

# Where are young farmers & what are they growing?

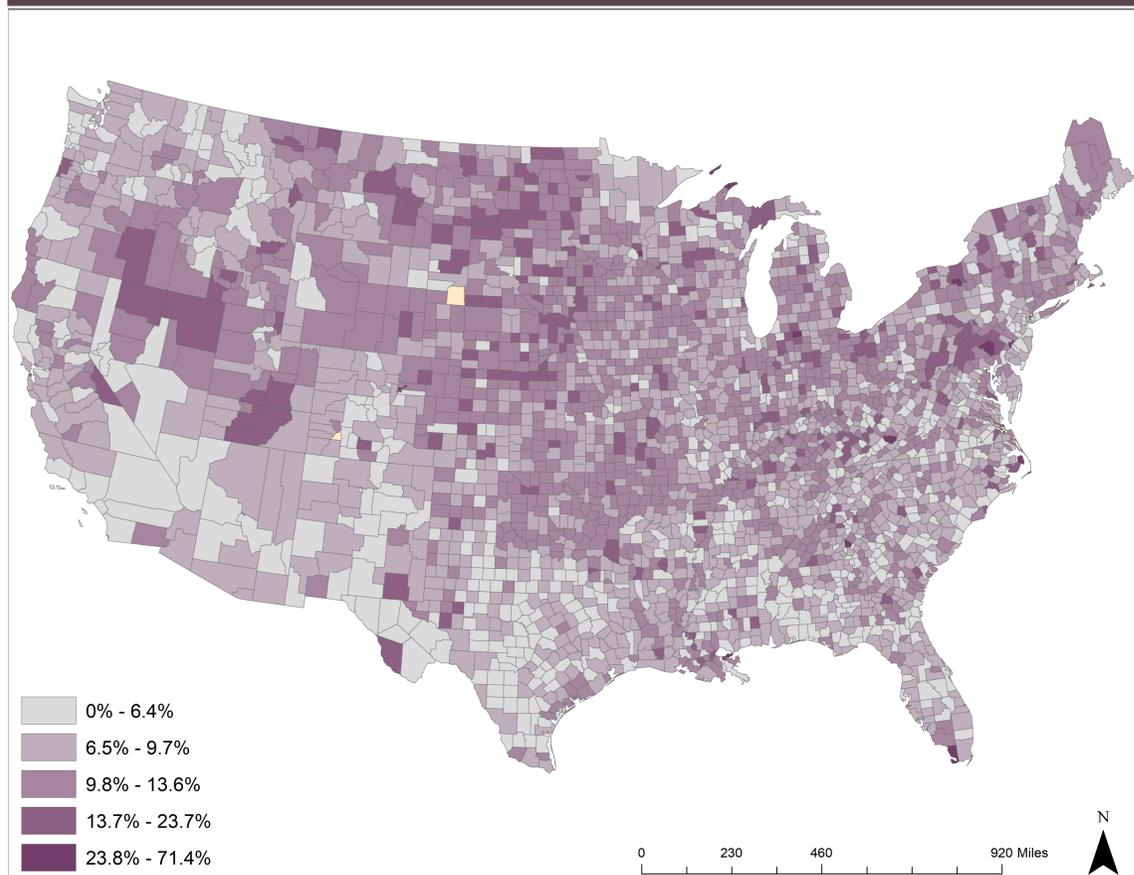
...beets me. (until now)

## Introduction

The average age of the American farmer is 57.5 years according to the recently released United States Department of Agriculture's 2017 Census of Agriculture. There are approximated 3.4 million producers in the U.S.; a 6.9% increase from the 2012 Census. This increase is likely due to the fact that more individuals are now included in decision making activities at the farm. Average age continues to climb, however, acknowledging the need for younger farmers, defined as less than 35 years of age. Little has been investigated about where young farmers are growing and what they may be more inclined to produce. Are young farmers concentrated in certain parts of the U.S.? Will understanding where they are and what they are more likely to grow give us insight into where more young farmers may be in the future? This research addresses these questions by examining where young farmers are located in the contiguous U.S. and what impact different types of farms may have on the ratio of young farmers by county.

