

Photo Credit: Lance Cheung USDA

Transforming Agriculture for Resiliency

A Discussion Paper on Generational and Economic Differences
Related to Farm Transitions, Agricultural Land Conservation, and
Conservation Practice Adoption


American Farmland Trust
SAVING THE LAND THAT SUSTAINS US

September 2023



ABOUT AMERICAN FARMLAND TRUST

American Farmland Trust (AFT) is the largest national organization dedicated to protecting farmland, promoting sound farming practices, and keeping farmers on the land. AFT unites farmers and environmentalists in developing practical solutions that protect farmland and the environment. We work from “kitchen tables to Congress,” tailoring solutions that are effective for farmers and communities and can be magnified to have greater impact. Since our founding, AFT has helped to protect more than six and a half million acres of farmland and led the way for the adoption of conservation practices on millions more. AFT has a national office in Washington, D.C., and a network of offices across America where farmland is under threat.

For more information, visit us at www.farmland.org

CONTENTS

Introduction	1
Methods	3
Findings	5
Who are America’s Farmers, and Where and How Are They Farming?	5
What Are the Key Differences in Production, Conservation, and Marketing Practices?	13
What Are The Motivations And Attitudes of Farmers Across Generations?	19
Discussion and Recommendations	23
Conclusion	26
Appendices	28

ACKNOWLEDGEMENTS

This research was conducted in partnership with



Natural Resources Conservation Service

Introduction

In recent years, supply chain disruptions, the COVID-19 pandemic and its continued economic impacts, and severe weather events associated with climate change have brought to light the need for greater resilience in America's farm and food system. This resiliency relies on well-managed farmland that stays in active farming and ranching to grow our food, boost the agricultural economy, provide jobs to individuals that reflect the diversity of our country, support wildlife and biodiversity, provide clean water, and help combat climate change, while nurturing a deep connection to the land. Getting there will require a new and next generation of farmers and ranchers poised to transform agriculture by fostering successful, equitable farm businesses. And yet, well-documented demographic and economic challenges and continued impacts of agricultural land conversion threaten this profession and the promise of what the future generations of farmers and ranchers might bring.

Through cooperative agreement 68-3A75-18-005, the Natural Resource Conservation Service (NRCS)' Easement Program Division (EPD) engaged American Farmland Trust (AFT) to analyze generational differences and economic data to better understand farm transitions, agricultural land conservation, and conservation practice adoption. EPD's interest was to investigate producer characteristics at both ends of the spectrum—those at or beyond retirement age and young, beginning, and historically underserved farmers and ranchers to understand the impacts of who is farming, how they are farming, and where they are farming amid changing demographics, production systems, and agricultural land ownership and management.

More specifically, AFT set out to examine the following questions:

- Where are America's new and diverse farmers, and how are they farming?
- What are key differences in farm practices between young, middle-aged, and senior farming populations across the US?
- What are the motivations and attitudes of older farmers towards their land as they approach retirement? What are the motivations and attitudes of the next generation toward the future?

The need to bring a new, more diverse generation of farmers onto the land and to support the next generation within farm families is urgent. According to the 2017 Census of Agriculture, 34 percent of primary producers are 65 and older. Including non-operator landowners, more than 40 percent of agricultural land in the United States – 370 million acres – is owned by seniors who likely will transfer land in the next 15 years (USDA NASS, 2017). These farms are not assured of remaining in agriculture due to challenges families face in transferring farms, competition for land from real estate developers and other non-farm buyers, and additional obstacles met by new generations and populations systemically marginalized and denied access to land and resources.

Where and how this new and next generation farms is equally important in assessing resilience as the risk of conversion of agricultural land is significant. AFT's *Farms Under Threat 2040* report showed that if current trends continue, 18.4 million acres of agricultural land will be paved over, fragmented, or compromised by 2040 – the equivalent of losing 115,000 farms with \$11 billion in economic output and 263,000 jobs. The warming climate will also affect who can farm where in the coming decades. As observed in the *Farms Under Threat 2040* research, another three-quarters of a million acres of farmland is projected to be converted due to sea-level rise, and this is just one of many climate threats.

Transforming Agriculture for Resiliency seeks to examine senior farmers and landowners – what they are farming and with whom, their motivations, and their considerations about their future – as well as the demographics, practices, motivations, and challenges of new-generation producers in order to keep land in farms and farmers on the land as seniors prepare to exit farming. While this analysis is a first glance at some complex issues, we also use this new understanding to support new generation producers with policies and programs to help them overcome barriers to accessing land, to better facilitate farm transfer, and promote resilient food and farming systems.



Page 4 Photo Credits: Rebecca Drobis

Methods

To address these questions, AFT organized an initial quantitative and qualitative analysis with the support of JG Research and Evaluation (JG) and Dialogues in Action (DIA), respectively.

Quantitative Analysis

AFT and JG analyzed a broad swath of farm and demographic data from the United States Department of Agriculture National Agricultural Statistics Service's (NASS) 2017 Census of Agriculture (2017 Census), specifically from two special tabulations provided to AFT by NASS. Though public information is available upon request, the data AFT acquired has not been previously published online by NASS and, therefore, required a specific request. AFT was interested in the relationship between operator identity, tenure status, long-term sustainability and diversification. To that end, the special tabulations AFT obtained included variables on land in farms, tenure arrangements, marketing practices, conservation practice implementation, and production practices by different self-identified demographic categories.

The unit of analysis AFT requested in all the datasets was at the county level. The goal of accessing and analyzing county-level data was to increase the precision of observations to examine patterns within identity categories. The first special tabulation contained data sourced from NASS's series on Race, Ethnicity, and Gender (REG). As defined by NASS and categorized in the 2017 Census, the races included were American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Pacific Islander, and White. The sole ethnicity included was Hispanic, Latino or Spanish, 93 percent of whom identified as White in the Census, and the sole gender included was Female.

Data was also collected through a second special tabulation organized by age of producers within five age brackets: less than 35 years old, 35 to 44 years old, 45 to 54 years old, 55 to 64 years old, and 65 years or older. Like REG, the special tabulation by age includes information on farm operations where any producer reports an age within a given bracket.

Data Limitations

There were notable limitations in the data available through NASS in addressing the initial research questions. First, AFT did not have data at the county level as initially hoped to look at key differences in practices among young, middle-aged, and senior producers. However, data by age was only available at the state level or aggregated within these age brackets, not individual or farm-specific, in accordance with Title 7, U.S. Code, and the Confidential Information Protection and Statistical Efficiency Act or CIPSEA, Public Law 107-347. Data was available at the county level for new and beginning producers and was used as an alternative indicator. However, with the average age of new and beginning producers of 46.5, we could not compare quantitative data by age and tenure length as we initially set out to do.

Second, the REG special tabulation included information on farm operations where any producer – rather than all producers within that operation – self-identified as a certain race, ethnicity, or gender. This resulted in considerations of anonymity for producers within a minority REG group. To protect anonymity within minority REG categories, NASS only disclosed data in counties where two factors were present: 1) a minimum of 30 producers of a given identity, and 2) at least 30 of another identity. As a result, not all counties where any producer of a given identity was present were included in the sample. This was true even of White producers, who comprise 96 percent nationally. For this group, NASS only disclosed information for 584, or 19 percent, out of a possible total of 3,044 counties, as those were counties with 30 or more White producers and at least 30 producers within one or more other racial identity. The special tabulation did not provide the data from 2,459 counties with at least 30 White producers but without at least 30 producers within another racial identify category. The concern was, due to the level of detail available in the 2017 Census, that those non-White producers would be fairly easy to identify at the county level. This was true of other REG categories.

