if you have a bad crop. If you got bad tobacco you pay to get it graded. They put a bad grade on it. Then the insurance says well you didn't make the grade for this such and such so we'll pay you the difference. So they're still going to get there, they actually made more money growing bad tobacco then growing good tobacco for a good price.¹⁸¹

Presumably the larger farmers could afford to plant extra acreage, have better cost margins, and are betting that they will be able to make at least a small amount of money per pound.

A more recent issue, which is related to wildcat tobacco and experienced by Jared, Alex, and Matthew is the difficulty of securing contracts. Three of the seven participants were still growing tobacco and had contracts. Alex had a 5-year contract with Phillip Morris International. Matthew sells to Phillip Morris International and RJ Reynolds. Jared had a particularly large amount of trouble in 2014, which is what motivated him to grow wildcat tobacco.

JARED. Well this past year was actually the only time I had a problem getting the contract. My grandfather passed in 2012. I'm not sure if it was because of the circumstances, because they know me and they thought I was his son. They said yea we'll get you a contract, we know the history that you were raised right and that you can probably produce. 2012 I had a contract no problem. 2013 I had a contract no problem. 2014 was the only year I didn't really have a contract. But they have a place where you can just sell your tobacco at the auction house.¹⁸²

From Rodger and Alex's perspective, Jared was undercutting other tobacco farmers by growing wildcat tobacco. From Jared's point of view he had to grow tobacco to keep farming and continue paying off his grandfather's debt.

¹⁸¹ Federer, interview.

¹⁸² Walters. Interview.

The auction style of selling tobacco continues today, but is not the main venue as it was prior to 2004 when the price support system was still in place. Now it is all done through contracts. Jared spoke of his experience with the auction house in 2014, selling what Rodger and Alex call wildcat tobacco. He said,

“It’s kinda how they would do it in the olden times. You get your tobacco sacked up. They’ll have an auctioneer walk through. They’ll have a Bailey’s guy, or the owner of Bailey’s, or the owner of Marlboro, and they’ll look at the leaf and flip it over. If they throw their hand up they bought it and if they didn’t throw their hand up they didn’t buy it... At an auction style, they’ll walk through and they have rows of tobacco. They’ll be saying 50, 55, 60, 65. They put a little tag on it. They’ll get somebody to carry it off.”¹⁸³

The only reason that Jared used the auction house in 2014 was because he could not get a contract. He said this is not ideal because you are really at the mercy of the tobacco companies and you have to take whatever price they will give you; before 2004, the government guaranteed all farmers a price per pound of tobacco.

Interestingly, Alex was able to secure a 5-year contract while Jared appeared not to have the same kind of fortune. Alex is not a big farmer by any stretch of the imagination at 50 acres, but for some reason he was able to secure a contract:

ALEX. That was another thing. It’s real tough these days getting money from the bank. Tobacco’s like you don’t know from one year to the next if you’re going to have contracts. I’m really lucky that I have a 5-year contract. But after these three years we don’t know what’s going on, you know.¹⁸⁴

Both farmers talked about their relationships with the tobacco companies, explaining why they were able to get contracts. Why Jared was unlucky in 2014 could be the result of a number of items. Geography could be one. Alex lives in the western part of the Piedmont where he may have had less competition.

¹⁸³ Walters, interview.

¹⁸⁴ Frank, interview.

Jared and Alex both faced difficulty securing contracts because the tobacco companies cut the contracts in 2014. Alamance County Extension Agent Donald told me that this was the result of the Tobacco Buyout ending. He said,

“This past year, like I said, the companies, I think part of it, and I’m speculating on this, I think part of it is the buyout went through back in 2004. The companies, the government, paid out the subsidies for the people’s allocated pounds, because it was based on people’s land size and history back 50 years ago. Basically since that program has been done away with and the payments are all done, the companies have free will with the market. There’s not a whole lot the farmers can do with it. Either get out or...”¹⁸⁵

Donald resumed his pause to tell about how a lot of tobacco farmers that have left recently have stayed in agriculture and switched to other grains because they had such immense investments in equipment. From Donald’s perspective the number of tobacco farms continues to dwindle even in 2014. This is surprising, especially after talking to three current tobacco growers who appear to not have any foreseeable plan of quitting tobacco.

The last two frustrations that farmers expressed are the rising cost of equipment and the difficulty of acquiring land; both are related. Rodger said,

RODGER. [E]verybody’s quitting and what few are left are getting bigger. I don’t quite understand now how everybody’s expanding so big and buying such expensive stuff and how they survive. Look. Alright. The last tractor I was buying, I could buy 100 horsepower, 150 horsepower - \$50,000. Well a 150 horse power tractor is \$200,000. It’s nothing for a tractor to be \$300,000; a big 200 horse power. Combines start at \$300,000. Cotton pickers \$600,000. Well you got to have acres to justify that. Tobacco primers. I bought a new one back in 82’ or 83’, about the time my son was born. I think I gave \$28,000 for it. Now its \$128,000.

Rodger has been a witness and a participant to the increasing costs of equipment over the years. While he got out of tobacco fairly early, he is still very aware of the costs of equipment and what it means for small farmers like him. Matthew expressed a similar sentiment but as a current commodity producer and tobacco grower:

¹⁸⁵ Donald Drake, interview by author, digital recording, Alamance Extension Office, July 2nd, 2015.

INTERVIEWER. So what has been a challenge for your farm, for your family's farm over the last 20 years?

MATTHEW. I guess one of the challenges has been the line between like on your equipment or not to repair stuff or to turn it loose cause everything costs so much money. A lot of times you just can't see the purchasing of the new equipment and we don't have any. I think equipment costs and just the number of expenses that's now involved with raising a crop with the bottom line being squeezed for profit tighter and tighter. And you've got the pressure from these larger farmers renting the land out from under you. If you're a farmer you've got to have land to tend. Someone's telling you just pay what they're paying and every dollar you're paying is cutting into your profit margin. I think that's probably been one of the biggest things is trying to hold on to what land you got. Making there be some black instead of red at the end of the year. Used to be when soybeans first come out, you could plant them and spray em' with roundup a couple times and harvest a good crop. Now you have resistant weeds and it costs more to treat them... It just costs so much money to raise a crop.¹⁸⁶

Rodger and Matthew are the two farmers that fought through the changes and managed to mechanize and acquire more land. While Rodger was not able to scale up and keep going through the 2000's, they both speak to the competition and the need for new equipment that the industry requires. As the technology gets better with each model of equipment, the most successful farmers are always going to remain one step ahead of the small and medium sized farmers like Rodger and Matthew. While Matthew has been able to survive, he is not buying new equipment regularly and just makes due with what he has. Additionally, Matthew has struggled to rent land because his profit margins are much smaller than the bigger farmers with more land and more efficient equipment.

He continued on to discuss five different farmers that live in his community which were able scale up and be very successful and were his competition throughout his trials as a tobacco farmer. He was asked:

INTERVIEWER. Where did you go work?

¹⁸⁶ Milestone, interview.

RODGER. Well I helped in the landscaping business. I went to work for one of my customers because I had a CDL [commercial driver's license]... [T]hen I went and worked for some guy farming. I actually got him started in the sod business. I planted his first 20 or 25 acres.¹⁸⁷

While working with and for his neighbors he apparently gained a deep understanding of their farming operations. He said,

Well [one of my neighbor's] sons are running the operation. Well they got several acres of tobacco, several hundred acres of sweet potatoes, several hundred acres of soybeans, several hundred acres of peanuts. I don't know if they've got livestock there. But they're probably 3 or 4,000 acres. If you go down the road 5 miles or less, then you got [another neighbor's] operation. Now we were on some state boards and Farm Bureau, back when we were both a lot younger. But they got tobacco. They got sweet potatoes, they got peanuts. They got cotton. They got hogs also. And they got cattle. But you go there and I know [my neighbor] there has 5 or 6 greenhouses growing tobacco plants. There's 50 or 80 buck barns.

INTERVIEWER. So, they're just huge?

RODGER. Everybody's got that way. Another friend of mine up here, everyone around him quit farming and he's renting all their land. He's got over 800 acres of tobacco, 400 acres of sweet potatoes, 1000 acres of soybeans. He cures all his tobacco from his smart phone. He says I don't have time to go 80 buck barns and check them... That's where the technology is going now.

There's more friends... [My friend's] son got his master's from State and he's come back to farm. They've kinda turned over all this labor to computer and GPSing, all the regulations stuff to him.¹⁸⁸

Rodger's intentions for listing all of his neighbors was to show how the scale of tobacco farming and agriculture in general as changed over his lifetime; it was to show the amount of land and investment successful farmers needed to stay competitive; and it was also to boast about his community. Although they were his competition, after all he does refer to them as his friends. Interestingly, Alex was able to maintain his small farm size using mostly manual labor and small farm acreage. While Alex is technically in the Piedmont, his farm is in the foothills and the

¹⁸⁷ Federer, interview.

¹⁸⁸ Federer, interview.

economic climate of tobacco farming in the mountains is different and less scalable. It is surprising that he was able to continue growing, but his strong ties within his community apparently afforded him the opportunity.

Matthew described his tussles with his competition and they may be his fellow community members, but he did not mention it. I asked,

So you rent a lot of land?

MATTHEW. The majority of the land that we tend is rented.

INTERVIEWER. Have you always planted [the amount you're planting now]? Even through the 90's?

MATTHEW. We are actually smaller than we were at one time. There are several reasons. One of the issues has been land owners, that we have rented their land for a long while, they have passed on their land to their children. They either settle it or have somebody they know that they rent it to, basically. And then they just go a different direction. I had a couple farms where people inherited land and they had kin folks that were farmers. And so they let them have it. And we've lost some land due to some of the people that are really big into tobacco and had a lot of tobacco acres and a lot of sweet potatoes. And they just flat out out-bid you. Pretty much put it out of the reach of what we could pay to rent. If somebody's tending tobacco and sweet potatoes on a large scale, they need a lot of land, but they got two cash crops there that they can afford to pay a higher rent than somebody who's a grain farmer for the most part. See what I'm saying?

Matthew mentioned the hardships his family has experienced in bouts to maintain their rented acreage. He went on to lament about the condition of relationships between farmers. He said,

There is a whole lot of ways that people can help you and farmers can help each other, if they would just do it. I think that's one thing that this industry is lacking, is people coming together. Cause all it takes is, you could get a group of farmers to all pull in the same direction. They could really change the farming industry, but you ain't ever gonna see that happen. Because there will always be a farmer to say that they'll pull with you and then they'll see an opportunity for personal gain to secretly under the table pull against you. And that's just the way it is. It's a shame. That's the way it is.¹⁸⁹

¹⁸⁹ Milestone, interview.

Matthew fears his tobacco farming community is destined to maintain a competitive environment which is unwilling to work together. He is likely referring to the difficulty in renting land.

The Influence of RAFI

The relationship with the farmer participants have with RAFI mostly pertains to the cost share program, the ARF. All of the participants note a positive relationship with RAFI. However, Rodger admits that because the grant was helping him with such an expensive project that it did not help him as much as it would have on his pick-your-own berry operation.

Matthew conveyed, very well, the positive relationship that his family has had with RAFI.

He said,

“RAFI helped me in a couple instances...I reckon sometimes you just need a little push and you know the chance to get a grant kinda pushes you into doing and looking at things...For instance, my project, I was taking hay and going from a round to a square bale...So I guess RAFI, all these years later, we’re still kinda using what they got us doing - Talking about the vegetables, if we could sell them here, we’d do better. There’s more profit potential. And then one of the big things that RAFI did, I was actually looking into putting up some chicken houses and I called a guy that worked with RAFI and he actually put me in contact with a guy in West Virginia for a company that I was looking at signing with. I talked with this guy and he had grown chickens for that company and I got a different story than what the company was telling me. Needless to say I didn’t build any chicken houses.”¹⁹⁰

The benefits that Matthew has seen from his relationship with RAFI, goes beyond just the grant money. The organization also serves as an outside perspective which is hard for busy farmers to access. Rickie expresses his relationship slightly different. He was asked:

INTERVIEWER. Didn’t you get a grant to help with the course?

¹⁹⁰ Milestone, interview.

RICKIE. We did. So it's interesting. We didn't even know about the grant. I saw some kind of publication. Maybe my sister did. And we were like Huh, I think we've got something that we can present to them that they would be really interested in.¹⁹¹

For Rickie, it was a mutual exchange. He was excited to present his idea, thinking that other farmers would also be interested in what he was doing. Rickie expresses the intent of the program very well. Rickie also works with RAFI representatives in other scenarios and has offered his advice on the Whole Farm Revenue Program (WFRP). He said,

RICKIE. They're working on trying to get [the program] adapted. And I've worked with RAFI representatives quite a bit on that because they call me since we are so diverse.¹⁹²

Wade and Jack at the TTFC mentioned the cost share programs first in a list of their successful projects.¹⁹³ In fact the TTFC has a total of four cost share programs, adding the 4th one in 2015 to meet demand.¹⁹⁴ The point of the grant is to create a replicable project, and not just get \$8,000 with no broader purpose. Not that other farmers spoke of taking advantage of the program, but he was very clear about the reciprocal relationship. Charles also noted a very positive experience working with RAFI:

INTERVIEWER. So just thinking about the RAFI grant, would you have built these hoop houses anyways, or did that grant really allow you to make that investment?

CHARLES. Absolutely it did. And what it did was, we got the first hoop house with the RAFI grant, and I've forgotten now, it pretty much covered the total cost of the first hoop house; which was \$6,000.¹⁹⁵

For Charles his relationship with RAFI and the grant opportunity helped him fully realize his farming operation which relies to a great extent on his hoop houses and being able to extend his production season.

¹⁹¹ Rickie Vance interview.

¹⁹² Vance, interview.

¹⁹³ Underwood, interview.

¹⁹⁴ Ibid.

¹⁹⁵ Sunday, interview.

Rodger's experience with RAFI is purely an economic incentive. This makes more sense considering the size of his farm operation. He received an \$8,000 grant to help establish the irrigation system on a \$400,000 sod business. While certainly he is appreciative, he said:

RODGER. It didn't push me over the hump. Now say I was going to put in a greenhouse or have these berries or something, yea maybe that would have helped a little on that.

INTERVIEWER. It would probably help you now?

RODGER. I don't know how much they would go if I wanted to put that 8 acres of pecan trees in. It'd take – I was thinking the other day, between 8 and 10,000 dollars for trees and between 8 and 10,000 for irrigation, plus another well.

INTERVIEWER. Well they're doing \$8,000 grants, but I don't think you can get another grant. But maybe your son could.

RODGER. Or daughter. So anyway. Everything I've done I've been in out of my pocket. I inherited a little money and spent it back here on the farm.¹⁹⁶

Rodger's interests currently pertains to the expansion of his pecan operation and if he could arrange another grant through his daughter he would support the idea. This is not to say that he would be taking advantage of the program. While Rodger may not be as "gung-ho" as Rickie or Charles, he would absolutely let another farmer come visit his farm and learn from his project.

RAFI was one of the conduits for helping small farmers shift to a new industry. The government knew that the tobacco companies were putting the small farmer out of business. When they pulled the program out they knew that the small farmers were going to suffer. RAFI helped them transition to a feasible industry. All of the farmers interviewed have experience growing fruits and vegetables for self-sufficiency. Fruits and vegetables are financially viable for transition because they require less capital investment and are a familiar industry.

¹⁹⁶ Federer, interview.

Appeal of Fruit and Vegetable Production

A major driver among participants to transition to fruit and vegetable production was their high level of agricultural experience and knowledge and the affordability of the industry transition. While tobacco is known as a cash crop which can support a family on 4-5 acres, many farmers also grew most of their other food. As RAFI representative Jill notes, this allowed farmers to grow other staple crops and raise livestock for self-sufficiency.¹⁹⁷ Several participants mentioned their family's practice of growing their own produce. If the farmers have experience growing fruits and vegetables as children or young adults, even if it is on the smaller scale, this familiarity is a huge advantage.

For Charles this was a practice that was common among farmers at the time he was growing up in the 1950's. He jokes about the circle that our society has made back to local and speaks about his family growing vegetables for their family out of necessity. He said,

“You could [go the grocery store] but nobody from the country went to the grocery store to buy vegetables. They froze and canned stuff. We had a freezer full. My Mom would can everything – green beans. So rural folks in those days, they might have a 130-acre farm, but they never had a whole lot of cash money. My folks were farming and they would make maybe four or five thousand dollars a year that would be cleared money after buying off the farm, fertilizer, and seed bills. But that was enough money because you never bought much at the grocery store. We bought coffee, tea, and flour because you cooked all the meals at home.”¹⁹⁸

Additionally, Charles' family was very diversified and raised corn, wheat, sorghum, chickens, pigs, and beef cows. While these crops were largely raised to sell it also contributed to their daily livelihood, in addition to their home garden. Charles also noted his continued interest in raising vegetables throughout his 30-year career in the mountains. His experience growing vegetables, in

¹⁹⁷ Jill Waters and Bob Pilot, interview by author, digital recording, North Carolina Piedmont, July 7th, 2015.

¹⁹⁸ Sunday, interview.

addition to his familiarity with the non-profit world, has led to his success as a fruit and vegetable grower.

For Matthew's family, they raised vegetables for self-sufficiency and also to sell on the farm. I asked him,

INTERVIEWER. When did you start growing vegetables?