## Young producers in the Contiguous United States

as percentage of total producers per county



## Findings & Discussion

This regression analysis explores the relationship between ratios of different farm types on ratios of young farmers. The coefficients of the output are displayed in Table 3 and all of the results are significant at the 1% level. The interpretation of these coefficients are as follows: for every 1% increase in amount of cattle operations per county there is an associated 81% increase young farmers, on average, holding all else constant. For every 1% increase of wheat farms, an associated 4% increase of young farmers; every 1% increase in corn farms, an associated 7% increase in young farmers; every 1% increase in amount of soy farms, an associated 2% decrease in young farmers; every 1% increase in amount of vegetable farms, an associated 11% increase in young farmers; on average, holding all else constant. These results indicate that young farmers are more closely associated with producing cattle and vegetables. This may prove to be a similar pattern as time goes on and can be a focus of future study. Policy efforts to support young farmers currently producing can focus on counties with high proportions of these farm types. To encourage more young farmers in counties with lower ratios, outreach efforts may target wheat, corn, or soy farms for technical assistance or supportive programming.

## Methods

Number of farms and producers for the variables of interest were studied at the county level. Counts were preferred over sales or yield per farm operation because they are a more useful output metric when focusing on supporting the population of young farmers. All tabular data for the variables of interest (see Table 2) were obtained from the 2017 Census of Agriculture and were joined to county polygons. The different farm types were normalized per county, dividing the total farms of interest over total farms per county to create comparable variables. These normalized variables were used in an ordinary least squares regression to understand the spatial relationship between crop type grown and ratio of young farmers, by county.

Counties that did not report any producers (Alaska and small counties throughout contiguous; per USDA definition of producer, see Table 1) were omitted from analysis and reported as "no data."

Table 1: Definitions, adapted from United States Department of Agriculture, National Agricultural Statistic Service 2017 Census of Agriculture

Operation	Farm
Producer	A person who is involved in decision making for the farm operation; e.g. owner, hired manager, renter, etc. Usually termed "farmer"
Young Producer	A producer under the age of 35

Table 2: Variables used in Regression Analysis

USDA 2017 Census of Agriculture Data Title:	Referred to here:
Cattle, calves, veal, raised or sold - number of operations	"Cattle Operation"
Corn - operations with sales	"Corn Farm"
Wheat - operations with sales	"Wheat Farm"
Vegetable totals, in the open - operations with area in production	"Vegetable Farm"
Soybeans - operations with sales	"Soy Farm"
Producers, age le 35 - number of producers	"Young Farmer"
Producers, (all) - number of producers	"Total Farmers per County"
Farm operations - number of operations	"Total Farms per County"

Table 3: Ordinary Least Squares Regression Output

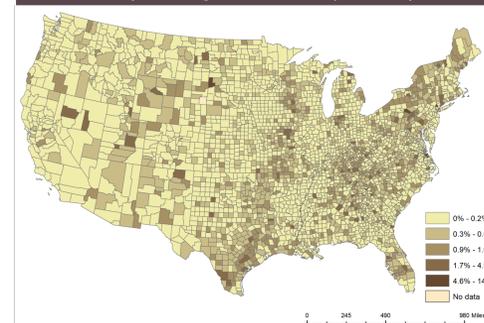
Farm Type	Coefficient (standard error)
Ratio of Cattle Operations	0.81*** (0.12)
Ratio of Wheat Farms	0.04*** (0.01)
Ratio of Corn Farms	0.076*** (0.008)
Ratio of Soy Farms	-0.02** (0.008)
Ratio of Vegetable Farms	0.11*** (-0.012)
Constant	0.074*** (0.001)
Observations	3071
R <sup>2</sup>	0.11