Methods

JG performed multiple statistical analyses on the special tabulations to understand patterns within identity categories as, specifically with the county-level data, we could not compare directly across identity categories of individuals. The series summarized key farm operation information as indicators of how different demographic categories of farmers were farming and key differences in practices. The core variables included in the quantitative analyses were derived from the original research questions and, in addition to demographic characteristics stated previously, included:

Farm Characteristics

- Number of Farms
- Land in Farms
- Average Acres per Operator
- Percentage of Land and Buildings, Cropland, Pastureland and Woodland

Economic Status

- Commodity Sales Total
- Commodity Totals – Sales Measured in \$/Operation
- Income, Net Cash Farm of Operations – Net Income, Measure in \$/Operation

Government Supports

- Government Receipts

Conservation Practices

- Percent of Operations: Conservation Tillage, No-Till, Cover Crops

Marketing Practices

- Market Share Direct to Consumer
- Market Share Intermediate Markets

As the county was the unit of analysis in most of these datasets, direct comparison across identity categories for individual producers was impossible. However, patterns aggregated within identity categories related to conservation practices, economic status, market outlets, and government support were observable. Tenure status, that is, whether an operator wholly owns, partially owns, or fully rents the land they farm, was added as a variable to consider as it can relate to the security and longevity of a farm operation. The quantitative research explored patterns related to these

categories and how they differ by tenure status within each identity. See Appendix I for further details on the quantitative analysis methods.

Qualitative Analysis

While the quantitative analysis could detect patterns within identities, it could not offer specific insights into the motivations and attitudes driving these patterns. To gain this additional perspective, AFT engaged DIA to conduct complementary analysis using qualitative sampling and data collection.

DIA gathered data using qualitative research methods including virtual group listening sessions and interviews with individuals farming across the United States. AFT staff and a network of intermediaries familiar with AFT and our work conducted outreach to farmers using an email invitation. Participants were offered a \$50 honorarium to compensate them for the one hour devoted to the listening session or interview. Multiple session times were offered across all continental U.S. time zones. Farmers experiencing barriers to joining group video calls were invited to participate in individual interviews over the phone.

The total sample size was 53 farmers from 18 states. Participants included farmers from diverse regions, exhibited a range of years of farming and different types of land tenure, and utilized a variety of farm production and business models. The research was intentionally designed to over-sample new or beginning farmers as their perspectives can often be less represented than more seasoned farmers in large quantitative datasets, like the Census, and because these are the farmers that, in theory, are poised to farm over the coming decades as land changes hands. Therefore, participants were divided into two categories for comparison: approximately one-third of participants were experienced, long-term farmers with 11 or more years of farming experience, and two-thirds were new or beginning farmers with ten years or less of farming experience. More than half identified as female, white, and engaged in vegetable production. The sample also included an urban farmer focus group. While not representative of the majority of U.S. agriculture, we believe these underrepresented groups were important perspectives to incorporate when looking to the present and future. See Appendix I for further details on the qualitative analysis.

Findings

Who are America's Farmers, and Where and How Are They Farming?

AFT analyzed demographic and economic data to improve our understanding of farm transitions, agricultural land conversion, and conservation adoption. In this section, we summarize what we observed from the 2017 Census data.

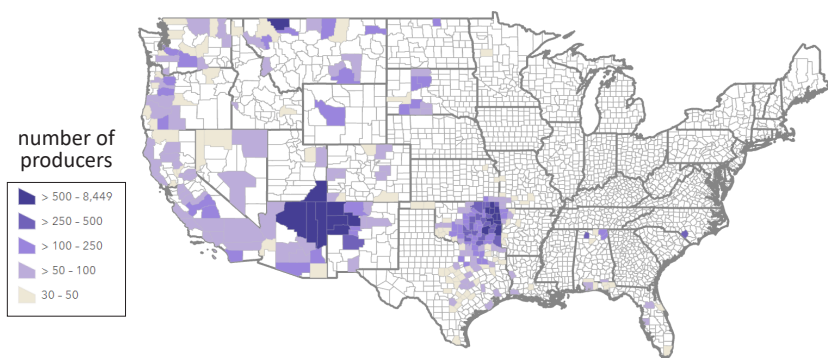
It is important to note the Census terms and their corresponding influence on the data analysis. A producer, as defined by the Census, is anyone involved in making decisions for a farm operation and can include a member of the owner's household, a hired manager, a tenant, a renter, or a sharecropper in addition to the owner. The Census collected information on the total number of male and female producers and demographic information for up to four producers per farm. Notably, NASS did not provide AFT data on primary or principal producers due to changes to those definitions in the 2017 Census. As a result, this analysis incorporates data on all producers unless otherwise noted, meaning it does not solely represent primary decision-makers for the operation.

While it still answers where and how America's farmers are farming, certain narratives are challenging to draw, including to what degree trends within each REG group can be aligned with decision-making power.

Producer Presence and Production by Race, Ethnicity and Gender

Because of the increasing diversity of the American population, we wanted to dig down beneath the usual analyses of the majority of farmers—who are primarily white, male, and middle-aged—and learn more about producers who are young and beginning and/or are of many racial and ethnic backgrounds and gender identities. These groups have been underrepresented in research but will play important roles in the future of agriculture. The following summaries reflect where concentrations of producers of specific racial, ethnic, and gender categories of producers are active, at what scale, and in what types of production, along with age and new and beginning status. Data limitations do not support a comprehensive insight for these groups across all counties.

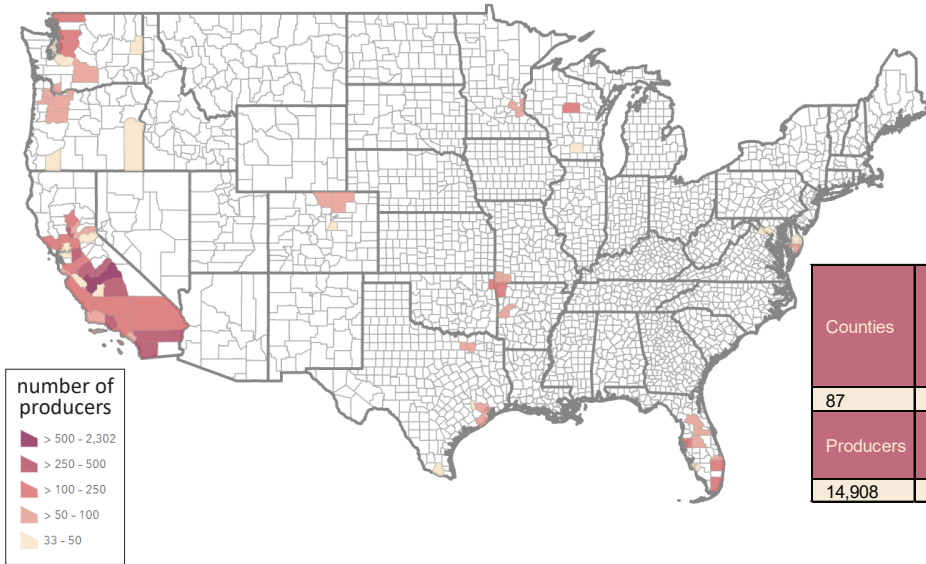
American Indian or Alaska Native



Counties	Farms	Owned Land in Farms	Rented Land in Farms	Median Livestock Commodity Market Share	Median Crop Commodity Market Share
283	43,891	27,592,208	3,805,640	72%	29%
Producers	% Primary Occupation Farming	% New and Beginning	% Aged Under 35	% Aged 35-64 years old	% Aged 65 or older
60,447	33%	26%	10%	58%	32%

The largest populations of American Indian or Alaska Native producers are in the northeast corner of Arizona and northwest New Mexico. The four counties in this region (Apache, Navajo, Coconino in Arizona, and McKinley in New Mexico) account for more than 40 percent of all American Indian or Alaska Native producers. Another significant population concentration includes several Oklahoma counties (Cherokee, Mayes, Delaware, and Adair counties). Farm operations in these counties are typically quite large, often averaging over 1,000 acres per operation of mostly pasture and rangeland. The operations tend to skew towards animal production, predominantly beef cattle and poultry. This remains true of American Indian or Alaska Native operations even in areas where crop production is typically more common, as in Western Oregon and the Central Coast of California.