MATTHEW. Been doing it for a pretty good long time. I donno say probably 20 years. My Mom feeds our year-round crew every day and so we were always putting up. Well I say we. SHE was putting up stuff that we would eat and you know try to put up canned tomatoes and peas and butter beans and corn and stuff. So basically that's just an extension of what she was already doing. In the last couple years we've planted more tomatoes than we used to. We'll plant three or four thousand tomato plants and have gotten into staking them up some. Stuff like that.¹⁹⁹

Matthew's mother has been raising vegetables for their family, as long he can remember. He notes that the 20 years of growing vegetables is an extension of what his mother was doing before.

Alex Frank's family grew vegetables also as a means of surviving on little income, as well, and expanded to supplement their income once they realized the market potential for the factory just down the road from them. Alex said,

"Well when we had that factory down there, that's the reason that Dad got into produce. We would grow watermelons, broccoli, and cabbage and have a little bit of everything. We just had a cooler right here and as they came off of work there would be people all over the yard. They would just buy produce. It was a really good little thing we had going on there. It was either Mom or me or Dad or somebody would be out here and everybody would buy 15 or 20 dollars' worth of produce down here. That's pretty much how our produce got started...but they shut it down about six or seven years ago."²⁰⁰

Alex had a significant amount of agricultural experience because their family happened to be so close to the factory and had a built in market until it shut down. Presumably this experience encouraged Alex and his father to scale up to three acres. Rickie had a similar past, in which he

¹⁹⁹ Milestone, interview.

²⁰⁰ Frank, interview.

was raised growing fruits and vegetables. I asked Rickie about his father's decision to leave tobacco,

INTERVIEWER. When did he sell his equipment?

RICKIE. Way before the price support system went away; 1996 was our last tobacco crop.

INTERVIEWER. And you just started growing vegetables right then?

RICKIE. My Dad has always messed around with vegetables even when he was growing tobacco. But it was strawberries. For him to be able to make that move he had to have a crop that would generate enough income. So he started messing around with strawberries while he was still growing tobacco. A little half acre piece. But once he decided no more tobacco he went into the strawberry business in a big way. In a big way. With three acres, which doesn't sound like a whole lot. That's a lot. That's A LOT of strawberries. 3 acres of strawberries. So that has been the crop that has really done the heavy lifting for the income that is needed on this farm.²⁰¹

While his Dad, and probably his whole family, had experience growing vegetables they were prepared to transition out of tobacco. Charles also had a long history of growing vegetables before he started his farm eight years ago.

Strong Ties to Tobacco

The strong ties to tobacco that many farmers possess is a very complex factor among the drivers to transition. Although most of the study participants have transitioned to fruit and vegetable production to a certain extent, they all seemingly have a rich history of growing tobacco. Five of the seven participants' families have been on their farms for multiple generation. Unsurprisingly, the participants coming from several generations on the farm have a stronger relationship to the crop. Alex Frank said,

“Well I know my Great Great Grandpa grew tobacco and my Grand Pa, Dad, and me have always raised tobacco somewhere along here. Part of this farm has been in the family for I

²⁰¹ Vance, interview.

guess almost 200 years. I raise 50 acres. I'm one of the smallest ones around. Like my neighbors raise 100 acres and another almost 175 acres. And those are the two biggest guys around here. But really it's the 3 of us left. Back 20 years ago everybody around here grew 5 acres of tobacco. Everybody raised tobacco. Now a-days it's just the 3 of us left."²⁰²

Alex noted how his family has been growing tobacco for over 150 years and how the tobacco industry has only changed in a very significant way in his lifetime. Alex watched and experienced the decline of his tobacco farming community and this very greatly affected his path in life. For example, when he was growing up he told himself he would never come back to the farm, but through maturation and the course of life he has been drawn back. While this was an individual decision to some extent, it was very clear that his father played a big role in his life. He and his father had determined that it made more sense for Alex to stick with the National Guard, while his father was still able to manage the farm on his own. Finally, his father could not manage the farm on his own and summoned his son home. Referring to his Dad, Alex said,

“[H]e was 68 when I came home and he was like I'm done. We still were a small farm so you have to be hands on. I do all of the plowing in the spring and supervising and everything. He just couldn't do it day in and day out like he used to.”²⁰³

Alex had a personality suited for the farm. He tried out the big city and it was not for him. After a round-a-bout in his military duties he came back to the farm when his father finally called it quits. For Alex, his father was a huge influence on his decision to come back to the farm. However, he has an intrinsic appeal to farm. His personality was drawn to the lifestyle and he could not see himself in any other situation.

Rickie notes his family's relationship to tobacco and quickly moves on to why they got out. He said,

“I would be the fifth generation farmer on this farm. The farm really started in [the Vance name] back in the early 1920's growing tobacco. And for three and a half generations that's

²⁰² Frank, interview.

²⁰³ Frank, interview.

really what this farm was about. When I was a kid that was the crop that paid our bills. But my Dad saw some things on the horizon regarding the tobacco industry that made him very nervous about hitching his wagon, so to speak, to tobacco, for the long term.”²⁰⁴

For Rickie, his relationship with tobacco is more distanced, as his father was planning on getting out of tobacco early on in Rickie’s adult life. While Rickie’s father may have a more nostalgic memory of the traditions and practices of growing tobacco because of his experiences during a more stable tobacco industry, it was not so for Rickie. Rickie’s father was prepared early on to switch to strawberries from tobacco and as a result Rickie’s interest in farming is very forward thinking. Staying in agriculture was so important to his father, and his father was obviously very forward thinking too. For Rickie’s Dad, and for Rickie as well, staying in agriculture was the goal. Tobacco was just a way to pay their bills and happens to be the way that their family did it for three generations before him.

Charles is unique in that although he grew up on a tobacco farm, his ties to it are not as strong. Charles’ father died when he was 18 and he and his brother were seemingly ill-equipped to take over, and instead went to college. His brother remained in the agricultural industry in agricultural education and farmed on the side after college. Charles ran a non-profit in the mountains for 30 years before returning to the farm and starting a very successful certified organic produce farm. Charles’ agricultural heritage is slightly different. He said,

“My parents purchased this farm in 1945. They were both working in the textile industry and they saved their money and they bought this farm. Paid 9,000 dollars for 130 acres in 1945, which is the year I was born. And so they moved here and my Dad had grown up farming and my Mom had also grown up on the farm. So they had a background in it. They became full-time farmers and so that’s how and where I grew up.”²⁰⁵

Family is a huge motivator for the child of a farmer in particular. Although Charles was led to a new career after his father’s death he found himself back on the farm in his retirement.

²⁰⁴ Vance, interview.

²⁰⁵ Sunday, interview.

Rodger faced a different type of familial pressure. His father was used to managing a small amount of tobacco acreage, was not interested in scaling up, and as a result was not able to survive. Rodger repeatedly referred to the pressure that his father created for him throughout his tenure managing his family's tobacco farm. While Rodger was drawn to the new equipment that industry standards presented and the competitive nature of the industry, his father was very dismayed by the need to rent land and hire labor. Rodger said,

“I wanted to get up there at 100 acres and rent farms around here. I wanted to farm. I liked equipment and I liked to farm. Well Daddy didn't. He just couldn't see expanding... He loved to cut and bale hay. He loved to see 1000 bales on the ground and me and one more to get em' up. He didn't want me to take my tobacco barning crew, 7 or 8 people, to get up hay. That just drove him nuts. They're not gonna work. You're gonna be paying them for nothing. So kill myself to get it up. He'd like to see you digging a ditch with a shovel. He didn't want you to take the back hoe to dig a ditch. You weren't working hard enough. So anyway. I had enough. I just told him I had enough.”²⁰⁶

The relationship that Rodger had with his father appears to be the strongest factor in his decision making process; however, he also expressed frustration with competition from his neighbors, pressures from the tobacco industry, and tobacco companies. Through his struggles, he worked off the farm, began a sod-business, and more recently started a pick-your-own berry and pecan farm. All of his children left the farm and he spoke of the inability to have his children work on the farm because of labor laws and they went on to get masters degrees. His daughter may return to the farm in the future to carry on the farm.

Rodger spoke about his neighbors more than any other participant because he not only grew up beside them, he competed with them in the tobacco market, and ended up working for them as a last resort. Although he did not talk about the weekly run-ins with neighbors, I imagine that Rodger was very engaged in his community. Not only is he currently very familiar with the new college that is being rebuilt, but he is also very familiar with his neighbors' businesses over

²⁰⁶ Federer, interview.

the past 25 years which he was competing with. Referring to the new University being built in his community he said,

I'm on the board of directors of the county Farm Bureau. The high school over here and their new principal are involved in agriculture. Anyways they've been working for 2 or 3 years with the local university. It's a big thing; everyone's turning to universities now. It used to be, it was a small college over there...And so now they had kinda switched over. In high school you had different curriculums; course paths. And then they all got bunched up and had to go to college...So now they're bringing it back and they're going to have different fields. They're going to have some technical courses that you get college credit for...²⁰⁷

Rodger's awareness of this recent development speaks to his engagement in his community. His interest in the new college in his community shows his level of engagement and commitment to his farm and region. His involvement in the Farm Bureau and interest in the college is unique and shows that the tobacco farmers are interested in the future and are interested in leading the next generation of farmers.

Marketing Fruits and Vegetables

The second major challenge for transitioning to fruit and vegetable production has to do with marketing fruits and vegetables, which is a new obstacle for farmers in North Carolina. Tobacco farmers are not used to an unestablished crop insurance policy,²⁰⁸ an unstable fruit and vegetable market, and having to market their own products. In light of these challenges, most participants were very positive about the future of the fruit and vegetable market. Because the industry is so new there are a number of "kinks" that have to be worked out.

²⁰⁷ Federer, interview.

²⁰⁸ Whole Farm Revenue Program (WFRP) is the best policy currently but is not workable for any of the participants.

On the way home from my first interview with Alex I was listening to the AgriInnovations podcast, which for two episodes featured RAFI representative, Frank Robinson, whom spoke about the importance of crop insurance as a risk management tool and discussed the new WFRP.²⁰⁹ This was particularly interesting as Alex had just spoke about insurance for vegetables, after he told me about tobacco contracts. He said:

ALEX. I've never been able to find anybody - I've asked extension agents; I've asked my insurance lady; the people who grow produce. Nobody's been able to get an insurance policy for broccoli or zucchini or green beans or what not. I don't know if it's just that they don't offer it; no one's been able to say, 'Yea we'll give you an insurance policy on fresh produce.' Have you heard of people being able to get insurance?

INTERVIEWER. I don't know about it.

ALEX. The way the banks are they flat out told me if you grow that produce we can't count anything towards it. It's actually considered a liability because you don't have insurance on it.²¹⁰

Alex has grown 3 acres of broccoli and zucchini in past years and would benefit very much if he were able to insure his single vegetable crops. Alex had not heard of the WFRP at the time of our interview, but may have been interested in it because he approaches his vegetable production like his commodity crops; he grew three acres of broccoli and zucchini which is a large amount for North Carolina.

In the 2014 Farm Bill, USDA's Risk Management Agency (RMA) developed the WFRP program which has evolved over the past two years but is still regarded as a pilot program. WFRP is a single crop insurance program which, like the name indicates, allows farmers to insure their crops based on total revenue. This is likely appealing to farmers growing several commodity crops

²⁰⁹ James Robinson. Interview by Frank Aragona, the AgriInnovations Podcast, iTunes episode 166. February 2, 2015.

²¹⁰ Frank, interview.

because the policy ceiling is \$8.5million at 50% to 85% coverage.²¹¹ Although the high ceiling could lend itself more to commodity producers, it is great for the specialty crop industry which, until 2014, has been ineligible for crop insurance. Several of the participants are interested in the program but each has concerns with it. In its 2015 form, Rickie found the program ineffective for him because he can not insure crops individually. For example, he would like to be able to only insure his strawberries, because his largest crop is strawberries. Rickie said,

“The problem we have with that product is a large percentage of our farm income comes from the strawberries. If we’re successful with making a good strawberry crop, I could have a total failure on blueberries or pumpkins or squash or whatever and it’s not gonna trigger. It’s not gonna pay. Because it is a part of the total farm revenue. Now that’s a problem. Just because most of my revenue comes from strawberries does not mean that I don’t want protection for my squash. I should be able to have protection for my squash. And so what they’re working on is a way to subdivide.”²¹²

Rickie is very familiar with the program and says he has communicated with RAFI about what he thinks. Charles is also a diversified operation but has not felt the need to pursue it at any significant length. Of the WFRP he said,

“I’ve just seen the information but haven’t studied it enough. I don’t know if it would be worth in our doing it. We’re real diversified. For example, this year we had this real unusual heat spell during the early mid-June and all of our Irish potatoes, 80% of our Irish potatoes were still in the ground and we dug them all last week. We had significant damage because of the heat. A lot of the potatoes had rotted and that’s never happened before and I’m sure it’s because of the heat. We probably had 5000 pounds of potatoes and maybe a thousand pounds, 20 percent, were damaged. A 1000 pounds of potatoes, whole price might be a dollar a pound. You’re looking at a thousand dollars. I’m not sure it’s worth the trouble or not. You’re going to have some sort of deductible. I do think expanding crop insurance beyond the traditional crop, because the growers that have a lot more acres than us – they have a lot more skin in the game and think that would be helpful.”²¹³

²¹¹ USDA, “A Risk Management Agency Fact Sheet: Whole-Farm Revenue Protection,” August 2015, <http://www.rma.usda.gov/pubs/rme/wfrpfactsheet.pdf>. There are also limits on livestock and greenhouse coverage of \$1million each, which insinuates that their production is of higher risk and also that the commodity industry is very established within the crop insurance world.

²¹² Vance, interview.

²¹³ Sunday, interview.

While Charles runs a relatively smaller vegetable farm than Rickie's, at the end of the day the decision to pursue crop insurance is very much an individual choice. The program is managed by the RMA and just by the very title 'risk management,' individuals undoubtedly have varying degrees of risk tolerance.

Matthew, Rodger, Alex, and Rickie are all very concerned about the marketing options.

Matthew was asked:

INTERVIEWER. Would you consider expanding your vegetable operation?

MATTHEW: We have. We've thought about that. I still haven't ruled that out. The problem – you don't have anything til you have a buyer. You can have the prettiest cucumbers or watermelons or whatever. Til someone actually buys them you don't have anything but money in them.²¹⁴

He did say that his family has considered growing fruits and vegetables and that they will continue to play with the idea. Matthew's skepticism is understandable on the scale that he is used to farming on. All of his commodity crops are on contracts, they store well, and you do not have worry about selling them each week. It's very different, and he's obviously not ready to make a switch, especially while they are staying competitive in the commodity industries.

For Rodger, fruit and nut production is something that he has utilized as supplemental income in his post tobacco producing years and his family does not rely on it to pay their bills. However, it is still an option for his family to continue farming. His daughter and her husband are interested in coming back to the farm and Rodger's pursuit of his pick-your-own berry and pecan tree business could be the start of something for his daughter. Rodger said,

“Both of them think they want to come back here when he retires from the army. I said now you got to stay in the army for at least 20 years before you retire, then you can get you another job. Because this ain't gonna produce but so much income. That's the reason I'm

²¹⁴ Milestone, interview.

doing the berries and pecan trees; to have it somewhat operational, generating some kind of money that they want to come back to.”²¹⁵

At this point in Rodger’s life he is interested in expanding more into fruit and vegetables to a certain extent but he is very cautious. Later in the interview, after discussing the woes of tobacco farming, we circled back around to the idea of fruit and vegetable production:

INTERVIEWER. Yup. And so if your kids wanted to come back and do it would you consider expanding into a couple different things?

RODGER. The only other thing I’d consider – I’ve got six acres of pecans; I’d want to plant this other eight acres in pecans. It’d cost me \$25,000 to plant and irrigate this eight acres.

INTERVIEWER. How about vegetables? Greenhouse vegetables?

RODGER. Well I’m not schooled in greenhouse vegetables. You’ve gotta work with that. You’ve got to be on top of it every minute. There’s too many issues.²¹⁶

Rodger is willing to invest in the farm for his daughter and son-in-law but not willing to start an intensive vegetable operation.

Alex’s major concern has to do with the insecurity of producing a crop that does not have a guaranteed price. Alex has had experience with wholesalers not paying the price that he thought they were going to pay.

“But I took over full time in the 2011 season and then we always grew tobacco and I also grew some zucchini and broccoli on black plastic. What I found is we did have a great place over there in [local food hub]. You know you just took your stuff up there and you sold it. What we find is produce is, you sign a contract with a wholesaler, and basically that contract isn’t worth a darn. They basically pay you what you want. We’ve had full truckloads of stuff dumped out because they didn’t want to pay the price.”²¹⁷

Unfortunately, produce contracts through a single entity like a food hub does not hold much legal power. The difference between a tobacco contract through a tobacco corporation and a contract

²¹⁵ Federer, interview.

²¹⁶ Federer, interview.

²¹⁷ Frank, interview.

through a recently started food hub is very different and the latter is not as reliable. This is an obstacle that has caused farmers to disregard fruit and vegetable business options because they are concerned about not having an annual guarantee that a contract provides. This is the result of a two different types of fruit and vegetable farmers entering the same industry. One is a commodity driven tobacco farmer and one is a recently retired couple that has always wanted to start their own farm.

