

# NCSU Study Indicates Support for Small/Mid-Scale Farms Important for Maintaining North Carolina Farmland Asset Base

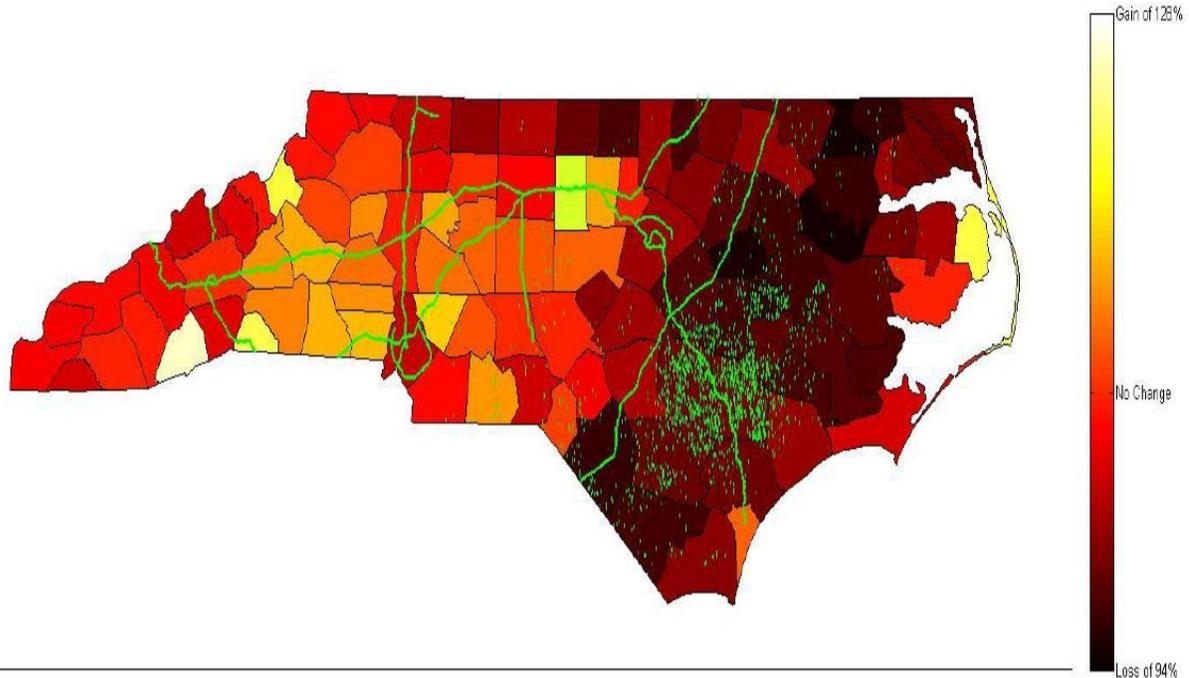
## A Study of Historical Land Use Change in North Carolina

Chapter excerpt from: Marticorena, Drew. 2015. Statistical Analyses of Diverse Issues in Sustainable Agriculture. Dissertation. North Carolina State University Department of Horticulture.<sup>1</sup>

### Background

Over the past 60 years, over half the farmland in North Carolina<sup>2</sup> has moved out of farms and into other land uses, making North Carolina one of the leading states in terms of the net percentage of 1950's farmland lost to different land uses. This has occurred across the state with the majority occurring in the eastern Coastal Plain. See map, below.

**Percentage change in number of farms at the county level, NC, 1975-2011. Green lines are the state's interstate system, green dots are locations of registered CAFO operations.**



<sup>1</sup> For more information about this research, contact Drew Marticorena at [drewmarticorena@awhere.com](mailto:drewmarticorena@awhere.com).

<sup>2</sup> ~9,500,000 acres lost with ~8,414,000 still in production (Agricultural Census, 2014; Lilly, 1998)

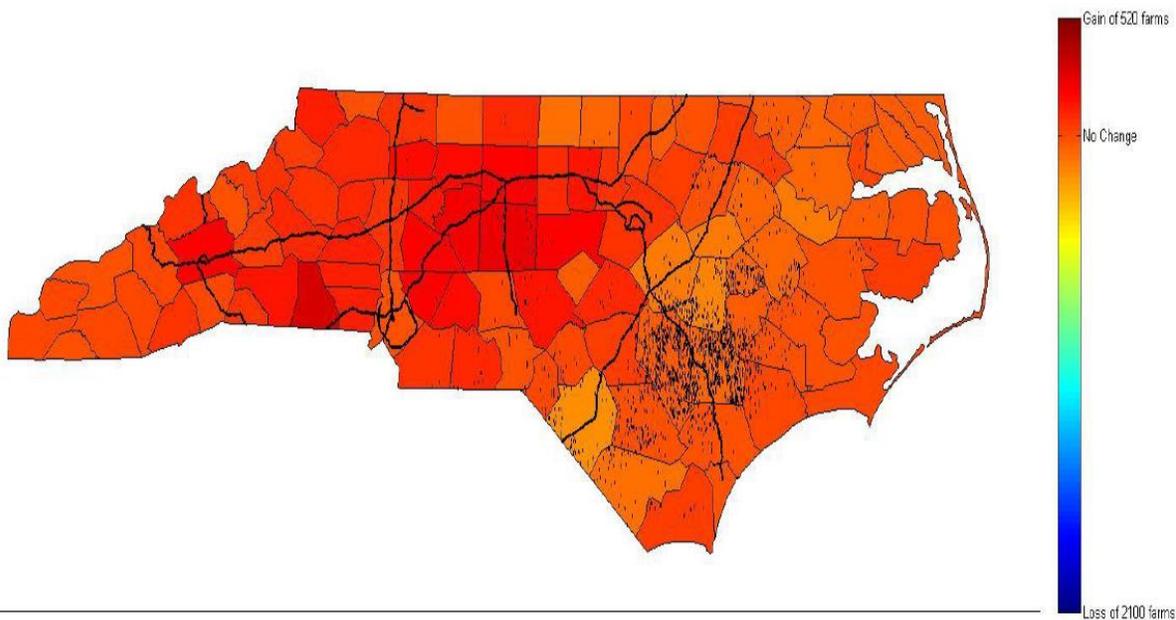
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*those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.*