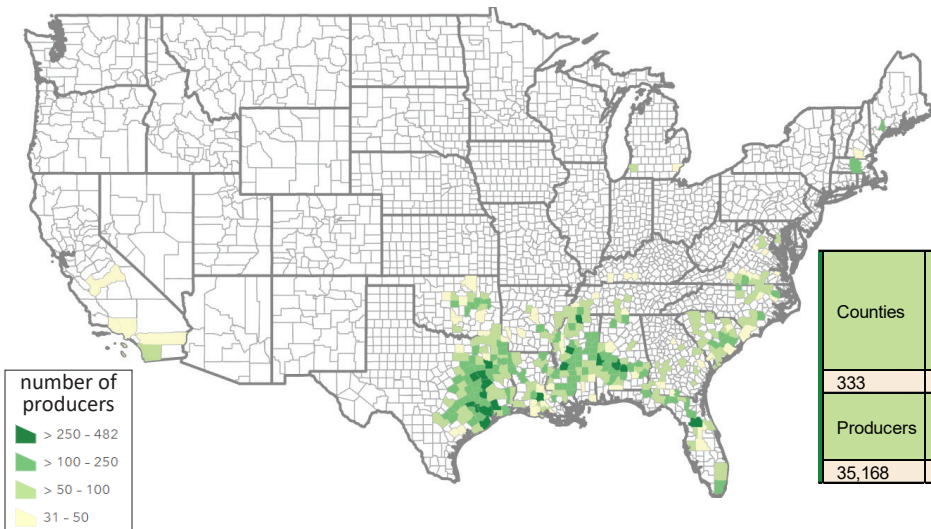
Asian



Counties	Farms	Owned Land in Farms	Rented Land in Farms	Median Livestock Commodity Market Share	Median Crop Commodity Market Share
87	10,148	757,533	391,135	30%	99%
Producers	% Primary Occupation Farming	% New and Beginning	% Aged Under 35	% Aged 35-64 years old	% Aged 65 or older
14,908	52%	34%	8.4%	62%	29%

The largest populations of Asian producers are reported across the state of Hawaii and throughout California's Central Valley. There are also considerable Asian populations in metro areas in Wisconsin, Minnesota, Florida, and Texas, as well as several counties in Northern Colorado, Northwest Arkansas, Northeast Oklahoma, and Southwest Missouri. The production models differ greatly among these geographies, where Asian producers operate much higher concentrations of intensive cropland for vegetable and fruit crops in Western and metro counties but manage much more concentrated poultry operations in Arkansas, Oklahoma, and Missouri.

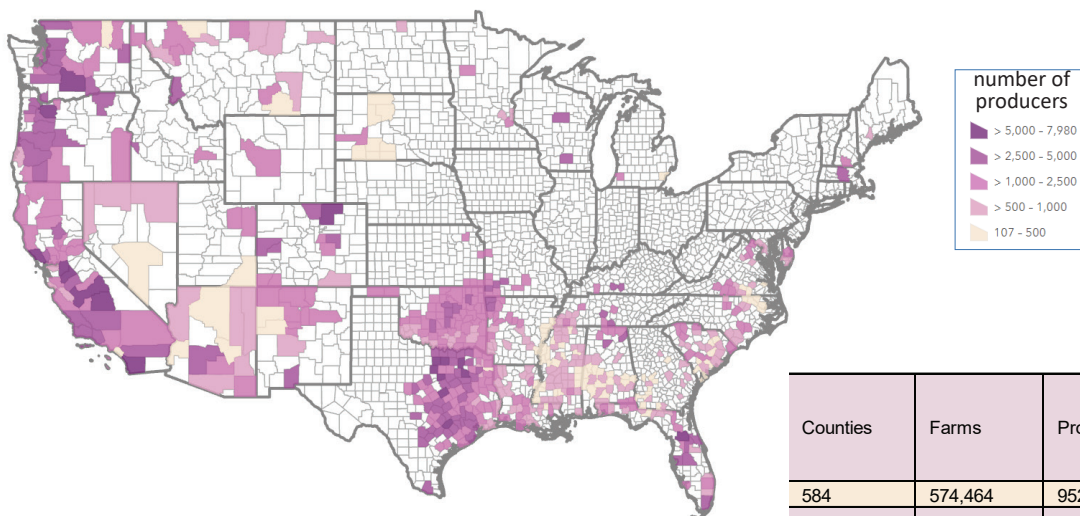
Black or African American



Counties	Farms	Owned Land in Farms	Rented Land in Farms	Median Livestock Commodity Market Share	Median Crop Commodity Market Share
333	25,194	1,182,073	788,449	59%	34%
Producers	% Primary Occupation Farming	% New and Beginning	% Aged Under 35	% Aged 35-64 years old	% Aged 65 or older
35,168	44%	27%	5%	50%	45%

The largest Black and African American producer populations are concentrated in several Southeastern states, with counties in Texas (Smith, Freestone, and Houston), Florida (Marion), and Louisiana (Saint Landry) ranking the highest. Counties in coastal areas tend to report higher crop sales, especially in commodities like tobacco, though poultry, hog, and beef cattle are similarly prevalent. In areas with the largest Black or African American populations, cattle ranching comprises a much larger share of production in terms of both sales and participating operations. Higher proportions of small-acreage and diversified crop operations are reported throughout the more urbanized areas in the Northeast, Southern California, Dallas-Fort Worth, and Southern Florida.

White

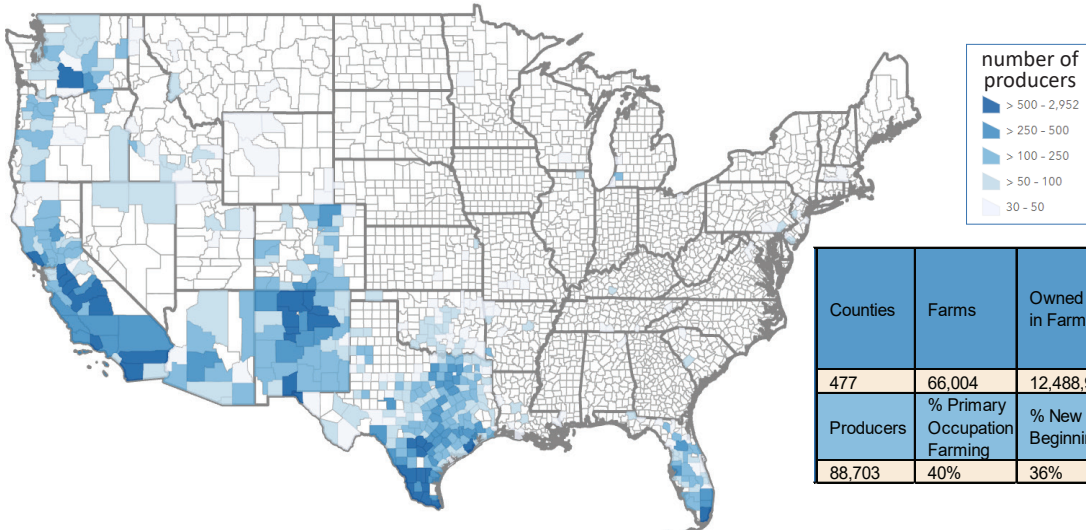


Counties	Farms	Producers	% New and Beginning	Most Common Livestock Commodity
584	574,464	952,174	29%	Beef cattle
Owned Land in Farms	Rented Land in Farms	% Aged Under 35	% Aged 65 or older	Most Common Crop Commodity
100,992,966	62,090,441	7%	36%	Field crops (hay)