Rickie has been fully invested in the fruit and vegetable industry the longest and has a clear vision for the future. The major problems he sees on the horizon are the threats from the supermarkets and the need to educate the consumers:

INTERVIEWER. Looking to the future, are you about at the size where you want to be at and is this the type of size farm that can support a stronger North Carolina food system? Or does it take...

RICKIE: No. no. no. Part of the challenge that organic farmers are under right now is it's very trendy for super markets to claim that they support local. It's trendy. If you go in and you look at the major super markets in Raleigh, at their produce area, it's kind of set up like a farmers market. The displays are wooden. They're low. They're staired up. These people are smart. And farmers markets have taken a certain amount of their money away from them. They're purchasing power. So what do they do? They create a look of a farmers market. They say, we support small local farmers. When in reality many of them don't because the demands that they put on that farmer to supply them fruits and vegetables is a demand that only can be serviced through a big corporate fruit and vegetable farm.²¹⁸

The other problem he sees ahead of him and other specialty crop producers is the lack of education among consumers.

RICKIE. That's why we brought back strawberries in the spring time, for kids to be able to come and load the wagon and go and pick strawberries. Many of them have never done that. And so we are of the belief that our most effective way to create change in the hearts and minds of people is to try to work with the kids... You're only gonna get a certain amount of level of understanding with the kindergarteners. That being said, it's a start. And if we ever have a chance to truly change our food system, from a more agribusiness model – big corporate model, to more of a smaller, sustainable model, it's gonna happen with this young generation.

²¹⁸ Vance, interview.

For Rickie, he has made elaborate connections between the food system and how to increase his market share. For the survival of his farm he has discovered the need to educate the next generation of children to care about where their food comes from. While this benefits his farm to a certain extent, to take on such a large task, he is expressing a high degree of empathy for other farmers in the region and the next generation that would benefit from his proposal for a food system change.

All of the participants are weary of the marketing potential of fruit and vegetables. Matthew is concerned about the overall market and not having insurance. Alex is very isolated and since the food hub that he was working with left he felt obliged to drop his vegetable project. Rickie is concerned about consumer education, which has led him to his educational tour project.

Jared is new to the fruit and vegetable industry and received a grant last year for a mobile market to sell his produce in his rural community. He finds that a major obstacle for tobacco farmers is their social skills and their unwillingness to reach out for help, but believes he has what it takes to be successful in marketing:

INTERVIEWER: I'm interested in how you're transitioning to vegetables and your experience with that.

JARED: I'm definitely going out to different people because it's new to me. A lot of people don't know this but farmers are to themselves. A lot of people don't know or don't think about it but farmers are very to themselves. They don't really have too much social skills...The reason they farm is they do what they do. They farm the land, they know how they're going to do it, they make their money, and they're to themselves. Transitioning from a typical farming position to a retail farming position where you are speaking to people constantly. If you don't have enough. I think I have enough. 'Hey you want to buy this' 'hey how you doing.' Especially the older farmers, they really don't want to. Not every person. But some of the farmers I know they would never try transitioning to vegetables for anything. They'd rather sit there and do tobacco for the rest of their life. They just like the way that they do it. But yea I find a lot of help from cooperative extension. They've been helping me with some things and such. Conservation services. They help a lot as well. Hopefully all of it will work out as far as what I plan for in the future now. At this point in time if I can just collaborate with everyone around and kind of get some of

their vegetables and sell to the people and grow my own. I want to be self-sustained so I don't have to worry about that.²¹⁹

Jared makes two points regarding marketing. First of all, the tobacco farmer, in Jared's mind, typically does not have the personality or socialization suited to marketing fruit and vegetable production. The second point he made, is that he knows fruit and vegetable production is difficult and that he needs as much help as he can get from different sources and organizations.

While the participants were mostly concerned about the challenges of the specialty crop industries, they also mentioned the benefits to the industries and some even offered positive outlooks. Matthew said of the local food movement:

“That's a wave, I think if you can get on it, it would be a good one. You know what I'm saying? If I could find a market in that, I don't think it's going nowhere. There's getting to be more and more people that are distrusting of, or are not satisfied, with going to the grocery store.”²²⁰

Charles and Rickie have had the greatest success with their transition to fruits and vegetables and both are very comfortable with where the market is heading. Charles said,

“[T]he energy behind sustainable agriculture in terms of farmers markets and people wanting fresh and local and particularly organic fresh and local, that just seems to be growing from year to year. So I think the future is really good.”²²¹

Charles sells most of his product at the farmers' market and is very comfortable with the relationships that he has built there. Rickie added his perspective from a more diverse and larger fruit and vegetable operation. He said,

“Well, I think in general, the marketing of the product is getting easier because there are more avenues for people to push their product. Eastern Carolina Organics is going good. So that's up and going. There are food hubs that are being created in our area where smaller family farms, much smaller than ours, can go and sell their product. There's farmers' markets, it seems like, on every corner now... We go to six different farmers markets, plus

²¹⁹ Walters, interview.

²²⁰ Milestone, interview.

²²¹ Sunday, interview.

we're pushing retail and wholesale. We got lots of areas where we can move our product."²²²

While the obstacles may appear to be weighing the scale down, the farmers are aware of the market opportunities.

In summation, the findings have revealed three major themes that are the drivers of the farmers' transitions and the two major themes that explain the major challenges of their transitions. The reasons farmers have been drawn to fruit and vegetable production are 1) their dissatisfaction with the tobacco industry, 2) involvement with RAFI, and 3) the appeal of fruit and vegetable production. The major challenges for their transitions are their strong ties to tobacco and a range of marketing obstacles.

²²² Vance, interview.

CHAPTER 5

DISCUSSION

In an effort to understand the experience of the small tobacco farmer over the last 25 years, this case study was designed to answer two research questions: 1) What are the main factors that have driven small tobacco farmers during their transition out of tobacco and into fruit and vegetable crop production? 2) What have been the major challenges for these farmers in their transition? This is of particular interest because there is a complex and interrelated set of processes that have caused small tobacco farmers to be displaced from the tobacco industry and agriculture in general. These major processes include the declining tobacco industry, driven by the loss of federal support for the industry, the MSA and Tobacco Buyout, and a general decline in world-wide tobacco consumption. Urbanization in North Carolina pulled farmers to the city and off the farm, shifting the market from a wide-spread practice of fruit and vegetable production for self-sufficiency to a disconnected agricultural consumer. Urbanization was also increasing the cost of farmland making it more difficult to scale-up in the tobacco industry. While the tobacco industry has declined and people have moved off the farm and into the city, more recently, a direct-to-consumer market has developed in North Carolina. This has happened primarily in cities with an affluent population and Raleigh is a good example of this.²²³ Additionally, North Carolina has a unique geography which allows for a range of agricultural experimentation and a diverse agricultural portfolio.²²⁴ Analysis in this study indicates that the major factors driving the farmer participants to transition from tobacco cultivation are their dissatisfaction with the tobacco

²²³ PolicyLink, "Equitable Development Toolkit: Local Food Procurement," accessed on March 28, 2016, https://www.policylink.org/sites/default/files/edtk_local-food-procurement.pdf. This equitable development toolkit speaks to the obstacles of fresh, local produce to low-income communities, insinuating that it is less of a problem for the more affluent population.

²²⁴ Underwood, interview.

industry, the influence of RAFI, and the appeal of fruit and vegetable production. Analysis also indicates that the major challenges for transitioning are their strong ties to tobacco and a range of marketing obstacles.

To bring the literature review and findings together, the themes from the findings are explored in terms of their consistency or contradictions in relation to the established scholarly knowledge on the decision making process and innovation. The findings were mixed between issues that pushed and pulled farmers away from the tobacco industry and have more recently pushed and pulled them toward the fruit and vegetable industry. The first part of this discussion involves an analysis of the first three themes (farmer dissatisfaction, involvement with RAFI, and agricultural background) in terms of their influence on the farmer's decision making process. The second part of the discussion will be focused on how the last two themes (strong ties to tobacco and marketing) affect the ability or desire of the farmer to take up an innovative fruit and vegetable production project. The decision making process model is useful in understanding the individual farmer's perspective and the differences between the participants. The diffusion of innovation model is more useful for determining the collective sample perspective, which can then be extrapolated to the Piedmont tobacco farmer community. For a diagram of the major points of the discussion see Appendix D.

Drivers

The three major factors driving small tobacco farmers to transition to fruit and vegetable production are their dissatisfaction with the tobacco industry, their involvement with RAFI, and the appeal of the fruit and vegetable industry. The first section explores the farmers' dissatisfactions with the tobacco industry in regards to the increasingly difficult climate of

remaining in the industry. The second section looks at the farmer's positive perception of RAFI and also brings in the organizational leaders' perceptions of how the government orchestrated a safety net for the small tobacco farmer. The third section looks at the farmers' history of growing fruits and vegetable and similarly places RAFI, through the extension of the government, as orchestrating the small tobacco farmers' transition to a familiar and low-capital entry industry (i.e. fruit and vegetables). Each section below begins with an analysis of the findings from the seven participants then comparisons are made between Willock et al.'s decision making process model, in accordance with other studies.

Farmer dissatisfaction

Among the sources of farmer dissatisfaction with the tobacco industry are frustration with tobacco companies, contracts, the rising costs of equipment, and increasing farmland cost. While not all of these frustrations can be directly traced back to the tobacco companies, they can be traced back to the tobacco industry; the tobacco industry includes all aspects that the farmer has to deal with to produce a tobacco crop. The study participants' anxiety appears to come from a lot of different places and they do not know what exactly to attribute it to. Farmers get their contracts from the tobacco companies and have to follow certain tobacco company quality standards and governmental workplace standards. They buy their equipment from a range of different agricultural companies. They get their insurance from the government and loans from the banks. All of these obstacles come from different sources and not only make their future unclear, but create a lot of dissatisfaction.

Within Willock et al.'s decision making process model (Figure 2), the farmer's attitudes and objectives determine their farming behaviors (mediating variables) and are guided by their

personality and external/physical farm factors (antecedent variables).²²⁵ In relation to this model, dissatisfaction with the tobacco industry can be thought about as an external factor influencing the farmer's attitudes, objectives, and farming behavior. The farmer develops their attitude from numerous sources overtime, and the farmer participants' attitudes have been shaped by experiences to have a negative association with the tobacco industry.

Among Willock et al.'s established farmer attitudes, the most significant ones are risk aversion, legislation, and stress. These three attitudes are interrelated. The small tobacco farmer is very aware that legislation can be very influential to the future of their farms. As a result, legislation that continues to support tobacco reduces their risk and stress in the short term. A study from the United Kingdom found that farmers are very likely to be stressed by growing bureaucracy and government regulations.²²⁶ This was not expected and confirms the plight of the small tobacco farmer. It is most significant for the participants who slowly watched their market dwindle and production practices be driven by the preferences of large farmers. For the small tobacco farmer the bureaucracy of the tobacco industry and government regulations, as an external factor, are what have caused the majority of their dissatisfaction, which, ultimately, became a major driver for them to leave the industry.

A 2014 study on farmers in Eastern North Carolina who grow a range of commodity crops, found that two major causes of stress for farmers are their concern over the future of the farm and market prices for crops and livestock.²²⁷ As a commodity producer, the concern over the future of the farm appears to be much larger than for those who direct market fruit and vegetable products.

²²⁵ Willock et al., "Farmer Decision Making," 6.

²²⁶ Ian J. Deary et al., "Stress in Farming," *Stress Medicine* (13) (1997), 135.

²²⁷ Gregory D. Kearney, Ann P. Rafferty, Lauren R. Hendricks, Daniel Landon Allen, and Robin Tutor-Marcom. "A Cross-Sectional Study of Stressors Among Farmers in Eastern North Carolina," *NC Medical Journal* (75) No 6 (2014), 384-392.

For example, Alex, Jared, and Matthew currently grow tobacco and none are comfortable with their future prospects in the industry. On the other hand, all of the participants, including Alex, Jared, and Matthew, spoke very positively about the future of fruit and vegetable production. Rickie and Charles, the most successful fruit and vegetable growers, are very comfortable with the market opportunities in the future.

The farmer's dissatisfaction is related to the consolidation of the tobacco industry. The larger tobacco farmers with sufficient capital were able to buy up the vacant land as the smaller farms were forced to sell.²²⁸ These farmers were then able to, following their economies of scale, cut costs by producing on more acreage. With the ability to buy more acreage, it is reasonable to assume they also possessed the ability to purchase the equipment to scale-up and move away from a manual labor based production system. The tobacco companies were also very invested in this trend; bigger farms are much easier to deal with. Additionally, economies of scale allow for consistent quality and ease of administration.²²⁹

The reality is that a major source of the farmer's dissatisfaction is the result of industry consolidation. Overtime, the small farmer was sacrificed by the government, tobacco companies, and the public health sector. The price support system that was repealed in 2004 was the last blow to the small tobacco farmer. The participants' dissatisfaction comes out on their farm in a number of ways. The small tobacco farmer was at risk because without their price support they were left with few options for staying in tobacco and the overall perception is that no other industry compares. The major obstacles included their inability to mechanize (i.e., rising cost of equipment, increasing value of farmland, high cost of labor, difficulty dealing with crop insurance, and increased difficulty securing contracts). These obstacles were insurmountable based on the way

²²⁸ Hart and Chestang, "Turmoil in Tobaccoland," 550-572.

²²⁹ Underwood, interview.

that the industry had developed. The politicians made a decision to cut their losses and had to once and for all officially end support for tobacco. Unfortunately, the losses hit the small tobacco farmer the hardest. The small tobacco farmer relied on price support and once it was repealed only the large farmers were agile enough to capitalize on the remaining tobacco market.

The large farmers were able to scale up and mechanize through the purchase of newer, larger, more efficient equipment and the acquisition of more land. At the same time, they were able to secure their equipment and land holdings through bank loans. It is reasonable that the banks were much more likely to loan money to the larger farmers because they had more resources to meet the expectations of the banks.

The influence of RAFI

The farmer's involvement with RAFI is a second major factor that drove the study participants to transition to fruit and vegetable production, as all participants received a grant. Not surprisingly, most participants found the grant to be very helpful and necessary for their projects to be realized. This finding confirms that farmer's involvement with outside organizations can have a profound influence on their decision making process. In looking at the decision making process, the farmer's interest in getting help from RAFI developed out of their farming objective to stay in agriculture and their confidence in their skills as a fruit and vegetable grower. Lastly, the RAFI program can be thought of as merely a last ditch effort to rebuild the torn population of small tobacco farmers.

The study participants' decision to transition to fruit and vegetable production is not wholly attributable to RAFI, but the organization certainly helped the farmers in the development of their new businesses. For some of the farmers that transitioned, the RAFI grant was the first attempt of the participant to begin growing fruits and vegetables commercially. For example, Jared only

began growing vegetables last year after he got a grant for a mobile market. However, Rickie got a grant in 2015 but has been growing fruits and vegetables since 1996 with reasonable success. On the other hand, Matthew and Alex still primarily grow tobacco and have not felt comfortable making the transition.

In terms of the farmer's level of involvement with RAFI and to what degree that contributed to their transition, the major aspect of the Willock et al. decision making model is the mediating variable (i.e., objectives in farming). All of the farmers' main objective was to stay in agriculture, which is why they pursued their RAFI grants. Although each farmer has a different interest in agriculture, and each is either leaning more toward either fruits and vegetables or tobacco, they all share the same objective to stay in agriculture. What varies is the farmer's personality and the farmer's particular farm structure. Although Matthew is rather unhappy about his current farming situation, because he manages approximately 1100 acres his farm is large enough to where he can justify the costs of equipment and land rental prices to stay in commodity crop production. Quite differently, Rickie's father felt like the tobacco industry had run its course for numerous reasons, changed his farming objective toward fruit and vegetable production. Presumably, the personality of Rickie's father played a large role in his early innovative approach, reacted to what he saw in the industry, sold all of his equipment, and drastically shifted his farming objectives. Rickie's father is regarded, by Jill and Bob at RAFI, as the exemplary transitioning tobacco farmer because he got out of tobacco very early and continued farming in a non-commodity crop industry. Both farmers (Matthew and Rickie) got their RAFI grants for different reasons and at different times, with the main goal of staying in agriculture.

From RAFI's perspective, the goal is to help both small and medium sized farmers stay in agriculture, help them manage their risk, and to "cultivate" markets for the long term success of

these farmers and their communities. Jill and Bob speak about the usefulness of their grant program.

JILL. It sounds so simple to make one grant, to give someone \$8,000, that it couldn't have that big of an impact, but you see that it does. I think it's a very cheap way to produce good economic results.

BOB. It's not just about \$8,000. It's about innovating and showing other people in the community your innovation as a farmer and getting ideas going about how to move forward and reinvigorate these communities.

JILL. But you've got to have the dough to do it, is the thing. The offer of \$8,000 motivates people to put together proposals. Why would I bother to come up with a great idea if there was no carrot?²³⁰

The farmers confirm this idea and most state that they would not have been able to afford the project without RAFI's help. The need to purchase new equipment or structures is the major obstacle for the participants to diversify their farming operations. This is significant for tobacco farmers diversifying or transitioning into fruits and vegetables because the purchase of new equipment is nearly always a necessity for the participants. It also appears to be that the RAFI program is necessary to get farmers to commit to a new industry that is still in its infancy. Yes, their families have grown fruits and vegetables historically, but not commercially. Motivating tobacco farmers to take a risk on this new industry obviously requires incentives, because the majority of tobacco farmers have not taken the chance on fruit and vegetable production. The tobacco farmer has had a price support system to rely on since the 1930's. When the US government set up the MSA, it appears as if they had RAFI in mind.