\*\*=significance at p<0.01  
\*\*\*= significance at p<0.001

## Variables of Interest

### Cattle Operations

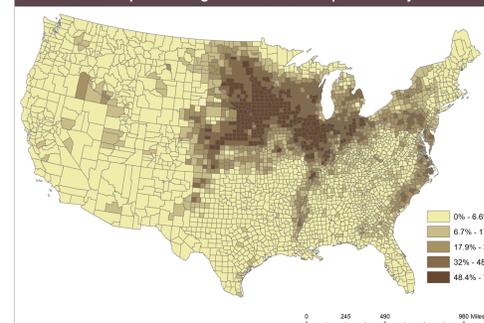
as percentage of total farms per county



Farms per County  
Range: 0-93 | Average: 2 | Median: 1

### Corn Farms

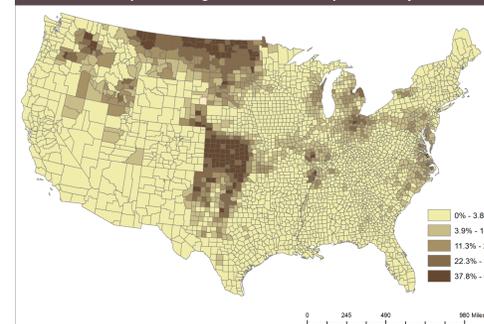
as percentage of total farms per county



Farms per County  
Range: 0-2,383 | Average: 104 | Median: 30

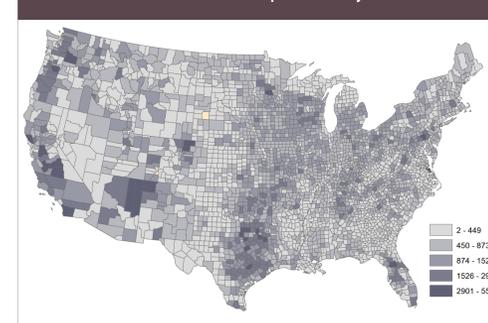
### Wheat Farms

as percentage of total farms per county



Farms per County  
Range: 0-576 | Average: 32 | Median: 6

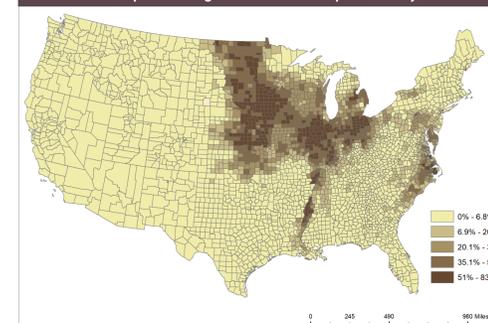
### Total Farms per County



Farms per County  
Range: 2-5,551 | Average: 665 | Median: 541

### Soy Farms

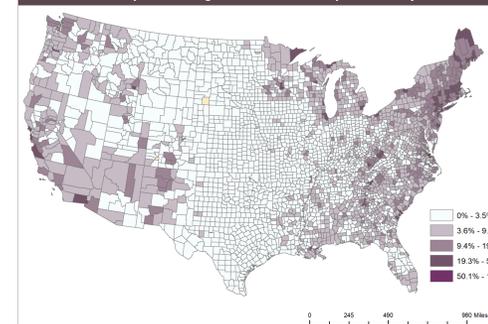
as percentage of total farms per county



Farms per County  
Range: 0-1,084 | Average: 99 | Median: 12

### Vegetable Farms

as percentage of total farms per county



Farms per County  
Range: 0-743 | Average: 24 | Median: 13

## Limitations

This regression gives insight into the patterns of where young farmers are growing and what types of products and farming operations they are more likely to be associated with. The R<sup>2</sup> is relatively low, however, (11%) which means that the variability in young farmers as a percentage of total producers per county is not fully explained by the variables included in the regression. Future research may explore what other variables—including more types of crops, demographics, or other farm economic indicators—may be contributing to the spatially diverse distribution of young farmers in the contiguous United States.