As stated in the Methods, White producers are only reported in 19 percent of counties, or those with 30 or more identified producers of another racial identity, even though they represent a clear majority of all producers nationwide. Perhaps what is most striking to observe is where there are concentrations of counties where data on White producers was available since 30 or more of another racial identity were reported, namely, California, the Pacific Northwest, Colorado, Florida, and Texas, as compared to counties that were excluded from the data, primarily Midwestern, Plains, and Northeastern counties, where fewer than 30 producers of another racial category are present.

Only nine counties reported 30 or more Native Hawaiian or Pacific Islander (NHPI) producers. As a result, they are excluded from the bulk of analyses due to the small sample. The nine counties include several in Hawaii, California, Oregon, and Arizona. What data is available reveals that many NHPI producers are involved in a variety of agricultural production, from cattle ranching to fruit, tree nuts, vegetables, and other horticulture.

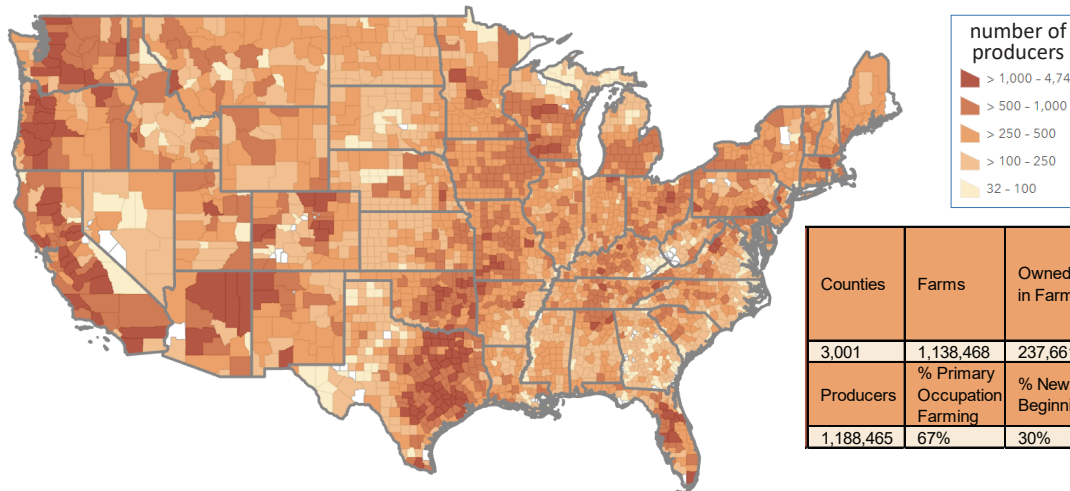
Hispanic



Counties	Farms	Owned Land in Farms	Rented Land in Farms	Median Livestock Commodity Market Share	Median Crop Commodity Market Share
477	66,004	12,488,938	6,765,667	56%	71%
Producers	% Primary Occupation Farming	% New and Beginning	% Aged Under 35	% Aged 35-64 years old	% Aged 65 or older
88,703	40%	36%	9%	64%	27%

Hispanic, Latino or Spanish producers are the sole ethnicity profiled, meaning they may also identify as any racial category in the Census. Nationally, over 93 percent of producers who identify Hispanic as their ethnicity also report White as their race, but only 3 percent of White producers identify as Hispanic. The largest populations of Hispanic producers are reported in southern Texas (Hidalgo, Starr, and Duval counties), southern Florida (Miami-Dade county), northern New Mexico (Rio Arriba county), and central California. Intensive specialty crop production is the dominant form of agriculture for Hispanic producers in Florida, California, and the Pacific Northwest – with notable tree nut production in New Mexico – while beef cattle, poultry, and dairy are more common in Southwestern states and Texas.

Female



Counties	Farms	Owned Land in Farms	Rented Land in Farms	Median Livestock Commodity Market Share	Median Crop Commodity Market Share
3,001	1,138,468	237,661,250	147,263,895	51%	50%
Producers	% Primary Occupation Farming	% New and Beginning	% Aged Under 35	% Aged 35-64 years old	% Aged 65 or older
1,188,465	67%	30%	8%	59%	32%

Because gender is highly reported among producers of all races and ethnicities, and thus much more information is disclosed, female producers constitute the most robust population dataset in the REG series. While most female producers identify as White, the largest county-level populations of female producers are reported in Apache and Navajo counties in Arizona, where most producers identify as American Indian or Alaska Native. Similarly significant female producer populations are reported across the Pacific Northwest, California, Texas, and parts of Florida and Pennsylvania. Due to the limitations on county-level data for race and ethnicity, data on female producers is the only demographic information available for much of the Midwest, Appalachia, and the Northeast. While it appears the data on Female producers is the most robust of the REG categories, it carries a constraint in not clearly identifying a primary decision-making role, where women are farming alone, or even where women are farming with other women.



Farm Characteristics by Age and Experience

As noted in the Methods, the special tabulation AFT received by age was only made available from NASS at the state level. The ubiquity of age meant all 50 states could be included in the analysis, but unfortunately, it was difficult to align trends in age – an indicator for possible duration farming or timeline for transitioning a farm operation – and compare it with county-level REG characteristics. However, county-level data was available as part of the REG special tabulation on the percentage of young and beginning farmers at the county level, and we utilized that information as an indicator for who may be entering farming or have a longer tenure on the land in the coming decades.

Characteristics of Young and Senior Producers

While young versus senior designations are not direct indicators of experience, they provide an important snapshot of the prospective transfer of agricultural businesses and land in the coming decades. The proportion of young producers tends to be relatively low across most counties, and it is rare for any county to report even more than one-third of producers as young. The largest numbers of young producers are reported in rural counties across the Midwest and Southwest, like Lancaster, Pennsylvania, LaGrange, Indiana, and Wayne and Holmes, Ohio, as well as Navajo and Apache, Arizona. Many of these counties have relatively high populations of Plain communities– such as Mennonites or Amish – in the Midwest or tribal communities in the Southwest. These counties stand in contrast to those with the highest proportions of young producers, which are more often in urbanized than deeply rural areas. Nationwide, nearly half of all operations with at least one young producer manage fewer than 50 acres. Still, over half of all operations are more heavily involved in grain or livestock agriculture.

While the national average is more than 4 to 1 in favor of senior producers to young producers, the states vary widely in their demographic composition. The states with the smallest gap in the number of senior and young producers include Pennsylvania, North Dakota, Indiana, New York, and several other Midwestern and Northeastern states. These states have roughly twice or three times as many senior producers as young producers but approximately the same number of senior producers as all producers under 45. The states with the widest gap in the number of senior and young producers include Hawaii, New Mexico, Texas, California, Florida, and several other Western and Southern states. In these areas, it is not uncommon for senior producers to outnumber young producers by 5 to 1 and even producers under 45 by more than 2 to 1.