The federal government was responding to three stakeholders with the MSA and Tobacco Buyout legislation: public health agencies, tobacco companies, and the small tobacco farmer. The MSA was a slap on the wrist for the tobacco companies, whom the public health sector accused of

²³⁰ Waters and Pilot, interview.

misconstruing the health implications of smoking. They won after decades of lawsuits and the four largest companies had to pay. Coincidentally, the tobacco companies and the public health agencies both sought to have the price support system removed. For the tobacco companies this allowed more profits by further consolidating the industry into production on highly mechanized and modern tobacco operations. For the public health agencies, they sought to have the price support system removed as a moral principle; they believed the government should not be propping up the tobacco industry which kills people. The small tobacco farmer wanted to keep farming and a substantial amount of the MSA funds went to help stabilize tobacco dependent communities, however, the way it was distributed has been controversial; Wade states that the TTFC is underfunded every year from the initial MSA plan.

North Carolina legislatures were aware that the tobacco industry would be further consolidated with the Tobacco Buyout. In 1998, North Carolina intentionally allocated their MSA funds to alleviate stress in tobacco dependent communities. This is clear because the ARF, which began in 1998, has been funded every year by the TTFC. As the TTFC is an extension of the MSA, the continued RAFI allocation is an acknowledgement of the need in tobacco dependent communities for a way out of tobacco production. It is likely that the MSA was nested six years in advance to ease the repeal of the price support system. However, what is more significant is exactly what the title implies: “buyout.” The small tobacco farmer was essentially paid off, as their days in tobacco were numbered.

This attitude is present to a certain degree among the study participants in their use of the RAFI cost share program. However, what is unique about cost share programs, as Jill and Bob explain, is that \$8,000 is the perfect amount of money to get farmers to sign up to do a lot of work. For example, getting a grant for a hoop house certainly contributed to the steam that Charles had

built up to start his vegetable operation. Jared would not have committed to the mobile market, which had been tried elsewhere first. Matthew similarly would not have pursued a grant for a square baler had RAFI not given him the idea.

For many tobacco farmers, and for some of the participants, their decision to pursue a RAFI grant was very different before and after the Tobacco Buyout (2004). In general, tobacco farmers took the governmental support for granted and even delayed seeking diversification before 2004 in hopes that the tobacco buyout would happen and when it finally did that's when they would adjust their operations.²³¹ Interestingly, Matthew received a grant in 1998 for a hay baler and continues to grow tobacco today. Matthew capitalized on the RAFI grant and forewent at least some of his tobacco buyout money in hopes of remaining competitive without governmental support. The two most successful participants that have transitioned to fruit and vegetables gained nothing from the buyout. Rickie's family got out of tobacco in 1996 and Charles began farming in retirement, years after his family quit growing tobacco when Charles was a teenager. This implies that the Tobacco Buyout did not help all of the farmers that it intended to help and the program did not aid in all small farm operations' transitions.

While it is generally up to the farmer to create a replicable project, that is not always the case. Matthew spoke about how RAFI gave him the idea for the square baler. Indeed, RAFI is a service organization which seeks to equip farmers with tools for success. It is reasonable that RAFI's cost share program also serves as a method to push farmers toward a certain industry. The ideal type of project for transitioning small tobacco farmers depends on a lot of things. But in general, the small tobacco farmer was not able to stay in tobacco because of the same reasons that the participants were dissatisfied with the tobacco industry: frustration working with tobacco

²³¹ Beach, Jones and Tooze, "Tobacco Farmer Interest and Success in Income Diversification," 55.

companies, dealing with crop insurance, rising costs of equipment, contracts, and cost of renting land. The large farmers were able to stay in the tobacco industry because they had access to embodied innovation. An innovation where the purchase of something physical is required is an embodied innovation.²³² This can be distinguished from a disembodied innovation, which involves an innovative idea which can be performed with no new purchase. In reference to innovation within the commodity industries, Sunding and Zilberman note the following:

“The public sector has played a major role in funding R&D activities that have led to new agricultural innovations, especially innovations that are disembodied...”²³³

While innovative strategies that do not require purchase are certainly more appealing for funders, the need to invest in new equipment for most commodity industries to stay competitive over the years remains. What is so appealing about fruit and vegetable production from the farmer’s perspective and RAFI’s perspective is that the equipment is relatively inexpensive, in comparison to the equipment for commodity crop production. So, while the transition to fruit and vegetable production is not through disembodied innovation, it is a very inexpensive embodied innovation. However, fruit and vegetable production is hardly an innovation for these farmers because their families have been growing them for self-sufficiency for as long as they grew tobacco. Understanding their background in fruit and vegetable production will be the final point of inquiry which has driven these farmers to their new agricultural endeavor.

²³² Sunding and Zilberman, “The Agricultural Innovation Process,” 1.

²³³ Sunding and Zilberman, “The Agricultural Innovation Process,” 12.

Appeal of fruit and vegetable production

Fruit and vegetable production appears to be a reasonably viable option for tobacco farmers to transition to. Most of the study participants spoke about their family's history of growing fruits and vegetables. This section first begins with a description of how their decision making process was motivated by familiarity with fruits and vegetables. Second, a brief exploration is made into the tobacco farmers' history of growing fruits and vegetables. Third, the current views of the farmers and organizational leaders toward growing fruits and vegetables is considered.

The appeal of fruit and vegetable production should be attributed to the farmer's attitude which is guided by their historical fruit and vegetable experience and their relationship with RAFI. The farmer's fruit and vegetable experiences are antecedent variables of the Willock et al. model, pertaining to both personal factors and physical farm factors. For instance, farmer's personality kept them on the farm while their siblings may have left (personal factors). The physical farm factors could include the family traditions and lifestyle of working and living on the farm which includes fruit and vegetable self-sufficiency. There is also the added external motivation from the TTFC and RAFI to encourage farmers to make this particular transition.

The U.S. family farm has changed considerably during the 20th century. Lobao and Meyer explain it in terms of how the great agricultural transition made the family farm become almost obsolete.²³⁴ At the beginning of the 20th century, especially in the South, family farms were made up of small scale farmers; gross sales per farm in 1910 were \$10,817 and stayed that low until 1950.²³⁵ At the same time, in North Carolina, 83% of farmers in 1920 grew vegetables for home

²³⁴ Lobao and Meyer, "The Great Agricultural Transition," 105.

²³⁵ Lobao and Meyer, "The Great Agricultural Transition," 108. This number is adjusted for inflation using the 1982 year by the authors.

use and this increased to 89% in 1940.²³⁶ The tobacco farmers are the best example of this because the cash crop allowed family's to survive off of five to seven acres of tobacco and allowed them the ability to grow the other crops and raise other animals they relied on.²³⁷ The Great Depression is an example of families utilizing the resources they had and making due with hardly anything.²³⁸ However, this was the reality of most family farms in the South during the first half of the 20th century and many of the practices stayed on the farm; for some even to this day. J Paul Lilly covers the painstaking truths that were the reality for tobacco farmers before World War II:

“The Second World War was a turning point for North Carolina agriculture...In 1940 over 40% of the population in North Carolina still lived on farms. Nationally the percentage was about 20%. The war removed people from the farm. It created a larger market for farm products, producing more income and more pressure toward mechanization.”²³⁹

When 40% of the population lived on farms they also grew most of their own food and only bought staple products from off the farm. This was the only option that many farmers had because they were not making enough money to purchase off the farm. Also, the markets were likely still underdeveloped and selling produce to farmers and buying produce as a farmer probably seemed illogical, as they could grow it themselves.

Charles speaks to this idea when he describes the way his family grew up, raised vegetables, and only purchased staples in town. He even jokes about the idea of local, which he is a firm believer in the movement now, because when he grew up everyone ate local. He said,

“Quite a different lifestyle. I was talking to some of the local guys a couple days ago about, you know, we sell vegetables in Cary. I said, you know what these people want is fresh

²³⁶ U.S. Bureau of the Census, *1940 Census of Agriculture*, “Vegetables Harvested For Sale, Farm Gardens, And Horticultural Specialties. Washington D.C.: U.S. Bureau of the Census. U.S. Bureau of the Census, *1940 Census of Agriculture*, Farms and Farm Acreage, By Color And By Tenure Of Operator, And By Size Of Farm, 1910 to 1940; And Farm Land According To Use, 1924 to 1939.” Washington D.C.: U.S. Bureau of the Census.

²³⁷ Waters, interview.

²³⁸ Joyce Wadler, “Making Ends Meet in the Great Depression,” http://www.nytimes.com/2009/04/02/garden/02depression.html?_r=0

²³⁹ J. Paul Lilly, “Agricultural History of North Carolina,” North Carolina Department of Agriculture, Accessed on March 9, 2016, <http://www.ncagr.gov/stats/general/history.htm>.

and local. I said that's what we all grew up eating. We know what that's about. I mean the difference now is that ours is organic, although not everybody is organic."²⁴⁰

This historical connection with fruit and vegetable production helps make the case that these farmers were prepared to transition to produce these crops commercially. With a history of growing fruit and vegetable crops it's not illogical that they would go back to producing those crops. Charles continued growing vegetables throughout his 30-year career working off the farm. While he said the reason is because he likes it, it would not be surprising if part of the reason was because that is how he was raised and had a Great Depression default mechanism instilled in him to be prepared for the worst. Whatever the reason, Charles and his wife were very comfortable raising vegetables by the time they decided to start their farm in retirement seven years ago.

As tobacco farmers have and continue to transition to the fruit and vegetable industries, there is a steady draw of beginning farmers; both the young and retired. With the draw to farming comes the philosophical, farm dream to the radical, movers and shakers who wish to change the agricultural system and re-localize it. The justifications for encouraging and incentivizing fruit and vegetable production are a call for a civic agriculture,²⁴¹ a move to agroecological principles,²⁴² and multifunctional agriculture.²⁴³

The reality among the seven farmer participants is that there is a range of interest among the participants. Among the seven, four are very interested, but only three have been successful. Rickie, Charles, and Randy continue to be very successful. Alex was successful growing three acres of zucchini and broccoli but recently stopped growing these crops because the food hub, and

²⁴⁰ Charles Sunday.

²⁴¹ Gieseppina Migliore et al., "Farmers' Participation in Civic Agriculture and the Effect of Social Embeddedness," 105-117.

²⁴² Parmentier, "Scaling-Up Agroecological Approaches."

²⁴³ Geoff A. Wilson, "Multifunctional Agriculture: A Transition Theory Perspective," Cambridge: CAB International, 2007.

his only market, left. Rodger, Matthew, and Jared are the least interested in fruit and vegetable production, even though all three continue to grow these crops. Rodger still manages a pick-your-own farm, Matthew's family grows a significant amount of vegetables for the family and some on-farm sales and Jared is starting to try out vegetable production for sales through his mobile market. But in terms of what drives the financial stability of the farm, it is clearly tobacco and for Matthew and Jared a few other commodity crops.

While the knowledge that farmers have for growing fruits and vegetables certainly is a benefit to them, Chuck finds that other obstacles greatly inhibit their ability. He says,

“Yea, the market is what you make it. That’s what I tell them. They don’t like to hear that. They think that we as extension agents have inside connections, that we keep lists of different markets. Ok so this week tomatoes are hot here, peppers are hot here. They don’t have a clue. But people that move into the area, which we’ve had several moving into Grandville County and Pearson County from different states. Semi-retired or retired. Always wanted to do something like this. They’ve got the finances to put up a hoop house. They want to sell at a farmers’ market. They know exactly how they’re going to sell. Again, they might not, they never grew a thing in their life before. You can teach anybody how to grow something. But they don’t have the defeatist attitude [like most tobacco farmers] to say, well no, that’s not gonna work.”²⁴⁴

Chuck thinks that the people who become interested in growing fruits and vegetables in retirement and do not have a tobacco background are much more successful. He is referring to the tobacco farmers who he believes have defeatist attitudes and cannot imagine another profitable production system to replace tobacco. While he admits that he may just be ‘blowing hot smoke,’ it seems that there is something to his observations.

²⁴⁴ Canterbury, interview.

Challenges

The major challenges for the participants in transitioning to the fruit and vegetable industries have to do with the prevalence of a commodity mindset within the tobacco farming community and the obstacles to marketing fruits and vegetables.²⁴⁵ All seven participants were influenced differently by the commodity mindset and, though not all, some have been able to overcome many of these obstacles.

Strong ties to tobacco

In order to get a sense of the participants' ties to tobacco, first it is important to discuss the reality of this rich history regionally. Next, a regional tobacco community will be identified and discussed to show how seemingly independent farmers can have a similar mindset that is non-receptive to growing fruits and vegetables commercially. Lastly, for the tobacco farmer to innovate and transition to fruit and vegetables, they have to be able to overcome their tobacco mindset, which the Piedmont tobacco farmer community has collectively struggled to do. In order to understand how some farmers were and were not able to overcome these obstacles, Roger's diffusion of innovation model is explored in addition to the decision making process model.

In general, in the early 1960's and 1970's, tobacco farmer sentiment was very much opposed to the public health advocates whom were trying to reduce consumption of tobacco in the country.²⁴⁶ This was both the result of the influence of the tobacco companies and, more

²⁴⁵ The commodity mindset is a term that Chuck Canterbury used to explain how children of farmers come back to the farm after inheriting land and approach fruits and vegetables like their parents approached tobacco. I am also using it to express the instilled mindset of reliance on government programs and the need to acquire more land and purchase more and better equipment continuously.

²⁴⁶ Hart et al., "Turmoil in Tobaccoland," 550.

importantly, the long tradition of growing tobacco that farmers were unwilling to let go.²⁴⁷ Unfortunately, many of these farmers were forced out of the market and the tobacco companies ended up getting scrutinized for their deception of consumers and farmers, alike. For the tobacco farmer this meant they had to figure out a new alternative or face going out of business. The widely used concept in the literature is diversification.²⁴⁸

This long tradition of growing tobacco was instilled in the participants and the region as well, which made it very difficult to move away from the crop. Hart and Chestang's article, "Turmoil in Tobaccoland," may be the most profound article on the case of North Carolina as a transitioning agricultural region and explores the major industries that tobacco farmers have transitioned to since the 1960's. Diversification is the term used by Hart and Chestang and other authorities on the Piedmont tobacco farmer community. The authors' focused on diversification for several reasons. In their article they found that soybeans, hogs, and cotton were the three most influential transition industries in the 1990's. This makes a lot of sense after speaking with the farmer participants. The two participants which managed a significantly larger amount of tobacco land into the 2000's both spoke about the logical shift to soybean production. Soybeans do very well in the Piedmont of North Carolina, particularly when compared to the productive capacity of corn. The northeastern part of the state is the cotton-growing region and flourished through 1980's

²⁴⁷ Peter Benson, "Tobacco Capitalism," 128. "Pride in Tobacco' Rally Scheduled for This Friday." *The Dispatch*, January 26, 1979.

<https://news.google.com/newspapers?nid=1734&dat=19790625&id=z5kbAAAIBAJ&sjid=mLEEAAAIBAJ&pg=2953,4916955&hl=en>. The influence of tobacco companies on farmers was shown most explicitly during the 70's by the RJ Reynolds corporation. They began a 'Pride in Tobacco' campaign in 1978. During their campaign, The Dispatch, a Lexington, NC newspaper, posted an invitation by RJ Reynolds to all tobacco farmers for a 'Pride in Tobacco' rally at Raleigh's Dorton Arena.

²⁴⁸ David G. Altman et al., "Predictors of crop diversification: a survey of tobacco farmers in North Carolina, 376-382. Altman et al., "Tobacco farmers and diversification: opportunities and barriers," *Tobacco Control*, 192-198. Beach, Jones and Tooze, "Tobacco Farmer Interest and Success in Income Diversification," 53-71. William Stader, "North Central Piedmont North Carolina Tobacco Producers' Views Towards The Federal Tobacco Buyout," 1-11.

because of the “eradication of the boll weevil” and the crop’s compatibility with peanuts.²⁴⁹ The hog industry grew in the coastal plain region because of cheap land, low quality agricultural land, and localities with little power to stop the nuisance of an industry.²⁵⁰

As has been noted, the number of tobacco farmers had been on the decline since 1950 and in the 1990’s faced big changes. The reality was different on every farm. For example, Rickie’s family, through their involvement in the Farm Bureau, were aware of the big changes to come in 1996; presumably talks of the MSA and Tobacco Buyout were already in the works. There were signs even earlier than this that the demand for tobacco in the United States would decrease further in the future. Clinton’s action in 1995 to shift tobacco regulation to the FDA was a huge shock to many tobacco farmers, and signaled to them that this was the beginning of a big decline.²⁵¹ Even at the time of the MSA, in 1998, a study on crop diversification revealed that 35.5% of respondents did not have an interest in growing or raising anything except tobacco.²⁵² While the industry has been in decline since the 1960’s, for many farmers their perception of that is almost non-existent. This speaks loudly in support of the isolated and unchanging tobacco farmer. Similarly, in a 1996 study of 529 tobacco farmers, half of the respondents had pursued alternatives to tobacco on their farm.²⁵³ However, in that same study 73% supported a tax increase on tobacco if the money went to help farmers overcome structural and economic barriers to diversification, indicating that the farmers were well aware of their options. As has been noted, the decision making process as to whether or not to diversify or innovate is a complex process but is certainly affected by the farmer’s ties to tobacco.