Within the state of North Carolina there is a growing interest in farmland preservation for a number of unique but interconnected reasons. These include maintaining the rural landscape and culture (American Farmland Trust, 2007), limiting the growth of the cost of public services by not allowing urban sprawl to continue unabated (Carruthers, 2003; Renkow, 2007), maintaining the current provision of ecosystem services (Cong et al, 2014), providing areas suitable for the training of the United States Armed Services (Market Based Conservation Initiative, 2014; Cumberland County, NC: Model Easement, 2014), keeping farmland in peri-urban areas in order to provision locally produced horticultural crops into the surrounding communities, (Condon, 2010) and potentially improving quality of life within nearby communities (Goldschmidt, 1978).

The issue of ongoing farmland loss has become more prominent in recent years largely due to the growth of the Local Foods movement (Low et al, 2015) and the associated rise in public awareness that has subsequently grown out of it (Martinez et al, 2010). And while all NC peri-urban areas have seen an overall decline in the amount of farmland over the last half-century, in the 2000s the state experienced a net gain in farmland and decline in the loss of farms in peri-urban areas compared to the previous two decades. It is hypothesized that these patterns are due to the growth of peri-urban agriculture and associated with the Local Foods movement. See map, below.

**Change in the number of farms at the county level, NC, 2005-2011. Black lines are the state's interstate system, black dots are locations of registered CAFO operations.**



**The current study sought to determine what factors are predictive of farmland loss in North Carolina, and thus help support policy decisions that can prevent the loss of farmland as a valuable state asset.**

In order to determine which changes in the socio-economics of counties within NC can be causally related to changes in the amount of farmland, an exploratory Bayesian based analysis was undertaken.<sup>3</sup> The datasets used for this study are the Bureau of Economic Analyses Local Area Personal Income Accounts (a compilation of the economic statistics tracked by various branches of federal government; US Department of Commerce – Bureau of Economic Analysis, 2015) as well as subsets of the Census of Agriculture (Agricultural Census, 2014) the City/County Databooks (University of Virginia Library, 2000) as well as other relevant information such as historical agricultural market prices, the length of the state

<sup>3</sup> For more information on methods and data sources, see the full dissertation, pages 108-168.

road infrastructure over time, and the USDA Commuting Zone designations (Parker, 2012); all of these are county level datasets which cover the entire nation.

### **What the Study Found**

The major finding of this analysis was that for the state of North Carolina, during the period from 1975-2011, the most consistent predictor of changes in the amount of farmland was changes in the number of farms. It is important to note that these two variables are not merely two sides of the same coin. This finding challenges conventionally held beliefs that changes in the number of farms leads to farm consolidation and farm growth with little effect on the amount of farmland.

The implication for policy-makers is that maintaining the asset base of farmland depends on maintaining and possibly growing the number of farms in operation. Knowledge of this analysis can guide policy-making by highlighting the interrelationships that exist between policy change and the potential for change in number of farms, and thus amount of farmland. An example of this would be Federal Agricultural Subsidization Policy (i.e. "Crop Insurance", crop support payments, subsidized infrastructure upgrades, etc.). While these policies do not by definition discriminate against small acreage farmers, they do so de facto because of various requirements for participation; by the way subsidization is calculated, by essentially not rewarding diversified operations (which most small acreage producers are), and by making smaller/diversified farm costs of participation effectively higher. If policy makers involved in the formation of these Agricultural Subsidization policies are also interested in preserving farmland within their districts, policies that unintentionally discriminate against small farms have a high likelihood of resulting in farmland loss.

In summary, the findings from the analysis have profound implications for how people concerned with the issue of farmland preservation should view the issue of farm consolidation. On the surface, farm consolidation does not appear detrimental to maintaining farmland because farmland is initially maintained while the number of farms decreases. However these findings indicate that over time the loss in the number of farms will be associated with loss of farmland; consistent with these findings is the notion that supporters of farmland preservation should support the continued functioning of all farms in a given region in order to maintain the current number of farms. Furthermore, these findings further indicate that in order to bring new land into agriculture, it will be far more effective to encourage the creation of additional farms than to simply buy from already existing, profitable farms in the same area as all of the variables that speak to issues of farm revenue (overall farm income, revenue generated from crop sales, revenue generated from livestock sales, amounts spent on a variety of inputs, and the amount received in government agricultural subsidies) had no impact on the amount of farmland.

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