Characteristics of New and Beginning Producers

USDA defines new and beginning producers as those who have ten or fewer years of farming experience. However, these producers are not interchangeable with young producers. The national average age of a new and beginning producer is 46.5 years old, more than a decade older than even the oldest young producers as defined by the Census.

Nationally, just over one-quarter of all producers identify as new and beginning. Most counties have between one-fifth and one-third of their farming population listed as new and beginning with higher rates in more urbanized areas. New and beginning producers are slightly less likely than young producers to be involved in grain and livestock agriculture, but report only slightly higher rates of more intensive crop production like fruit, tree nuts, and nursery. Notably, 10 percent of all operations with new and beginning farmers are involved

Figure 1: Ratio of Senior Producers to Young Producers by State

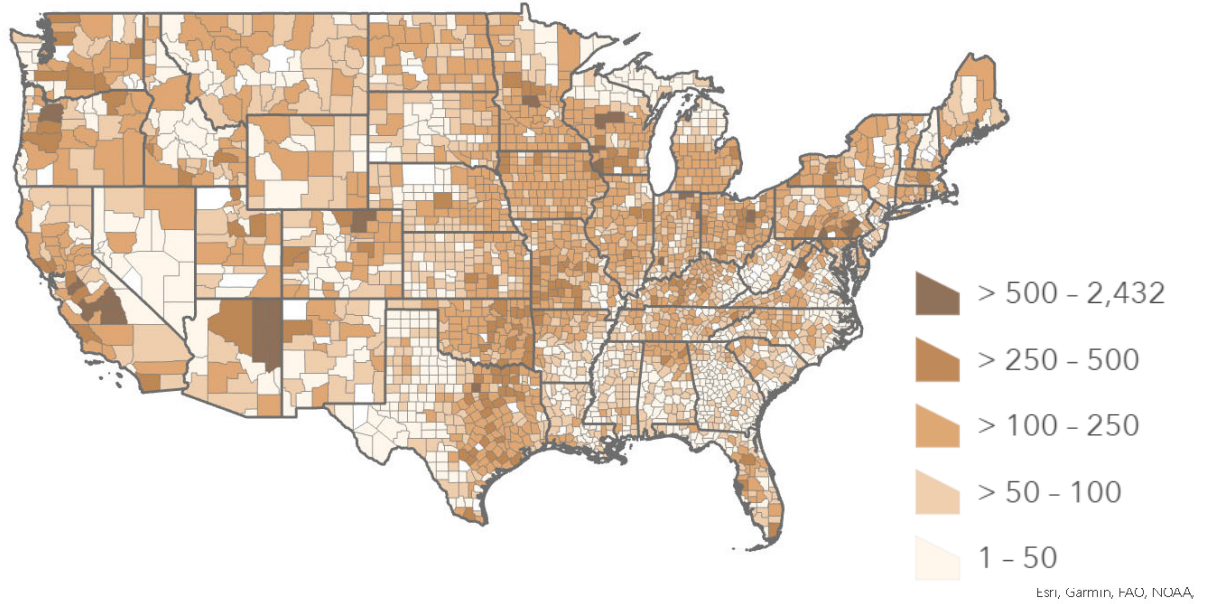
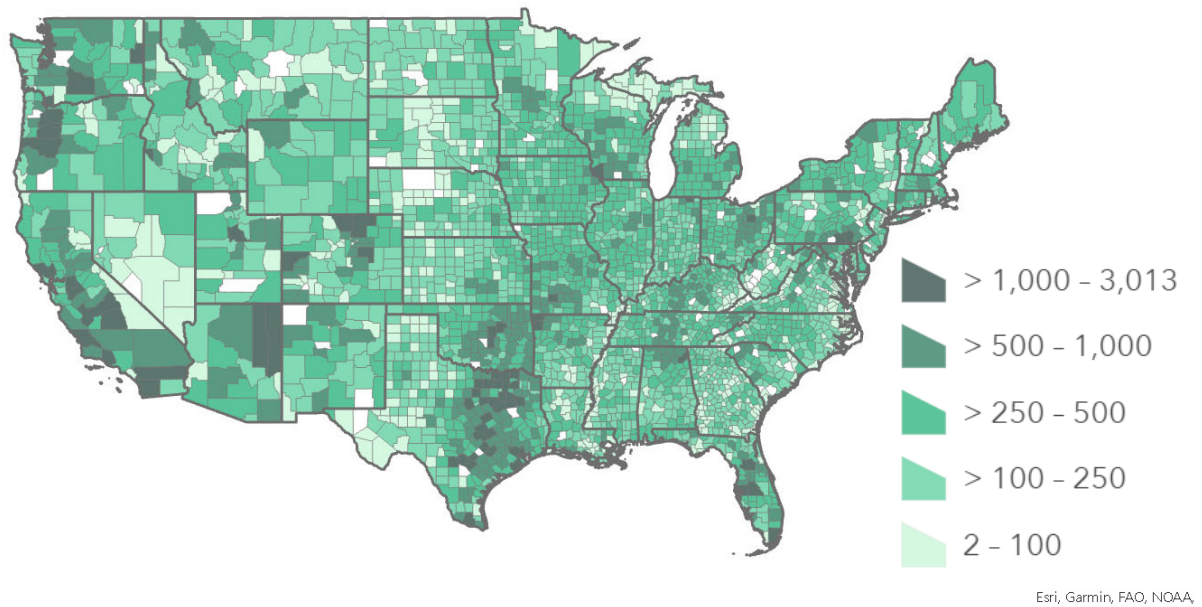


Figure 2: Number of New and Beginning Farmers by County



Producer Characteristics by Tenancy and Occupation

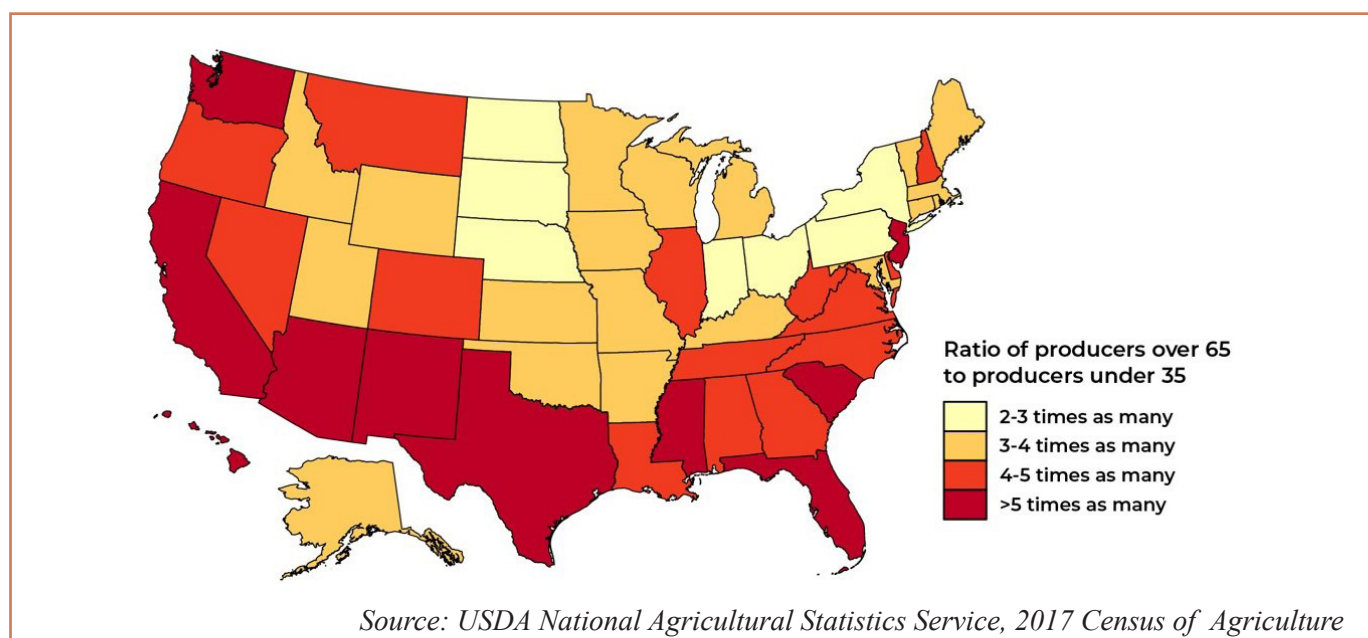
To understand long-term economic or agricultural viability, AFT and JG further explored Census data on both producer tenancy, that is, whether the land they manage is owned, rented, or a mixture of both, and whether farming served as the primary occupation. While many agricultural operations find leasing land an important aspect of running a successful business, land ownership as an indicator suggests greater stability and decision-making power for producers than farming on rented land, while farming as a primary occupation suggests a greater investment in farming as a career rather than supplemental income or a hobby.