²⁴⁹ Hart and Chestang, “Turmoil in Tobaccoland,” 565.

²⁵⁰ Furuseh, “Restructuring of Hog Farming in North Carolina,” 401-402.

²⁵¹ Michael Janofsky, “Tobacco Growers Bemoan Clinton Smoking Proposal,” last modified August 12, 1995, <http://www.nytimes.com/1995/08/12/us/tobacco-growers-bemoan-clinton-smoking-proposal.html>.

²⁵² Altman et al., “Predictors of crop diversification,” 378.

²⁵³ Altman et al., “Tobacco farmers and diversification,” 192-198.

Following a similar trend as to the strength of a farmer's ties to tobacco appears to also be a farmer's level of education. Robert Beach and colleagues carried out a seven year study on North Carolina tobacco farmers looking at "success in income diversification."²⁵⁴ They note that level of education is a strong indicator for the ability of the farmers to diversify their income:

"[H]ousehold and farmer characteristics are significant determinants of efforts to shift to nontobacco enterprises. The most consistent and important of these is farmer education, which predicts reduced probability of growing tobacco and increased probability of working off farm and attempting to identify nontobacco alternatives. This is consistent with our conjecture that farmers who are better educated would be among the first to explore alternative nontobacco enterprises because education proxies entrepreneurial acumen as well as increasing the set of alternative opportunities these farmers confront."²⁵⁵

The seven participants likely fall on the more educated end of this spectrum because they got involved with RAFI and did not let that affect their attitudes. While the seven farmers were not specifically asked, the interview indicated that Charles has a master's degree; Alex, Rodger, and Jared have bachelor's degrees; and Matthew and Rickie may have education beyond high school, but their children have bachelor's degrees. This means, according to this study's parameters, that at least six of the seven participants have acquired the skills and attitude, themselves or through their children, to pursue off-farm help, diversification, and fruit and vegetable production.

As the participants were more likely to pursue diversification with a higher education, it also makes sense that this same logic would apply to farmers that are willing to innovate and try a new type of agriculture all together. Moving to the fruit and vegetable industry is moving from a commodity mindset to a non-commodity mindset.²⁵⁶ The seven participants are highly experienced tobacco farmers and have had mixed success in their abilities to overcome their commodity mindset. While Matthew still grows on a large scale for the commodity industry, he is very aware

²⁵⁴ Beach, Jones and Tooze, "Tobacco Farmer Interest and Success in Income Diversification," 53-71.

²⁵⁵ Beach, Jones and Tooze, "Tobacco Farmer Interest and Success in Income Diversification," 68.

²⁵⁶ Fruits and vegetables can be produced on a large scale like in California but most in North Carolina are smaller and direct market their produce; all of the farmer participants fall into the smaller size and direct market.

of the flaws within the industry and sees the appeal of the fruit and vegetable industry. While he is considering reducing his tobacco acreage, he is planning to increase his sweet potato acreage, with new future plans of leaving the commodity industry. While, Jared is very excited to develop his new mobile market project, at the same time that he continues to grow tobacco and is skeptical of the vegetable project because of the problems with not having a guaranteed market. While they like the prospects of the fruit and vegetable industries it is unlikely that they would shift without crop insurance. While the USDA continues to change the recently piloted WFRP, producing fruits and vegetables may become viable for these farmers to make the plunge. However, they will not be leaving their tobacco mindset they. They must have a price support.

Although farmers are often thought of as isolated, there appears to be a concerted tobacco community which has allowed for a uniform thought process to permeate across geographies. RJ Reynolds Tobacco Company campaigns in the late 1970's are the best example that account for this consistent thought process. Involvement with tobacco organizations have also likely played a role in the development of their commodity mindset. Rickie's father was involved in the Tobacco Growers Association of North Carolina, to which Rickie attributes their knowledge of getting out of the industry. However, it is also probable that this organization was, and still is, greatly motivated by the commodity mindset.

Within this commodity mindset is a production-sided agriculture. Tobacco farmers only have to worry about marketing to a minor degree, as it is essentially taken care of through a contract before the seeds go in the ground. Matthew speaks to this idea and why tobacco farmers are reluctant to transition to fruits and vegetables:

“Energy and time; [we] can possibly look at other things like vegetables and possibly use some of our man power and the time of the day to expand that part of the farm. And I think the unknown part would be marketing it from what we do here to having excesses and getting it to market...Most farmers are production minded. You get it produced because

even though when we produce a soybean we put it in the truck and take it to the mill. With vegetables it ain't that simple."²⁵⁷

Matthew's idea of the production minded tobacco farmer is consistent with this idea of the Piedmont tobacco community and the perceptions of the other participants as well.

There is much overlap between the challenge of the farmer's ties to tobacco and the specific marketing challenges. The next section looks at the major challenges to marketing fruits and vegetables. This will be done using the diffusion of innovation model and particularly looking at how fruit and vegetable production is an innovation that has yet to be realized.

Marketing fruit and vegetables

In consideration of the influence of a commodity mindset and with particular interest in fruit and vegetable marketing obstacles, the participants have put forth a range of effort and shown varying degrees of interest in their projects. The study participants' concerns with marketing fruit and vegetable products pertain to the lack of crop insurance, the uncertainty of the market and profit potential, and the farmer's disinterest in marketing. While the marketing challenges are real and are also a concern for non-tobacco farmers, they appear to be exaggerated by the tobacco farmers. By inquiring into the challenges of fruit and vegetable production, this study is interested in the adoption of fruit and vegetable production as an innovative way to stay in agriculture and understands that innovation has been adopted when the farmer is able to generate enough income to match the national median salary.

Rickie is the best example of adopting this innovation, among the participants. Rickie is fully dependent on their farm for income and is engaged in a diverse range of marketing outlets, including farmers' market sales, on farm sales, wholesale and agritourism. Rickie believes he has

²⁵⁷ Milestone, interview.

to be this diversified in an effort to make a living on his farm, to show that it is a viable career choice, and to pursue his philosophical mission of steering on course what he views is a food system that has gone astray. Also, Rickie wants to change consumer eating habits, improve technological advances for organic farmers, and continue shaping the vision of a successful family farm growing fruits and vegetables. In contrast, Rodger is the least successful or motivated to transition. He admits that he “doesn’t work it that hard” and only manages a small pick-your-own berry operation in his retirement. He does not view the commercial scale of fruit and vegetable production as a feasible option for his family.

The diffusion of innovation theory also follows the classification of individuals by adopter category as follows: 1) innovators, 2) early adopters, 3) early majority, 4) late majority, and 5) laggards.²⁵⁸ The diffusion of the fruit and vegetable discussion follows the same definition of innovation has yet to occur in North Carolina and as a result this particular adoption has not moved past the innovation phase.(i.e., that the farmer makes enough income to make a national median income). Rickie is an early innovator having strawberries ready as a back-up crop to tobacco in 1996. Charles and Randy are also innovators having established profitable businesses in the 2000’s. The rest of the participants have been unable to fully adopt the innovation to sustain a median-income salary. While they all exhibit some degree of fruit and vegetable production on their farms, the challenges have prevented a more widespread adoption among the participants.²⁵⁹

In consideration of both challenges, the diffusion of attributes of the diffusion of innovation model will be considered. The ability to innovate is largely dependent on the five attributes of innovation: relative advantage, compatibility, complexity, trialability, and observability.²⁶⁰

²⁵⁸ Rogers, *Diffusion of Innovations*, 22.

²⁵⁹ For supplemental income, 61% of the farmers in the U.S. work off the farm. 39% work 200 days or more off the farm. U.S. Bureau of the Census. *2012 Census of Agriculture*. “State Summary Highlights: 2012.”

²⁶⁰ Rogers, *Diffusion of Innovations*, 12.

Rodgers finds that the attributes make up half of the variance in the rate of adoption of an innovation. These attributes reveal that the challenges have been difficult for most tobacco farmers and that the seven study participants are unique in their ability to overcome them, even the participants who were only somewhat successful.

Compatibility is the one positive attribute because tobacco farmer's history of growing for self-sufficiency and the government is supporting the transition, financially. The fact that most of the farmers grow fruit and vegetables, even Matthew and Rodger who are the most tobacco focused, speaks to this truth. The rest of the attributes require more time to make the innovation appear feasible and a good decision.

The relative advantage has not been established because of the range of marketing challenges which make the current fruit and vegetable production appear non-advantageous. Crop insurance is important for tobacco farmers and has been in the production system since the introduction of the price support system in 1933. Until 2004, every tobacco farmer had a guaranteed price based on their production quota. It is a difficult decision for these tobacco farmers to enter into a non-insured industry and certainly it is a riskier approach. Interestingly, the seven participants cover the spectrum on Roger's five innovation attributes.

Complexity is high because marketing fruits and vegetables requires a lot of human interaction and requires the farmers to find numerous sources for their product.²⁶¹ Trialability is low because commercial fruit and vegetable production has not been done in North Carolina until relatively recently and not on the scale that these farmers can afford to get into. The appeal of fruit and vegetable production to RAFI and to these farmers is that it requires little capital to enter the industry and the farmers have experience with small-scale production. While there are other

²⁶¹ The most successful participants were more diversified and tobacco farmers are not used to that.

models of success in California and some, most likely, in North Carolina as well, this would be unappealing to the small tobacco farmer because if they could afford to scale up in an industry they would have done it would tobacco or another commodity crop, with which they have more experience.

Observability is also low because the small and medium scale fruit and vegetable production has not been pursued much in the 20th century. The industrialization and specialization of fruit and vegetable production happened just the same as the grain crops; potatoes come from Idaho, peanuts come from North Carolina, lettuce comes from California, peppers come from Mexico, and the like.

The goals of the discussion section include looking at the drivers to transition in terms of the Willock et al. decision making process model and looking at the challenges to transition using Roger's diffusion of innovations concept. By inputting the drivers into the decision making process model it can be seen that each farmer's decision making process is slightly different depending on their personality and farming objectives. While the decision making process model is able to show the individual farmer's perspective, the diffusion of innovation model captures the sample-wide consensus on the fruit and vegetable production innovation. The consensus is that the adoption of this innovation has yet to occur and the innovators are still working out the kinks. In the conclusion section, the drivers and challenges are further refined in conjunction with the decision making process and diffusion of innovation models.

CHAPTER 6

CONCLUSION

The major objective for this study is to inquire into the small tobacco farmer's drive to transition to fruit and vegetable production from the, very different, tobacco industry. To conclude this thesis, the major findings are reiterated and expanded upon for implications. The major implications include 1) how the small tobacco farmer was neglected by the tobacco industry; 2) how the direct to consumer fruit and vegetable industry continues to struggle; 3) how agriculture communities are negatively impacted by urbanization; and 4) how this case study can inform other agricultural regions in transition. Suggested future research includes a range of questions pertaining to these four implications.

Findings

This case study has revealed five major themes that have been organized to encapsulate the factors driving the small tobacco farmer to transition and the challenges these farmers have had with transitioning to fruit and vegetable production. The three themes which serve as the factors driving farmers to transition are farmer dissatisfaction with the tobacco industry, involvement with RAFI, and the appeal of fruit and vegetable production as an alternative industry. For these themes the discussion relied partially on Willock et al.'s decision making process model and partially on their relationship to the previously held notions. For the farmer's dissatisfaction theme, the Altman et al. and Beach studies gave insight into the perspective of the tobacco farmers across the Piedmont. The influence of RAFI theme was conferred with the organizational leaders from RAFI and the TTFC. The appeal of fruit and vegetable production theme has been confirmed using

agricultural census data. The two themes that encompass the majority of the farmers' challenges with transitioning are strong ties to tobacco and marketing. For the last two themes the discussion focused partially on the idea of innovation. Each of the five thematic sections starts with the findings and led to a new conclusion which includes comparisons between the findings and the literature.

The participants' decision making process is the focus of the first research question, which is interested in the drivers of transition. Farmer dissatisfaction is an attitude that has developed out of the external forces that come from the tobacco industry. It is also guided by the farmer's personality and the farmer's objectives on the farm, but is mostly guided by external factors. Involvement with RAFI is the result of the farmer's objective to maintain their farm. This is also guided by the farmer's personality and the external forces which made the cost share program available. The appeal of fruit and vegetable production is a farmer's attitude which is guided by their historical farming experience and their relationship with RAFI. It is also a motivating factor for the TTFC and RAFI to encourage farmers to make this particular transition. RAFI serves as an external force that affects all levels of the farmer's decision making process.

Fruit and vegetable production as an innovative project has not been fully realized in North Carolina and is not a legitimate substitute for tobacco. Charles is the only farmer that is satisfied with the financial situation of his fruit and vegetable farm, but he began his farm in retirement, and he admitted that they earn only a modest income from the farm. Rickie on the other hand has the largest fruit and vegetable operation and is not satisfied with the current financial situation of his farm. Randy also has a profitable business. Alex had a significant vegetable operation, but viewed it as supplemental to tobacco, and has since gone back to only growing tobacco. The rest of the

participants have modest fruit and vegetable operations which are either supplemental to their tobacco or are retirement projects.

Implications

This case study is relevant to current issues facing North Carolina, as well as other states. The major implications of this study pertain to the governmental orchestrated attempt to provide a safety net for the small tobacco farmer, the feasibility of successful fruit and vegetable production projects, highly urbanized agricultural regions, and agricultural regions in transition. First it is important to note the constraints of generalizing from this case study.

As the goals of this case study were to understand the drivers and challenges of the small tobacco farmer in their transition to fruit and vegetable production, extrapolating beyond the purview of the farmer is limited. However, much of this story has already played out and the knowledge that the small tobacco farmer was treated poorly by the industry and the government has been covered in the literature by Hart, Chestang, Altman, Beach, and others. Though it is true that this case study is an exploration of the small tobacco farmer's perspective, which is very different than the large tobacco farmer, the politician, and the tobacco company employee.

The small tobacco farmer, up until the 1950's, was the foundation of the tobacco industry. From the 1960's to date, tobacco production has grown more and more consolidated making it nearly impossible for the small tobacco farmer to survive. The Master Settlement Agreement in 1998 and then the Tobacco Buyout in 2004 were the final blows to the small tobacco farmer. Up until then the few remaining small tobacco farmers were hanging on and were finally abandoned by the tobacco industry and government. Fortunately, the government made the decision to provide a softer landing for the small tobacco farmer and did two things. One, they paid the farmer to stop

growing tobacco and moved a significant amount of funds from the MSA to TTFC, RAFI, and other farmer advocacy organizations. The participants' feelings are that the money was certainly appreciated but the help from the organizations has had a longer lasting and more significant impact. The major types of projects that the TTFC and RAFI fund require relatively little capital and are based on familiar production systems; most tobacco farmers before 1950 were already diversified and raised their own vegetables and animals.

While this governmental assistance appears sound in theory, the reality was that the small tobacco farmer was largely unable to move forward from their tobacco farming past and to wade through the new frontier of direct-to-consumer, commercial-scale fruit and vegetable production; the commodity mindset is hard to ignore. Mix together a generational farmer that knows little besides tobacco with three quarters of a century of price support and you have an engrained commodity mindset. Additionally, the tobacco companies stroked the tobacco farmer's ego in the right way to secure the farmer's loyalty to the industry, in spite of the repetitive, condemning public health sector. At the same time, fruit and vegetables have only marginally been produced on a commercial scale and sold directly to the consumer, in North Carolina; direct-to-consumer is one of the few feasible production approaches for a financially constrained small tobacco farmer. Paralleling tobacco, corn and the rest of the commodity industries, fruit and vegetables were similarly consolidated to certain regions of the country and the world and into the hands of a few. While large scale sweet potato and peanut production is significant in North Carolina, those are commodity crops with the same concerns of tobacco.²⁶² The direct-to-consumer scale was one of the few options left for the small tobacco farmer.

²⁶² U.S. Bureau of the Census. *2012 Census of Agriculture*. Historical Highlights: 2012 and Earlier Census Years. Washington D.C.: Bureau of the Census.

The feasibility of direct-to-consumer fruit and vegetable production systems continue to be refined and are growing in popularity as the consumer becomes more interested in the production processes. The range of local food movement advocates, like Michael Pollan and Barbara Kingsolver, speak to this popularity. While the seven participants are in the minority for their willingness to try this burgeoning local food movement, their range of interests speaks to the lack of knowledge around this new industry. Their general lack of success speaks to the pull of the ties to tobacco and the difficulty in taking on so much risk without crop insurance. It also speaks to the push away from the direct-to-consumer markets which are highly complex due to the intensive labor demands of less mechanized production systems and the requirement to market your own products through different marketing channels. Also, there is little financial support from the government and little research support from universities because commodity models are more simple and fit in more consistently with the dominant, commodity mindset in North Carolina.

In another respect, this study was an inquiry into the ability of a farming community to shift agricultural industries. The literature and conversations with organizational leaders show that tobacco farmers were largely unable to shift to fruit and vegetable production because of the very different marketing requirements. However, they were able to shift into the more similar commodity industries; mainly grain crops and livestock. On the other hand, the TTFC shifted its focus in 2016 and has opened up their grant program to non-tobacco dependent counties. This is a sign that the TTFC feels that the program has focused specifically on the tobacco dependent communities long enough and that opening up their focus is the best way to continue pursuing their mission of sustaining family farms.