Nationwide, producers 35 and younger own 48 percent of the land they operate, which gradually increases with age to producers 65 and older owning 70 percent of the land they operate. This is not surprising since it is well documented, as recently as the National Young Farmers Coalition 2022 survey, that accessing affordable land to buy is the top challenge identified by young farmers and is a barrier more acutely felt by historically underserved producers (NYFC, 2022).

There are several states where a near majority of agricultural land is owned and operated by senior producers – 59 percent or more of acres in New Hampshire, Utah, Nevada, and Massachusetts – indicating a sizable land transfer in the near future in these places. Several states also have young producers who are entirely reliant upon rented land for their operations, which also raises questions for future land transition. Arizona reports the highest rate of farms operated by young producers that are fully reliant on leased land at 62 percent, while Nebraska, Hawaii, North Dakota, South Dakota, and New Mexico all fall between 26 and 30 percent.

There is a stark contrast in primary occupation by age and new and beginning status. Regardless of age, fewer than half of all producers report farming as their primary occupation, with the exception of the most senior bracket, 65 or older. These senior producers show a national average of 20 percent higher than any other age bracket (see Figure 3). This trend is especially pronounced in Southwestern states like Arizona and Nevada, Northeastern and Mid-Atlantic states like New York and Delaware, and Midwestern states like Michigan and Nebraska. Finally, the percentage of new and beginning status declines as age increases, as shown in Figure 1. While this is not particularly surprising given the barriers to entry. With nearly one-third of 45- to 54-year-olds considered new and beginning and 55- to 64-year-olds not too far behind, it begs deeper inquiry as to what impact this imbalance might have for sustaining agriculture on the land they steward.

Figure 3. Ratio of Producers over 65 to Producers Under 35



What Are the Key Differences in Production, Conservation, and Marketing Practices?

Understanding who is farming and where serves as an important backdrop to understand the capacity of America’s agricultural landscape to withstand or recover from the challenges it faces today and in the future. There is not a stand-alone factor that can measure resiliency in a complex farm and food system, and so this analysis examined three specific areas related to farm and ranch operations – economic resiliency, climate resiliency, and generational resiliency – through the lens of who is farming. In particular, we focused on non-White producers. Composing more than 90 percent of producers nationwide, White farmers and ranchers often stand in as representing the status quo of agriculture. Disparities between White producers and those of other racial identities, as well as among all groups, have been infrequently explored.

AFT and JG conducted multiple statistical analyses to examine differences among farm characteristics that imply resiliency against demographic data, specifically t-tests and cluster analysis. The same limitations to county-level demographic data identified in the methods section of this report applied to these analyses. The t-test method provides a more accurate assessment of the effect of race and ethnicity on farming outcomes by comparing median values for all White operations across the country to the median values for a given other racial identity in only the subset of counties for which we have data on White producers. This approach allowed JG to make relevant comparisons despite only having data available for White producers in 19 percent of the counties.

Trends by Race and Ethnicity

Economic Resiliency

To better understand economic resiliency, we examined 2017 Census data that points to financial resources using “net cash farm income” and “government receipts,” occupational stability and status using “farming as a primary occupation,” and the ability to absorb market fluctuations more nimbly using “direct-to-consumer sales” and “intermediate market sales.”

Table 1: Economic Resiliency by Race and Ethnicity

Identity Category	Median	p-value
<i>Net cash farm income (\$)</i>		
White	\$18,305	
BAA	\$-2,873	<2.2e-16
Hispanic	\$-284	<2.2e-16
AIAN	\$-1,478	6.34e-16
Asian	\$62,866	0.000175
<i>Government receipts (\$/operation)</i>		
White	\$10,489	
BAA	\$3,830	<2.2e-16
Hispanic	\$8,723	0.001
AIAN	\$5,859	3.9e-07
Asian	\$9,061	.7241
<i>Farming as a primary occupation (% of operators)</i>		
White	38.9%	
BAA	44.8%	4.981e-11
Hispanic	37.5%	.008
AIAN	38.9%	.372
Asian	50.5%	2.099e-7
<i>Direct-to-consumer sales (% of operations)</i>		
White	4.3%	
BAA	2%	1.527e-13
Hispanic	5.3%	.739
AIAN	4.6%	.42
Asian	13.8%	<2.2e-16
<i>Intermediate market sales (% of operations)</i>		
White	0.5%	
BAA	0%	<2.2e-16
Hispanic	0%	2.033e-12
AIAN	0%	<2.2e-16
Asian	4.9%	3.932e-10

Key takeaways from the analysis of economic resiliency include:

- The median net cash farm income of operations with White producers was found to be statistically significantly higher than those of operations for all other racial and ethnic identities except that of operations with Asian producers. **These disparities are some of the most notable observed among all tests conducted for this study.**
- Black or African American, American Indian or Alaska Native and Hispanic producers received significantly fewer government dollars than White producers.
- Proportion of Black or African American and Asian producers for whom farming is a primary occupation is significantly higher than for White producers and is significantly lower for Hispanic producers than for White producers.

Collectively, White and Asian producers appear to be doing better than all other racial identity categories. This circumstance for White producers is not surprising given the systemic inequities, racism, and other barriers faced by non-White farmers and ranchers. However, it is unclear through the data analysis why Asian producers appear as outliers among non-White producers.

When considering an ability to absorb market fluctuations, the analysis also showed stronger economic resilience for White and Asian producers than other identities. Specifically, a significantly smaller proportion of Black or African American operations have direct-to-consumer sales than White operations and, along with Hispanic, American Indian and Alaska Native operations, also have a significantly smaller portion of intermediate market sales as compared to White operations. Asian operations, on the other hand, have a significantly larger proportion of both direct-to-consumer sales and intermediate-market sales as compared to White operations.

Notably, the data shows a connection between financial resources, occupational status, and marketing practices. More farmers of all identities engage in direct-to-consumer marketing, such as farmers markets and community-supported agriculture, that do not require the same scale

and capacity that intermediated markets, like the institutional, grocery, and retail sectors, do. White and Asian producers, with greater financial resources and occupational stability, appear more likely to enter intermediate markets.

Climate Resiliency

We also examined climate resiliency through the use of conservation practices, specifically “no-till,” “conservation till,” and “cover crops,” to better understand if there were observable trends across identities that would impact disparities in climate resiliency and signal a motivation to manage operations in more environmentally conscious ways. While these conservation practices are the most widely reported in the Census and, therefore, provide the most data points, it is important to note the limitations. These three conservation practices are largely not applicable to ranch production and skew towards farms with crop production systems. resources using “net cash farm income” and “government receipts,” occupational stability and status using “farming as a primary occupation,” and the ability to absorb market fluctuations more nimbly using “direct to consumer sales” and “intermediate market sales.”

Across the board, White producers showed less inclination toward climate resiliency as a percentage of their operation than all other identities. The proportion of operations implementing no-till and conservation tillage is significantly higher for Black or African American and Asian producers than White producers. These identities, along with Hispanic operations, were also proportionally greater than White producers in implementing cover crops. Within this analysis, non-White operations appear more climate resilient and, while a notable observation, does require further research to understand the complete picture. Data on White operations was excluded in nearly all counties in states like Illinois, Iowa, Ohio, Indiana, Wisconsin, Michigan, and New York, where crop production systems and White operations dominate. Furthermore, the conservation practices variables from the Census are those frequently supported through state and federal programs, meaning inequities that create barriers to government support are likely carried over to the conservation practices most widely measured by the Census.

Table 2: Climate Resiliency by Race and Ethnicity

Identity Category	Median	p-value
No-till (% of operations)		
White	5%	
BAA	8%	1.319e-7
Hispanic	5%	.217
AIAN	6%	.268
Asian	9%	1.107e-8
Conservation till (% of operations)		
White	3%	
BAA	6%	5.622e-09
Hispanic	4%	.128
AIAN	4%	.3
Asian	6%	9.981e-05
Cover crops (% of operations)		
White	4%	
BAA	6%	4.75e-09
Hispanic	5.5%	0.00016
AIAN	5%	.1526
Asian	7.5%	4.982e-09

Generational Resiliency

Within any identified category, economic and climate resiliency benefits are at risk of being lost if a new generation entering agriculture cannot gain secure, long-term access to land. Therefore, we reviewed factors impacting generational resilience for each racial and ethnic category through proportions of operations with “new and beginning farmers” and types of tenure arrangements, specifically “full ownership,” “partial ownership,” and “full tenancy” or fully leased.

In comparison to White producers, the proportion of new and beginning farmers is significantly higher for Hispanic, American Indian and Alaskan Native, and Asian producers and significantly lower for Black or African American producers. This might not only suggest that Black or African American producers are not entering the field of agriculture at the same rates as other races and ethnicities, but that Hispanic, American Indian and Alaskan Native, and Asian farming populations have substantially newer

producer bases than the White farming population. White producers also reported lower farming rates as a primary occupation than both Black or African American and Asian producers.

As underscored in the 2022 National Young Farmers Coalition survey, access to land is the number one challenge young farmers and ranchers face. It is even more challenging for non-White farmers, as is maintaining access to land. To understand generational resiliency, it is important to consider who begins with more stable access to land.

Table 3: New and Beginning Farmer Status by Race and Ethnicity

Identity Category	Median	p-value
New and beginning farmers (% of operators)		
White	28%	
BAA	25%	0.00008567
Hispanic	38%	<2.2e-16
AIAN	31%	0.000001951
Asian	40%	7.871e-16

Operations with White producers were found to have significantly higher rates of full ownership than Black and African American producers but considerably lower rates than Hispanic or Asian producers. Conversely, operations were found to have significantly higher rates of partially owned and rented operations than Hispanic or Asian producers but significantly lower rates than Black or African American producers. Finally, all other producer groups were found to have significantly higher rates of fully rented operations than White producers, whose median value was five percent, while other groups had median values between 7-11 percent.

Land Tenure Trends

Land tenure arrangements imply varying levels of authority and decision-making agency that producers have regarding their operations. As we reviewed tenure arrangement as a measure of generational resilience, it became clear that tenure further informs variation in other resiliency

Table 4: Land Tenure Status by Race and Ethnicity

Identity Category	Median	p-value
Full ownership (% of operations)		
White	73.5%	
BAA	67%	4.412e-09
Hispanic	80.2%	<2.2e-16
AIAN	71.8%	.211
Asian	81.3%	1.799e-07
Partial ownership (% of operations)		
White	21.3%	
BAA	24%	.0001
Hispanic	13.7%	<2.2e-16
AIAN	21.6%	.9498
Asian	8.3%	<2.2e-16
Full tenancy (% of operations)		
White	5%	
BAA	9%	<2.2e-16
Hispanic	6.8%	2.227e-07
AIAN	7.0%	4.368e-07
Asian	11%	2.175e-12

characteristics, including economic and climate. JG performed further analyses using correlation matrices to understand the effect of tenure arrangement on other farm and demographic characteristics beyond just race and ethnicity. These analyses showed that full ownership arrangements are most common across the country among all demographic groups and that they are generally:

- Negatively correlated with farm size, average gross revenue, net profit, government receipts, and farming as a primary occupation
- Negatively correlated with conservation practice implementation
- Positively correlated with local food marketing practices amongst most demographic groups but highly negatively correlated amongst Asian producers.

Conversely, both partially owned and rented and fully rented farms were generally:

- Positively correlated with gross revenue, net profit, government receipts, and conservation practice implementation
- Negatively correlated with local food marketing practices

- Positively correlated (fully rented farms exclusively) with local food marketing practices, especially among operations with farmers of color

To best understand trends across multiple variables, cluster analyses were run to compare 2017 Census data on economic, marketing, conservation, and government support in relation to the three tenure arrangement types: fully owned and operated, partially owned and rented, and fully rented.

Economics and Demographics

The economic cluster included variables from the Census for average net cash farm income, new and beginning status, and primary occupation (farming vs. non-farming) status, which were used to gauge the economic viability and feasibility of farming. For most REG groups of producers, higher net cash farm income was more prevalent in counties with higher rates of partial ownership, fewer new and beginning producers, and more producers for whom farming is a primary occupation. The inverse was true for counties with higher rates of full ownership and lower rates of partial ownership and full tenancy,

indicating that these tenure arrangements are likely less profitable overall while in counties with more new and beginning farmers and perhaps less stable land access. Partially owned and rented operations were also positively correlated with farm size and average gross revenue and, thus, are likely more characteristic of conventional, commodity-oriented farms. For American Indian or Alaska Native producers only, counties had higher net cash farm income where there were higher rates of partial ownership, but more new and beginning producers and fewer producers for whom farming is a primary occupation. This situation appears to be specific to this group of producers and points to a reality where partially owned and rented arrangements are more accessible to new and beginning farmers that can farm part-time.

Local Food Marketing Practices

Cluster analyses for local food marketing practices included Census data on the number of farms participating in direct-to-consumer and/or intermediated markets. For Black or African American and, American Indian and Alaska Native producers, higher participation rates in local food markets were found in counties with higher rates of full ownership. For Asian producers, this is true in counties with more full ownership, while counties with higher rates of full ownership had the lowest median participation rates in local food markets. This could be related to those operations being primarily horticultural and thus well-suited to local markets, in contrast to poultry farming among other Asian producers who have full ownership of their operations. Farms with Asian producers are three times as likely to participate in direct-to-consumer markets and over ten times as likely to participate in intermediate markets than the national dataset. There is no strong relationship between participation in local markets and tenure status for females, Hispanics, White, and all producers.