As the tobacco farmers all voiced concerns over the stability of fruit and vegetable markets, it makes sense to focus on the more urban counties around Raleigh and Charlotte to spark more

innovation. Even though the tobacco dependent communities are further away from the urban counties that the TTFC is shifting to, the tobacco dependent counties may also benefit from the focus in urban counties. As there are larger markets in the urban counties, focusing efforts to develop distribution networks makes sense to do first in heavily populated areas. Once the models are shown to work, then they can be expanded into more rural areas. One example of a food distribution network is Eastern Carolina Organics. This food hub was started by tobacco farmers in 2004, with the assistance of a TTFC grant.²⁶³ Very isolated farmers can reach the market using their service. While it has been a great outlet for many farmers - mostly tobacco farmers, the outlet for farmers has not reached many communities; most of the farmer participants had not heard of it. Other food distribution models include home-delivery services, which are also more successful in more urban areas. These services are relatively new and as urban areas continue to grow and the services improve, the viability of fruit and vegetable production will only continue to grow in more isolated areas.

In consideration of the small tobacco farmer and the future of fruit and vegetable production in North Carolina, the agricultural region has been and will continue to be shaped by urbanization. This has implications for the pull away from the farm and for a new type of agricultural market. It also has implications for current farmers and the cost of land. For instance, the young farmer saw a more luxurious lifestyle in the city, and was pulled off the farm. Comparatively, the consolidation and industrialization of the agriculture system made it more and more difficult for the farmer to succeed and the child had no choice but to go to the city. Although this can be thought of as a negative aspect by encouraging a consumer more distant from the farm, it may have also helped with the establishment of a local food culture in the city. The local food

²⁶³ Eastern Carolina Organics, "What We Do," accessed on March 29, 2016, <http://www.easterncarolinaorganics.com/about.php#how+we+started>.

movement is known to be supported by an affluent population, which is well represented in both Raleigh and Charlotte. The local food consumer may very well be made up of the children of farmers to some extent.

Additionally, the local food movement may have great success in North Carolina because of fruit and vegetable production is considered viable for a third reason: geography.²⁶⁴ As North Carolina has numerous major metropolitan areas (Charlotte, Raleigh, Greensboro, Winston-Salem, Durham, Asheville, and Fayetteville), as opposed to an agricultural state like Georgia which has just one (Atlanta, albeit a very big one), there is great opportunity for tobacco farmers across the state to more easily reach an urban market with their fruits and vegetables.

The fourth implication has to do with the broader idea of agricultural transitions. North Carolina is the epitome of an agricultural region in transition. Other commodity crops that began receiving price support in 1933, along with tobacco, were corn, wheat, cotton, hogs, rice, tobacco, and milk. The price support systems in place in the United States continue to go through changes; every five years there is a new farm bill that tends to ebb and flow for different industries. Corn is the very lucrative and often discussed industry that has continuously had a price support. The 2014 Farm Bill subsidizes corn in the form of crop insurance, but it is still essentially direct payment to the farmer for their crop.²⁶⁵ Iowa is the largest corn growing state in the country and has faced similar consolidation as North Carolina.²⁶⁶ Iowa's small farmers have also been forced off the farm and into the city. However, tobacco in North Carolina was done on a much smaller acreage; therefore, the consolidation of the industry affected a lot more farmers.

²⁶⁴ The first two reasons are the low-capital requirements and the historical experience that tobacco farmers have with raising fruits and vegetables for self-sufficiency.

²⁶⁵ Crop Insurance: Keep America Growing, "How did the 2014 Farm Bill change crop insurance?," accessed on March 10th, 2016, <http://www.cropinsuranceinamerica.org/just-the-facts/how-does-the-2014-farm-bill-change-crop-insurance-2/#.VvIjLfsrLDc>.

²⁶⁶ U.S. Bureau of the Census, *2012 United States Census of Agriculture*. State Summary Highlights: 2012. Washington D.C.: Bureau of the Census.

While North Carolina as a tobacco producing region is unique because of its historical reliance on a price support system, it is not unique in that farmers received a lot of criticism from the public health sector. In North Carolina, tobacco farmers have been criticized for growing a crop that contributes to a product that kills people, just as Iowan farmers have been criticized for using agricultural practices that negatively impacts the water quality of the residents of Des Moines. Currently in Iowa, the Des Moines Water Works (DMWW) lawsuit has farmers, agricultural corporations, and agricultural professionals concerned about the future and who is going to be responsible for paying for water quality improvements.²⁶⁷ In 2015, DMWW decided to file a lawsuit, against the three most polluting counties in the state for nitrate run-off, concerned with the public health of the state and especially the need to build an \$80 million dollar denitrification facility.²⁶⁸ However the lawsuits turns out, it is likely, in the not so distant future, that there will be an increased cost of production that will affect corn, soybean, meat industries, and numerous agricultural companies and professionals that are reliant on these crops. If the power of corporations is just as strong in Iowa as in North Carolina than whatever happens with water quality improvements will happen very slowly and with the approval of agricultural corporations, whose profit margins are dependent on the cost of producing corn and soybeans in Iowa.

Another more direct public health concern with production practices in Iowa is the exposure to agricultural chemicals. Among other health concerns and studies, one study shows that Parkinson's disease has been linked to agricultural work and pesticide chemicals.²⁶⁹ While research continues to come out on the negative health impacts of chemical exposure, it could be

²⁶⁷ Sierra Club, "Des Moines Water Works to File Lawsuit," accessed on March 10th, 2016, <http://www.sierraclub.org/iowa/des-moines-water-works-file-lawsuit>.

²⁶⁸ Ibid.

²⁶⁹ F Kamel, "Pesticide Exposure and Self-reported Parkinson's Disease in the Agricultural Health Study," *American Journal of Epidemiology* (165) No. 4 (2007), 364-374.

decades before agricultural companies, politicians, lobbyists, farmers, and the public come to an agreement on the realities of these public health concerns. In the 1940's, the first research came out linking smoking to lung cancer.²⁷⁰ It was not until 2004 that the government finally decided to repeal its support of the crop. This just shows the complexity of a case which exhibits a strong relationship between an agricultural production system and the concern of the public health.

Future Research

Each of these four implications should be explored further: 1) How can direct-to-consumer fruit and vegetable production be tailored for the tobacco farmer and other commodity crop farmers? 2) How have the processes of urbanization effected tobacco dependent regions? 3) How does North Carolina, as an agricultural region in transition, compare to other transitioning agricultural regions, like Iowa? 4) How have tobacco communities across the Piedmont been stabilized, in terms of the current status of former tobacco farming families?

The first area for future research should be focused on the development of the fruit and vegetable industry in North Carolina for the stabilization of formerly tobacco dependent communities. While these communities have largely moved on to occupations or new agricultural industries there is still a lot of agricultural land that is suited for fruit and vegetable production that can be taken out of commodity production; fruit and vegetable production requires very little land in comparison to grain crops and can be more profitable per acre. Although the farming communities in North Carolina are heavily leaning toward commodity production systems, fruit

²⁷⁰ Robert N Proctor, "The history of the discovery of the cigarette-lung cancer link: evidentiary traditions, corporate denial, global toll," *Tobacco Control* (21) (2012), 87-91.

and vegetable production systems have continued to grow in popularity over the last decade. Health advocates are similarly pushing an agenda to get more people to eat fruits and vegetables.²⁷¹ To capitalize on this market opportunity and support from the government, researchers should absolutely be carrying out qualitative research understanding the farmer's decision making process toward innovation and transition in the fruit and vegetable industries.

Additionally, the most feasible scale production systems for the small tobacco farmer and any beginning farmer with little capital, is a small to medium sized fruit and vegetable farm. Further understanding and improving these scale production systems are one area of focus for future research. A second area, which all participants were uncertain of, is marketing. Marketing and understanding the different outlets within the fruit and vegetable supply chain is very important. Asking these farmers to develop production and marketing systems, in addition to being savvy entrepreneurs, is asking too much and it appears as if they would benefit greatly from marketing help.

A second area of future research should be geared toward understanding how urbanization affects the future of agriculture in North Carolina, for both commodity and non-commodity industries. The two major issues with urbanization for this case study are the pull from the farm to the city and the effect on the cost of agricultural land. The first issue is important because it follows the 'was it the chicken or the egg?' analogy. The industrialization and consolidation of the agriculture industry pushed the children of tobacco farmers off the farm as it became less and less feasible as a small, manual labored farm. What may be more significant is the draw to the city. The children of farmers were exposed to a different, more luxurious and cultured way of life. While this was the initial draw, it set on course the major shift away from the farm. The other issue of

²⁷¹ Centers for Disease Control and Prevention, "Adults Meeting Fruit and Vegetable Intake Recommendations – United States, 2013," last modified in 2015, <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6426a1.htm>.

urbanization has to do with the rising land prices around urban areas as a result of this shift to the city, which was largely facilitated by leaders creating jobs in the city; Research Triangle Park (RTP) is the iconic example in North Carolina. RTP is situated in the Raleigh area of the Piedmont. As it grew and more and more people were drawn to the city, the urban area around Raleigh, Durham, and Chapel-Hill expanded, running into agricultural land. This was great for some farmers who were happy to sell out to a developer and keep a few acres in the country. For the ones that wanted to continue farming this was disastrous. Residential and commercial real-estate exponentially drives up the price of land. The urbanization and suburbanization of this area continues to happen and the patchwork developments continue to affect the farmers that wish to stay in agriculture. Research should look at the nuances in these tobacco communities which have the work ethic and ability to overcome huge obstacles.

The third area of interest follows the idea that agricultural regions in transition can be put on a more reasonable path to sustainability and to what defines the family farm. While North Carolina has already gone through this process, other commodity focused agricultural regions, like Iowa, are likely to face a similar fate in the near future. It takes a substantial amount of time for society to come to terms with the correct path for the future. While there was preliminary research on the negative health impacts of tobacco in the 1940's it took decades to finally shift consumer and production habits. To expect more out of the corn and soybean reliant industries is short-sided. What can happen is to use previous experience to the benefit of current decision making; we can learn from and leverage our past. For example, knowledge of the high degree to which the decision making process of the farmer is tied to the industry to whom they market was learned on a large scale in this case study, and the case of the tobacco industry in general. The hope would be that industrial professionals realize the benefits to the farmer by encouraging the industry, government,

and farmer to pursue production practices which reduce the strain on the environment and increase the health of the public.

To further research this case study, a fourth line of reasoning would follow that it would be important to gain an understanding of the reality of the different tobacco communities in the Piedmont of North Carolina. To add to the understanding of these communities, research should aim to understand the small tobacco farmer because this size farmer is the most vulnerable and if they can succeed it goes without saying the larger farmer will succeed as well. Research aimed at understanding the current needs of these communities could be done by surveying and interviewing land owners, farmers, children of farmers, organizational leaders, and politicians to gain a deeper understanding of the issues. Currently the TTFC is advised by the legislature which only has anecdotal evidence of the problems in tobacco dependent communities. Carrying out in depth interviews can guide effective policy and program implementation. The TTFC has learned over the years how their program can be most effective and has found that their cost share programs are a great outlet. But these realizations have occurred over the span of the 20-year program. It is possible that this learning curve would be quickened through the use of in depth qualitative research; however, currently there are little funds available to the TTFC and RAFI for such inquiry.²⁷²

Additionally, these tobacco communities not only have a history of growing fruits and vegetables but they also have a history of hard work and perseverance. What better way to teach the next generation of farmers than through the lessons of a hardworking, unrelenting tobacco farmer? After all, to be a successful farmer you have to have “grit.” What the tobacco farmer may lack in forward thinking and the ability to transition they make up for in grit. Furthermore, these

²⁷² See Appendix A for TTFC program fund comparison. Also both the RAFI and TTFC representatives spoke of the little funding available for program evaluation, which would be the qualitative research component.

tobacco farmers are not going anywhere. While they may have down-sized their land holdings they are still there and some of them like to share their experiences. For the next generation of farmers, they are the perfect leader; following the old adage, ‘take everything you hear with a grain of salt,’ and this applies to everyone. It is in the best interest of these tobacco communities to utilize the experiences of tobacco farmers. Among the participants, while they may be apprehensive about the new millennial generation some would absolutely lend an ear and their advice.

REFERENCES

- Adams, Frank and William R. Finger. "Vegetable and Fruit Crops: Viable Alternatives for Tobacco Farmers". In *The Tobacco Industry in Transition: Policies for the 1980s*. Lexington, Mass.: Lexington Books, 1981, 99.
- Ajzen, Icek. "The Theory of Planned Behavior." *Organizational Behavior and Human Decision Process* 50 (1991), 179-211.
- Ajzen, Icek and M. Fishbein. "Belief, Attitude, Intention and Behavior: Introduction to Theory and Research." (Readings, Massachusetts: Addison-Wiley, 1975).
- Alberg Anthony J., Donald R. Shopland, and K. Michael Cummings. "The 2014 Surgeon General's Report: Commemorating the 50th Anniversary of the 1964 Report of the Advisory Committee to the US Surgeon General and Updating the Evidence on the Health Consequences of Cigarette Smoking." *American Journal of Epidemiology* 179, no. 4 (2014): 403–12, doi:10.1093/aje/kwt335.
- Altman, David G., Mark H. Smith, Brad Strunk. "Readiness to Change: Newspaper Coverage of Tobacco Farming and Diversification," *Health Education Behavior* (27) No. 6 (2000), 708-724.
- Altman, David G., Daniel J Zaccaro, Douglas W Levine, David Austin, Carol Woodell, Betty Bailey, Michael Sligh, Gerry Cohn, and James Dunn. "Predictors of crop diversification: a survey of tobacco farmers in North Carolina (USA)." *Tobacco Control* 7 (1998): 376-382.
- Altman David G., Douglas W. Levine, George Howard, and Hal Hamilton. "Tobacco farmers and diversification: opportunities and barriers." *Tobacco Control* 5 (1996): 192-198.
- Amberg, Robert. "Rural Advancement Fund Celebrates 50 Years of Farm Advocacy." *Southern Changes* 9, no. 5 (1987): 11–15.
- Arvor Damien, Meirelles Margareth, Vincent Dubruil, Agnes Begue, and Shimabukuro Yosio E. Analyzing the agricultural transition in Mato Grosso, Brazil, using satellite-derived indices. *Applied Geography*, Elsevier, (2012) 32: 702-713. Accessed on December 30, 2015.
- Austin, David W. and David Altman. Rural Economic Development vs. Tobacco Control? Tensions Underlying the Use of Tobacco Settlement Funds. *Journal of Public Health Policy*, Vol 21. No. 2 (2000): 129-156.
- Baker, G.L. "Price-support and Adjustment Programs from 1933 through 1978: A Short History." In USDA Agricultural Information Bulletin No. 424. Washington, DC, 1978.

- Beach, Robert H., Alison Snow Jones and Janet A. Tooze. "Tobacco Farmer Interest and Success in Income Diversification." *Journal of Agricultural and Applied Economics* 40, no. 1 (2008), 53-71.
- Benson, Peter. *Tobacco Capitalism: Growers, Migrant Workers, and the Changing Face of a Global Industry*. New York: Princeton University Press, 2012.
- Berardi, Gigi and William R. Finger. "Can Tobacco Farmers Adjust to Mechanization? A Look at Allotment Holders in Two North Carolina Counties." In *The Tobacco Industry in Transition: Policies for the 1980s*. Lexington, Mass.: Lexington Books, 1981 47-62.
- Bohnet, Iris, Clive Potter and Eunice Simmons. "Landscape change in the multi-functional countryside: a biographical analysis of farm decision-making in the English high weald." *Landscape Research* (28) no. 4 (2003), 349-364.
- Bowen, Sarah. The Importance of Place: Re-territorialising Embeddedness. *Sociologia Ruralis*, Vol 51, 4, (2011): 325-348.
- Brown, Blake. "The End of the Tobacco Transition Payment Program." Last modified November 14, 2013. <https://tobacco.ces.ncsu.edu/wp-content/uploads/2013/11/The-End-of-the-Tobacco-Transition-Payment-Program.pdf?fwd=no>.
- and Will Snell, *U.S. Tobacco Situation and Outlook*. October, 2011. <http://tobacco.ces.ncsu.edu/wp-content/uploads/2012/07/Oct-2011-Tobacco-Outlook.pdf?fwd=no>.
- Burns, Eric. *Smoke of the Gods: A Social History of Tobacco*. Temple University Press: Philadelphia (2007): 1-244.
- Centers for Disease Control and Prevention. "Adults Meeting Fruit and Vegetable Intake Recommendations – United States, 2013." Last modified in 2015, <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6426a1.htm>.
- Charleston, Donnie. "Feeding the Hog Industry in North Carolina: Agri-Industrial Restructuring in Hog Farming and Its Implications for the US Periphery." *Sociation Today* 2, no. 1 (2004), 1-19.
- Clark, Julian. "Entrepreneurship and diversification on English farms: Identifying business enterprise characteristics and change processes." *Entrepreneurship & Regional Development* 21, No. 2 (2009), 213-236.
- Come to the Table Conference: Piedmont Region 2015. Elon Community Church. May 28, 2015.
- Conservation Fund. "North Carolina." Accessed on April 14, 2016. <http://www.conservationfund.org/where-we-work/north-carolina>.

- Cousin, Glynis. "Case Study Research." *Journal of Geography in Higher Education* 29, No. 3, (2005): 421-427.
- Crop Insurance: Keep America Growing. "How did the 2014 Farm Bill change crop insurance?" Accessed on March 10th, 2016. <http://www.cropinsuranceinamerica.org/just-the-facts/how-does-the-2014-farm-bill-change-crop-insurance-2/#.VvIjLfsrLDc>.
- Curtis, Randy. Interview by author. Digital recording. North Carolina Piedmont. July 3rd, 2015.
- Department of Crop Science. "NCSU Tobacco." NC State University. Accessed January 26, 2016. <http://www.tobacco.ncsu.edu/>.
- Deary, J. Ian, Joyce Willock, and Murray MCGregor. "Stress in Farming," *Stress Medicine* 13, (1997): 131-136.
- Dimitri, Carolyn, Anne Effland, and Neilson Conklin. "The 20th Century Transformation of U.S. Agriculture and Farm Policy," Accessed March 19, 2016. <http://ageconsearch.umn.edu/bitstream/59390/2/eib3.pdf>.
- "Pride in Tobacco' Rally Scheduled for This Friday." *The Dispatch*. January 26, 1979.
- Donald Drake. Interview by author. Digital recording. Alamance Extension Office. July 2nd, 2015.
- Eastern Carolina Organics, "What We Do," accessed on March 29, 2016, <http://www.easterncarolinaorganics.com/about.php#how+we+started>.
- Edward-Jones, G. "Modelling farmer decision-making concepts, progress and challenges." *Animal Science* (82) no. 6 (2006): 783-790.
- Edward-Jones and M.J. McGregor. "The necessity, theory and reality of developing models of farm households." In *Rural and farming systems analysis – European Perspectives*. United Kingdom: CAB, 1994.
- Federer, Rodger. Interview by author. Digital recording. Piedmont. July 4th, 2015.
- Frank, Alex. Interview by author. Digital recording. Piedmont. July 4th, 2015.
- Friedland, William, Alessandro Bonanno, Lawrence Busch, Lourdes Gouveia, and Enzo Mingione. "The New Globalization: Fresh Produce," In *From Columbus to ConAgra: The Globalization of Agriculture and Food*. Lawrence, Kansas.: University Press of Kansas, 1994.
- Furuseth, "Restructuring of Hog Farming in North Carolina: Explosion and Implosion," *Professional Geographer*, 49, No. 4 (1997), 391-403.

- Gale Jr., H. Frederick, Linda Foreman, and Thomas Capehart. Tobacco and the Economy: Farms, Jobs, and Communities. *Economic Research Service, U.S. Department of Agriculture, Agricultural Economic Report No. 789*: Washington D.C. (2000): 1-37.
- Gentilini, Ugo and Andy Sumner. What Do National Poverty Lines Tell Us About Global Poverty? *Institute of Development Studies*. IDS Working Paper 392. Accessed December 30, 2015.
- Guillory, Ferrell and William R. Finger. "The Politics of Tobacco in North Carolina: A Load Not Easy to Be Borne". In *The Tobacco Industry in Transition: Policies for the 1980s*. Lexington, Mass.: Lexington Books, 1981.
- Granovetter, Mark. "Economic Action and Social Structure: The Problem of Embeddedness." *American Journal of Sociology* 91, no. 3 (1985): 481-510. Accessed December 28, 2015.
- Grannovetter, Mark. "The Strength of Weak Ties." *American Journal of Sociology* 78, No. 6 (1973): 1360-1380.
- Hart, John Fraser. "The Initial Impact of the Tobacco Buyout Program." *Geographical Review* 101, no. 3 (2011): 447–57, doi:10.1111/j.1931-0846.2011.00107.x.
- Hart, John Fraser and Ennnis L Chestang. "Turmoil in Tobaccoland." *Geographical Review* 86, no. 4 (1996): 550–72.
- Higgins, Vaughan, Dibden Jacqui and Chris Cocklin. Building alternative agri-food networks: Certification, embeddedness and agri-environmental governance. *Journal of Rural Studies* 24 (2008): 15-27.
- Houle, Jason N. and Martin, Molly A. Does intergenerational mobility shape psychological distress? Sorokin revisited. *Department of Sociology & Population Research Institute* 29(2) (2011): 193-203.
- Internal Revenue Service. "Farmers (ATG) Chapter Ten – Tobacco (May 2011)." Accessed September 21, 2015. <http://www.irs.gov/Businesses/Small-Businesses-&Self-Employed/Farmers-ATG-Chapter-Ten-Tobacco-1>.
- Irwin, M., C. Tolbert, and T. Lyson. "There's no place like home: nonmigration and civic engagement," *Environment and Planning A* 31 (1999), 2223-2238.
- Jason Koebler. "10 Areas with the Largest Metro Growth." Accessed on March 20th. <http://www.usnews.com/news/articles/2011/04/06/10-metro-areas-with-the-largest-population-growth>.
- Kamel, F., CM Tanner, DM Umbach, JA Hoppin, MCR Alavanja, A Blair, K Comyns, SM Goldman, M Korell, JW Langston, GW Ross, and DP Sandler, "Pesticide Exposure and

- Self-reported Parkinson's Disease in the Agricultural Health Study," *American Journal of Epidemiology* (165) No. 4 (2007), 364-374.
- Kenny, Gavin. Adaptation in agriculture: lessons for resilience from eastern regions of New Zealand. *Climate Change* (2011) 106: 441-462.
- Kilborn, Peter T. "Clinton Approves a Series of Curbs on Cigarette Ads." Accessed on November 15th, 2015. <http://www.nytimes.com/1996/08/24/us/clinton-approves-a-series-of-curbs-on-cigarette-ads.html>
- Hugh C Kiger and Blake Brown, *U.S. Flue-Cured Tobacco Situation & Outlook*. prepared at North Carolina State University, 2015, <http://tobacco.ces.ncsu.edu/wp-content/uploads/2015/02/TGANC-2015.pdf?fw=no>.
- Janofsky, Michael. "Tobacco Growers Bemoan Clinton Smoking Proposal." Last modified August 12, 1995. <http://www.nytimes.com/1995/08/12/us/tobacco-growers-bemoan-clinton-smoking-proposal.html>.
- Kearney, Gregory D., Ann P. Rafferty, Lauren R. Hendricks, Daniel Landon Allen, and Robin Tutor-Marcom. "A Cross-Sectional Study of Stressors Among Farmers in Eastern North Carolina," *NC Medical Journal* (75) No 6 (2014), 384-392.
- Lilly, J. Paul. "Agricultural History of North Carolina." North Carolina Department of Agriculture. Accessed on March 9, 2016. <http://www.ncagr.gov/stats/general/history.htm>.
- Lobao, Linda and Katherine Meyer. "The Great Agricultural Transition: Crisis, Change, and Social Consequences of Twentieth Century US Farming." *Annual Review of Sociology* 27, no. 1 (2001):103-24.
- Low, Sarah A., Aaron Adalja, Elizabeth Beaulieu, Nigel Key, Steve Martinez, Alex Melton, Agnes Perez, Katherine Ralston, Hayden Stewart, Shelley Suttles, Stephen Vogel, and Becca B.R. Jablonski. Trends in U.S. Local and Regional Food Systems, AP-068, U.S. Department of Agriculture, Economic Research Service, January 2015.
- Matthew Milestone. Interview by author. Digital recording. North Carolina Piedmont. July 2nd, 2015.
- Merriam, Sharon B. *Qualitative Research: A Guide to Design and Implementation*. San Francisco, CA: Jossey-Bass, 2009.
- Migliore, Giuseppina, Schifani G., Gucciono G.D., and Luigi C Food Community Networks as Leverage for Social Embeddedness. *Agricultural Environmental Ethics* (2014) 27: 549-567. Accessed on January 20, 2016.

- Migliore, Giuseppina, Francesco C., Alessia L., Giorgio S, and Luigi C. Farmers' Participation in Civic Agriculture and the Effect of Social Embeddedness (2014). *The Journal of Culture & Agriculture* 36, Issue 2, (2014): 105-117.
- The National Agricultural Law Center. "Farm Commodity Programs: An Overview" Accessed March 6, 2016. <http://nationalaglawcenter.org/overview/commodity-programs/>.
- National Library of Medicine. "The Reports of the Surgeon General The 1964 Report on Smoking and Health." Accessed on December 3rd, 2015. <https://profiles.nlm.nih.gov/ps/retrieve/Narrative/NN/p-nid/58>.
- National Research Council's Committee on Twenty-First Century Systems Agriculture. "A Pivotal Time in Agriculture," in *Toward Sustainable Agriculture Systems in the Twenty-First Century*, 43-48. Washington D.C.: Joseph Henry Press, 2010.
- National Research Council's Committee on Twenty-First Century Systems Agriculture. "Executive Summary," in *Toward Sustainable Agriculture Systems in the Twenty-First Century*, 12. Washington D.C.: Joseph Henry Press, 2010.
- NC Agricultural Development & Farmland Preservation Trust Fund. "Celebrating Ten Years of Farmland Preservation." Accessed on April 14, 2016. <http://www.ncadfp.org/>.
- North Carolina Pork Council, "Mission and History," accessed on November 10th, 2015, <http://www.ncpork.org/about/mission-history/>.
- Office of the Surgeon General. Surgeon General's Advisory Committee on Smoking and Health. Smoking and Health: Report of the Advisory Committee to the Surgeon General of the Public Health Service, 1964.
- Parmentier, Stephane. Scaling-Up Agroecological Approaches: What, Why and How? (2014). Oxfam Solidarity. Accessed on December 26, 2015. Retrieved from: <http://static1.squarespace.com/static/52f220cbe4b0ee0635aa9aac/t/530e1c9ee4b06c2c32936b66/1393433758888/1390912349733-201401+Scaling-up+agroecology%2C+what%2C+why+and+how+-OxfamSol-FINAL.pdf>.
- Pettet, Zellmer R. Sixteenth Census of the United States, 1940. Washington, D.C.: U.S. Dept. of Commerce, Bureau of the Census:, 1941.
- PolicyLink, "Equitable Development Toolkit: Local Food Procurement," accessed on March 28, 2016, https://www.policylink.org/sites/default/files/edtk_local-food-procurement.pdf.
- Proctor, Robert N. "The history of the discovery of the cigarette-lung cancer link: evidentiary traditions, corporate denial, global toll," *Tobacco Control* (21) (2012), 87-91.

- Rabin, Robert L. "The Third Wave of Tobacco Tort Litigation." In *Regulating Tobacco*. New York: Oxford University Press, 2001.
- Rural Advancement Foundation International. "History of RAFI-USA." Accessed on September 10th, 2015. <http://rafiusa.org/aboutus/history/>.
- Rural Advancement Foundation International. "About Us." Accessed on February 6th, 2016. <http://rafiusa.org/aboutus/>.
- Rural Advancement Foundation International. "Agricultural Reinvestment Fund." Accessed September 10th 2015. <http://rafiusa.org/grants/>.
- City of Raleigh. "Past Raleigh Population and Acreage Data Since 1800." Accessed on March 20th, 2016. Google search "Raleigh north Carolina population 1950."
- Regmi, Anita. "The push-pull effects of urbanization on agriculture." Accessed on March 30, 2016. <Http://www.cgiar.org/consortium-news/the-push-pull-effects-of-urbanization-on-agriculture/>.
- Rogers, M. Everett. *Diffusion of Innovations*. New York: Free Press, 1962.
- Russo, Richard A. "Local Food Initiatives in Tobacco Transitions of the Southeastern United States," *Southeastern Geographer* 52, no. 1 (2012): 55–69, doi:10.1353/sgo.2012.0001.
- Saldaña, Johnny. "The Coding Manual for Qualitative Researchers." Thousand Oaks, CA: SAGE, 2014.
- Satterthwaite, David, Gordon McGranahan, and Cecilia Tacoli. "Urbanization and its implications for food and farming." *Philosophical Transactions of the Royal Society*, 365, (2010): 2809-2820.
- Schroeder, Steven A. M.D. "Tobacco Control in the Wake of the 1998 Master Settlement Agreement." *The New England Journal of Medicine* 350 No. 3 (2004): 293-301.
- Sharkey, Joe. "What Flying Was Like Before the Smoke Cleared." February 23, 2015. <http://www.nytimes.com/2015/02/24/business/what-airlines-were-like-before-the-smoke-cleared.html>.
- Sierra Club. "Des Moines Water Works to File Lawsuit." Accessed on March 10th, 2016. <http://www.sierraclub.org/iowa/des-moines-water-works-file-lawsuit>.
- Simon, Stacey. "Celebrating 25 Years of No Smoking in Airplanes." Article date: February 25, 2015. <http://www.cancer.org/cancer/news/features/celebrating-25-years-of-no-smoking-in-airplanes>.

- Smit, Barry and Mark W. Skinner, "Adaptation Options in Agriculture to Climate Change: A Typology," *Mitigation and Adaptation Strategies for Global Change* (7) (2002), 85-114.
- Sonnino, Roberta. Embeddedness in action: Saffron and the making of the local in southern Tuscany. *Agriculture and Human Values*, 24 (2007): 61-74. Accessed December 28, 2015.
- Strader, William and Antoine J. Alston. "North Central Piedmont North Carolina Tobacco Producers' Views Towards The Federal Tobacco Quota Buyout," *Journal of Extension* (47) No. 4 (2009): 1-11.
- Stake, Robert E. *The Art of Case Study Research*. Thousand Oaks, CA: Sage, 1995.
- Sunday, Charles. Interview by author. Digital recording. Piedmont. July 8th, 2015.
- Sunding, David and David Zilberman. "The Agricultural Innovation Process: Research and Technology Adoption in a Changing Agricultural Sector." <http://www.cpahq.org/cpahq/cpadocs/Agricult%20Innovation.pdf>
- Sutherland, Lee-Ann, Rob J.F. Burton, Julie Ingram, Kirsty Blackstock, Bill Slee and Nick Gotts. "Triggering change: Towards a conceptualization of major change processes in farm decision-making" *Journal of Environmental Management* 104 (2012): 142-151.
- Tobacco Farm Life Museum. Tobacco farming the old way. *Learn NC: North Carolina Digital History* (2008). Retrieved from <http://www.learnnc.org/lp/editions/nchist-newsouth/4386>.
- Tobacco Trust Fund Comission. "Mission." Accessed on March 13, 2016. <http://tobaccotrustfund.org/>.
- Tolbert, Charles M., Thomas A. Lyson, and Michael D. Irwin. "Local Capitalism, Civic Engagement, and Socioeconomic Well-Being." *Social Forces* (77) No. 2 (1998), 401-427.
- Tollefson, Jeff. A Light in the Forest: Brazil's Fight to Save the Amazon and Climate-Change Diplomacy. *Foreign Affairs*, 92.2 (2013): 141-151.
- Triangle Land Conservancy. "Improving Our Lives Through Conservation: 2014-15 Annual Report." Accessed on April 14, 2016. https://www.triangleland.org/cms/wp-content/uploads/2015/12/TLC_AR15.pdf.
- Underwood, Wade and Jack Johnson. Phone interview by author. July 3rd, 2015.
- U.S. Bureau of the Census, *1940 Census of Agriculture*, "Vegetables Harvested For Sale, Farm Gardens, And Horticultural Specialties." Washington D.C.: U.S. Bureau of the Census.

- U.S. Bureau of the Census, *1940 Census of Agriculture, Farms and Farm Acreage, By Color And By Tenure Of Operator, And By Size Of Farm, 1910 to 1940; And Farm Land According To Use, 1924 to 1939.* Washington D.C.: U.S. Bureau of the Census.
- U.S. Bureau of the Census, *United States Census of Agriculture: 1950.* North Carolina Chapter A Statistics for the State. Washington D.C.: Bureau of the Census.
- U.S. Bureau of the Census. *United States Census of Agriculture: 1954.* “Statistics for the State: Specified Crops Harvested Census of 1920 to 1954.”
- U.S. Bureau of the Census, *1978 United States Census of Agriculture.* Farms, Land in Farms, and Land Use: 1945 to 1978. Washington D.C.: Bureau of the Census.
- . *1978 United States Census of Agriculture.* Market Value of Agricultural Products Sold: 1978, 1974, and 1969. Washington D.C.: Bureau of the Census.
- . *1978 United States Census of Agriculture.* Livestock and Poultry – Inventory and Sales: 1978, 1974, and 1969. Washington D.C.: Bureau of the Census.
- . *1978 United States Census of Agriculture.* Crops Harvested: 1978 and 1974. Washington D.C.: Bureau of the Census.
- . *1978 United States Census of Agriculture.* Hogs and Pigs – Inventory and Sales: 1978. D.C.: Bureau of the Census.
- . *1978 United States Census of Agriculture.* Poultry – Inventory and Sales: 1978. Washington D.C.: Bureau of the Census.
- U.S. Bureau of the Census. *1987 United States Census of Agriculture.* Historical Highlights: 1987 and Earlier Census Years. Washington D.C.: Bureau of the Census.
- . *1987 United States Census of Agriculture.* Market Value of Agricultural Products Sold: 1987, 1982, and 1978. Washington D.C.: Bureau of the Census.
- U.S. Bureau of the Census. *1992 United States Census of Agriculture.* Historical Highlights: 1992 and Earlier Census Years. Washington D.C.: Bureau of the Census.
- . *1992 United States Census of Agriculture.* Market Value of Agricultural Products Sold and Direct Sales: 1992, 1987, and 1982. Washington D.C.: Bureau of the Census.
- . *1992 United States Census of Agriculture.* Land Use and Acres Diverted: 1992 and 1987. Washington D.C.: Bureau of the Census.
- . *1992 United States Census of Agriculture.* Land in Farms, Harvested Cropland, and Irrigated Land, by Size of Farm: 1992 and 1987. Washington D.C.: Bureau of the Census.

U.S. Bureau of the Census. *2002 United States Census of Agriculture*. Historical Highlights: 2002 and Earlier Census Years. Washington D.C.: Bureau of the Census.

U.S. Bureau of the Census. *2007 Census of Agriculture*. Historical Highlights: 2007 and Earlier Census Years. Washington D.C.: Bureau of the Census.

-----, *2007 Census of Agriculture*. Market Value of Agricultural Products Sold Including Landlord's Share and Direct Sales: 2007 and 2002. Washington D.C.: Bureau of the Census.

U.S. Bureau of the Census. *2012 Census of Agriculture*. Historical Highlights: 2012 and Earlier Census Years. Washington D.C.: Bureau of the Census.

-----, *2012 United States Census of Agriculture*. Market Value of Agricultural Products Sold Including Landlord's Share and Direct Sales: 2012 and 2007. Washington D.C.: Bureau of the Census.

-----, *2012 United States Census of Agriculture*. State Summary Highlights: 2012. Washington D.C.: Bureau of the Census.

-----, *2012 United States Census of Agriculture*. Historical Highlights: 2014 and Earlier Census Years. Washington D.C.: Bureau of the Census.

-----, *2012 United States Census of Agriculture*. Value of Horticulture Crops Sold: 2014. Washington D.C.: Bureau of the Census.

-----, *2012 United States Census of Agriculture*. Value of Horticultural Specialty Crops Sold by Marketing Channels: 2014. Washington D.C.: Bureau of the Census.

-----, *2012 United States Census of Agriculture*. Value of Horticulture Crops Sold: 2014. Washington D.C.: Bureau of the Census.

U.S. Bureau of the Census. "*Resident Population and Apportionment of the U.S. House of Representatives*. (Washington, DC, 2000).

<https://www.census.gov/dmd/www/resapport/states/northcarolina.pdf>.

USDA, "2015 State Agriculture Overview." Accessed on April 5, 2016.

http://www.nass.usda.gov/Quick_Stats/Ag_Overview/stateOverview.php?state=NORTH%20CAROLINA.

USDA. "Dietary Guidelines for Americans 2015 – 2020." accessed on April 14, 2016.

<http://www.choosemyplate.gov/dietary-guidelines>.

USDA. "Trends in U.S. Local and Regional Food Systems: A Report to Congress." January 2015. http://www.ers.usda.gov/media/1763062/ap068_report-summary.pdf.

- Usda-Ams. "USDA Definition of Specialty Crops." Last modified in 2012.
<http://www.ams.usda.gov/AMSV1.0/scbgpdefinitions>.
- USDA Farm Service Agency. "About the Commodity Credit Corporation." Accessed September 21, 2015. <http://www.fsa.usda.gov/about-fsa/structure-and-organization/commodity-credit-corporation/index>.
- USDA. "Local Foods." Accessed on March 20th, 2016. <http://www.ers.usda.gov/topics/food-markets-prices/local-foods.aspx>.
- USDA. "Organic Agriculture." Accessed on March 20th, 2016.
<http://www.usda.gov/wps/portal/usda/usdahome?contentidonly=true&contentid=organic-agriculture.html>.
- USDA. "Specialty Crop Block Grants." Accessed on March 20th, 2016.
<https://www.ams.usda.gov/services/grants/scbgp>.
- USDA. "Statistics for the State: Specified Crops Harvested Census of 1920 to 1954." U.S. Dept. of Commerce, Bureau of the Census (1954): 48–53. Price is adjusted for inflation using <http://data.bls.gov/cgi-bin/cpicalc.pl>.
- U.S. Government, 2014 Farm Bill, <https://www.gpo.gov/fdsys/pkg/BILLS-113hr2642enr/pdf/BILLS-113hr2642enr.pdf>
- Vance, Rickie. Interview by author. Digital recording. Piedmont. July 8th, 2015.
- Wadler, Joyce. "Making Ends Meet in the Great Depression." Accessed on March 15th, 2016.
http://www.nytimes.com/2009/04/02/garden/02depression.html?_r=0
- Waters, Jill and Bob Pilot. Interview by author. Digital recording. North Carolina Piedmont, July 7th, 2015.
- Walters, Jared. Interview by author. Digital recording. North Carolina Piedmont. July 2nd, 2015.
- Willock, Joyce, Ian J. Deary, Murray M. McGregor, Alister Sutherland, Gareth Edwards-Jones, Oliver Morgan, Barry Dent, Robert Grieve, Gavin Gibson, Elizabeth Austin. Farmer's Attitudes, Objectives, Behaviors, and Personality Traits: The Edinburgh Study of Decision Making on Farms. *Journal of Vocational Behavior* 54, no. 1 (1999): 5-36.
- Willock, Joyce, Ian J. Deary, Murray M. McGregor, Alister Sutherland, Gareth Edwards-Jones, Oliver Morgan, Barry Dent, Robert Grieve, Gavin Gibson, Elizabeth Austin. "The Role of Attitudes and Objectives in Farmer Decision Making: Business and Environmentally-Oriented Behavior in Scotland," *Journal of Agricultural Economics* 50, No. 2 (1999), 286-303.

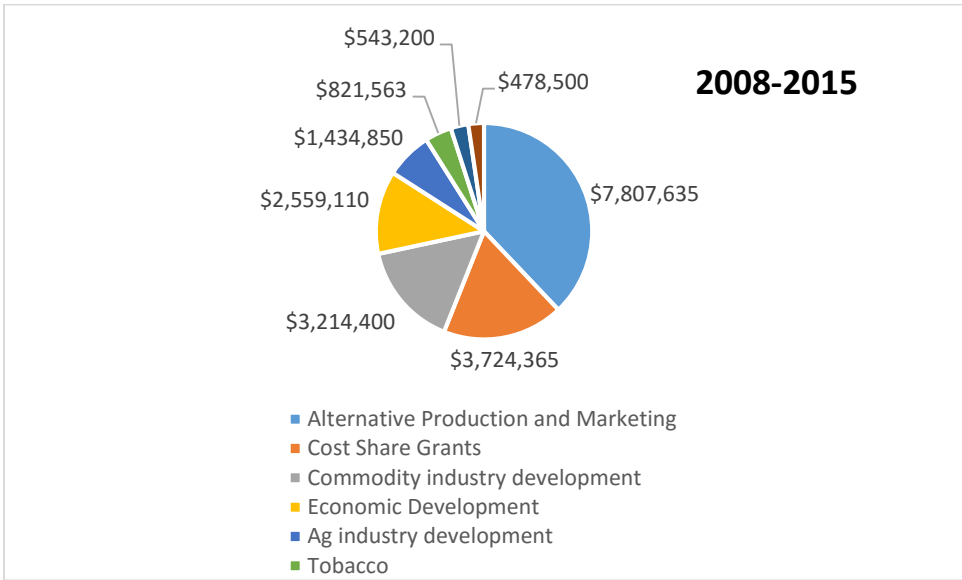
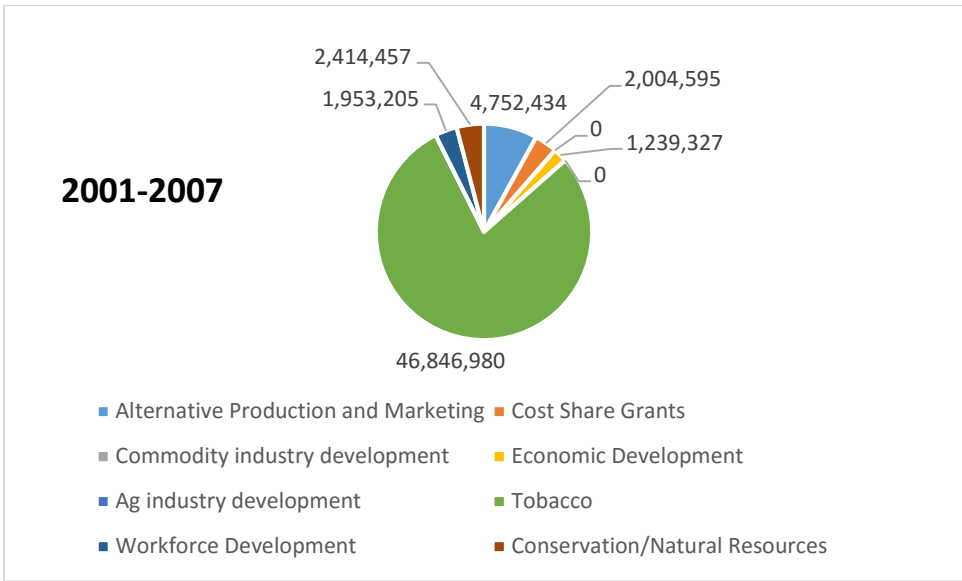
Wilson, Geoff A. *Multifunctional Agriculture: A Transition Theory Perspective*. Cambridge: CAB International, 2007.

Yin, Robert. *Case Study Research: Design and Methods*. New York: Sage, 2014. Kindle edition.

Zhang, Ping and Corinne Husten. "Impact of the Tobacco Price Support Program on Tobacco Control in the United States." *Tobacco Control* 7, no. 2 (1998): 176–82.
doi:10.1136/tc.7.2.176.

APPENDIX A

TTFC PROJECT DISTRIBUTION



APPENDIX B
INTERVIEW PROTOCOLS

Farmer Semi-structured Interview Protocol

What are you currently growing, raising or producing?

Where do you sell your products now?

When did you or your family get out of the tobacco industry?

How long had your family been growing tobacco?

Why did you stop growing tobacco?

What were the pros and cons of growing tobacco?

What are the pros and cons of the type of farming you are doing now?

Why did you/your family get out of the tobacco industry?

What factors influenced the transition from tobacco to what you produce today?

What role did incentives play in your decision to get out of tobacco farming?

Were incentives available? Did you receive any funds?

Organizational Leader Semi-structured Interview Protocol

Could you please describe your position with your organization?

How is your organization involved in the tobacco industry in North Carolina?

What has happened to the majority of tobacco farmers over the past 25 years? New industries – like vegetable production? Sold their land?

What was driving the process for MSA money disbursement in the late 1990's?

How has your organization helped ex-tobacco farmers transition to new industries?

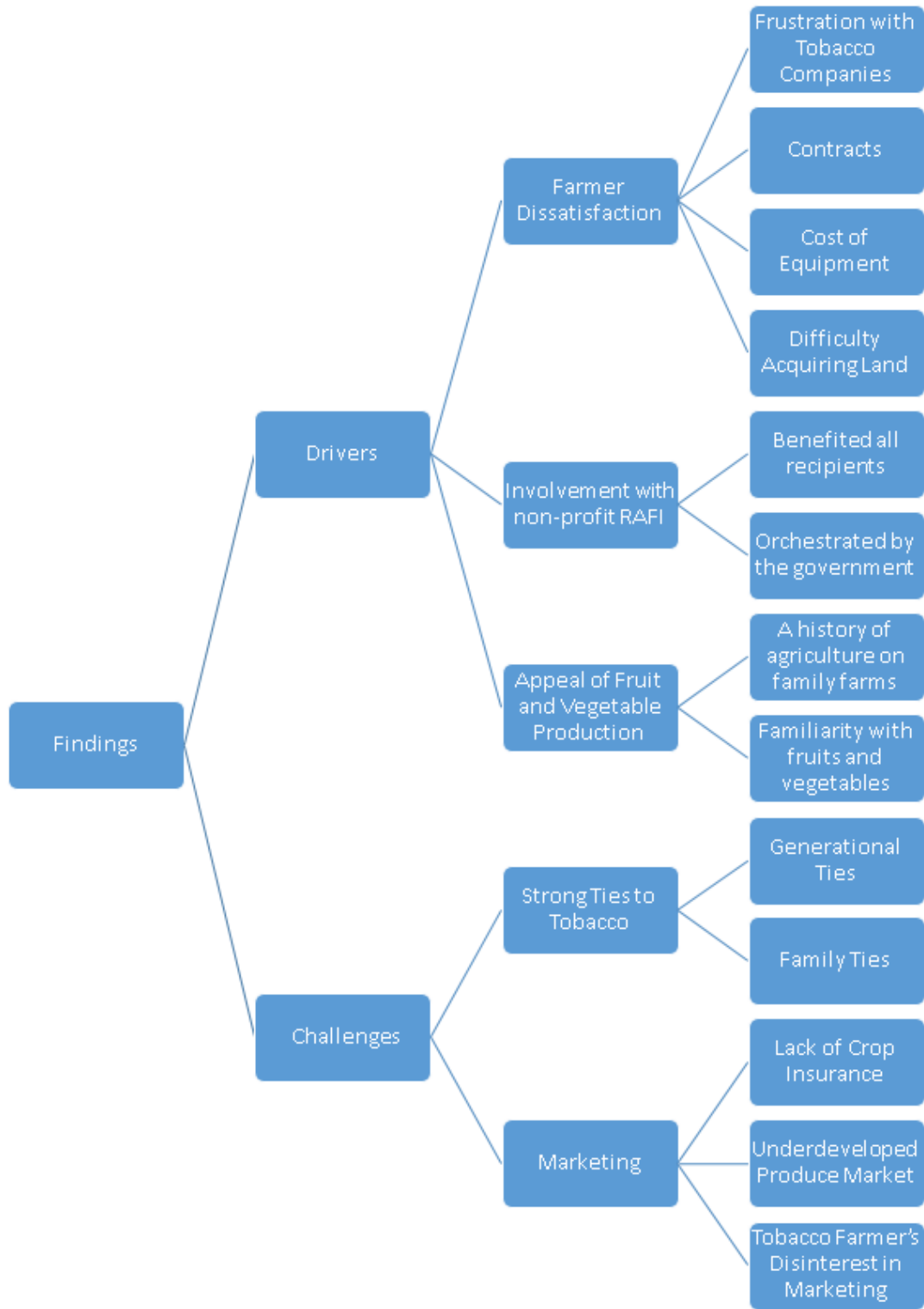
Among ex-tobacco farmers that are still farming what is the major industry – vegetables?

- If it is vegetables, what are the major avenues for vegetable distribution?

Was the tobacco buyout a significant factor in ex-tobacco farmers staying farmers?

How could other agricultural industries learn from the story of ex-tobacco farmers in North Carolina? Corn subsidies?

APPENDIX C
DIAGRAM OF FINDINGS



APPENDIX D
DIAGRAM OF DISCUSSION



APPENDIX E
IRB APPROVAL FORM

IOWA STATE UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Institutional Review Board
Office for Responsible Research
Vice President for Research
1138 Pearson Hall
Ames, Iowa 50011-2207
515 294-4566
FAX 515 294-4267

Date: 5/20/2015

To: Joshua Lang
350 E Locust St. #305
Des Moines, IA 50309

CC: Dr. Carlton Basmajian
126 Design

From: Office for Responsible Research

Title: Transitioning North Carolina Tobacco Farmers

IRB ID: 15-266

Approval Date: 5/19/2015 **Date for Continuing Review:** 5/18/2017

Submission Type: New **Review Type:** Full Committee

The project referenced above has received approval from the Institutional Review Board (IRB) at Iowa State University according to the dates shown above. Please refer to the IRB ID number shown above in all correspondence regarding this study.

To ensure compliance with federal regulations (45 CFR 46 & 21 CFR 56), please be sure to:

- **Use only the approved study materials** in your research, including the recruitment materials and informed consent documents that have the IRB approval stamp.
- **Retain signed informed consent documents for 3 years after the close of the study**, when documented consent is required.
- **Obtain IRB approval prior to implementing any changes** to the study by submitting a Modification Form for Non-Exempt Research or Amendment for Personnel Changes form, as necessary.
- **Immediately inform the IRB of (1) all serious and/or unexpected adverse experiences** involving risks to subjects or others; and (2) **any other unanticipated problems** involving risks to subjects or others.
- **Stop all research activity if IRB approval lapses**, unless continuation is necessary to prevent harm to research participants. Research activity can resume once IRB approval is reestablished.
- **Complete a new continuing review form** at least three to four weeks prior to the **date for continuing review** as noted above to provide sufficient time for the IRB to review and approve continuation of the study. We will send a courtesy reminder as this date approaches.

Please be aware that IRB approval means that you have met the requirements of federal regulations and ISU policies governing human subjects research. **Approval from other entities may also be needed.** For example, access to data from private records (e.g. student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. **IRB approval in no way implies or guarantees that permission from these other entities will be granted.**

Upon completion of the project, please submit a Project Closure Form to the Office for Responsible Research, 1138 Pearson Hall, to officially close the project.

Please don't hesitate to contact us if you have questions or concerns at 515-294-4566 or IRB@iastate.edu.