Conservation Practice Implementation

The cluster analyses compared tenure arrangements to the same 2017 Census categories used to measure climate resiliency – cover crop, conservation tillage, and no-till implementation – and, therefore had the same limitations. The data showed that for most REG groups of producers, higher rates of conservation practice implementation were found in counties with lower rates of full ownership. This finding warrants further research as it counters the perception that

producers leasing land are less apt to make long-term investments, including in soil health and other conservation-minded improvements, as they might not reap the benefits beyond the lease agreement. The exception is for Black or African American producers, where counties with higher rates of full ownership showed higher proportions of operations engaged in conservation activities.

Government Support

Tenure arrangements were then compared to the average amount of government receipts received by operations, which include the Conservation Reserve Program, Wetlands Reserve Program, Farmable Wetlands Program, or Conservation Reserve Enhancement Program and Commodity Credit Corporation loans among others. For most REG groups of producers, higher average values received from government sources are found in counties with lower rates of full ownership. However, Black or African American producers were the only demographic group where the inverse is true: counties with higher rates of full ownership have higher average dollar amounts received from government sources. Based on the government programs included, this is likely tied to the finding above that showed greater conservation practice implementation among these producers.

Age Bracket Differentiation and Analysis

Although age does not correlate with experience, it could indicate what changes are more closely on the horizon based on proximity to retirement. As AFT coordinated with NASS to receive special tabulations of 2017 Census data to identify key differences in farm practices between young, middle-aged, and senior farming populations, a limitation to answering that question was quickly realized. All data based on specific age was available only at the state level, meaning there was insufficient resolution to conduct correlation matrices and cluster analyses with the same county-level precision as the REG and tenure categories. As a result, all analyses in this section are descriptive.

Economics and Demographics

Producers between the ages of 45 and 64 had the highest net profits. However, there are fourteen states in which young producers are the most profitable on average: Delaware, Idaho, Maine, Michigan, Montana, New Hampshire, New Jersey, New Mexico, New York, Oregon, Tennessee, Texas, Vermont, and Wisconsin. Young producers in these states tend to be farming as a primary occupation at higher rates than in other states. Why young producers in these states show these characteristics is unclear in the data and is worth further analysis.

Local Food Marketing Practices

Local food market participation, including direct-to-consumer and intermediated market sales, varies widely by age and typically declines in operations with older producers. Nationally, younger producers are more likely to participate in local food markets, with 10 and 3 percent of farms with young producers reporting direct-to-consumer and intermediated sales, respectively, as opposed to 5 and 1 percent for operations with senior producers. Even in states with the highest rates of direct-to-consumer market participation across the board – the six New England states (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont), New Jersey, and Hawaii – the percentage of operations with young producers with local food sales is often double that of those with senior producers. States with lower overall local food market participation rates largely exhibit similar trends.

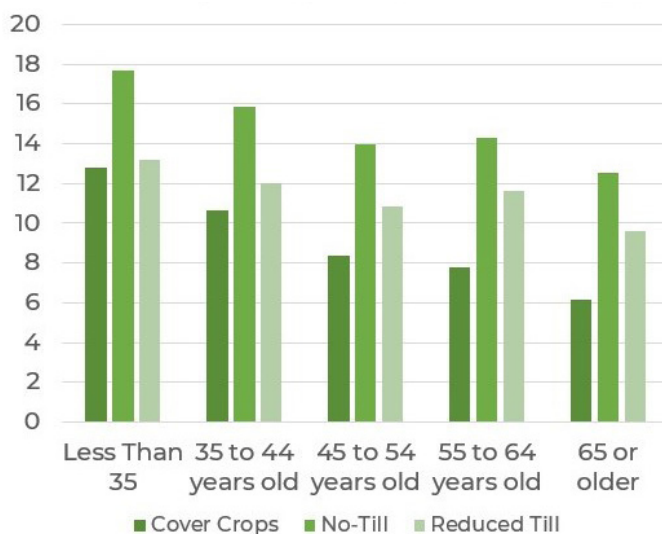
Furthermore, 16 percent of all operations engaged in direct-to-consumer markets and 20 percent of all operations engaged in intermediate markets have young producers. In comparison, young producers account for just 8 percent of the farming population. While this is true to a lesser degree of all age brackets 64 and under, this suggests a sizable interest on the part of young producers in engaging in locally oriented business models.

Conservation Practice Implementation

Similar trends by age are exhibited for select conservation practice implementation. While cover crops are implemented at lower rates nationwide, they are reported along similar if not more dramatic, lines

as no-till and conservation tillage systems. Young producers implement cover crops at double the rates of senior producers, while they implement no-till and conservation tillage at roughly 40 percent higher rates. Though these practices reflect only those appropriate for row-cropping systems and vary tremendously at the state level, they could indicate broader motivation patterns to invest in agricultural conservation.

Table 5: Percent of Farms Implementing Select Conservation Practices, by Age



Land Tenure

Young farmers tend to have higher tenancy rates than older or senior producers. Nationally, 16 percent of all producers under 35 operate on tenant farms. Some states, including the Dakotas, Nebraska, New Mexico, and Arizona, report that over 25 percent of their young producers do not own any of the farmland they operate. This is significant in understanding the potential loss of agricultural land during the generational transition when younger farmers leasing land will have to compete with other land use pressures. However, the most common type of tenure arrangement for producers of any age remains full ownership with senior producers, who represent 40 percent of the agricultural landowner population, comprising a much larger share of these operations.



What Are The Motivations And Attitudes Of Farmers Across Generations?

While the quantitative analysis provides a snapshot of where and how farmers and ranchers across different race and ethnic identities, age brackets, and land tenure situations are farming and what differences exist among demographic categories, understanding the motivations and attitudes of farmers required more direct insights from a sample of these populations. Because the research questions were framed to understand the perspectives of new and existing farmers to explore the potential implications for the near future of farming, these results were coded based on a number of years of farming. Those farming for ten years or less were considered new or beginning, and more than ten years considered long-term. While farmers of many backgrounds and land tenure situations were included in the sample, the participant sample breaks down as two-thirds new and beginning farmers and one-third with ten or more years of experience. Many of the farmers in the sample did not own the land they operated. Due to the method of interview solicitation, the majority of those interviewed managed relatively small operations, and many of the concerns and motivations cited may be reflective of that scale of operation.

Motivation

As varied as ages and levels of farming experience were among participants, there were similarities

regarding the motivation to start farming: a desire to be independent, a commitment to the land and to their communities, and most of all, a deep love of the farming lifestyle.

Farmers across a range of experience levels expressed a motivation to create local food systems, promote food justice and security in their communities, and steward their land sustainably. Both groups expressed the need to invest in their communities, expand access to healthy food options, and sustain and restore the land, supported by the quantitative findings. Yet among new and beginning farmers, these values were often framed in response to the way things have been done in the past – creating local food systems as an alternative to an off-balance food system and investing in conservation practices to restore the vitality to land that has been harmed. There was a strong belief in the power of farming to rectify past damage and to restore health to both land and people harmed by a global food system. However, long-term farmers were more inclined to speak of these values in concrete terms – that they had started rotational grazing or organic practices or had created a new farm-to-table opportunity for their operation.

What stood out amongst new and beginning farmers was a greater motivation to deepen their cultural

heritage through farming, particularly amongst farmers of color. This coincided with greater mention of the need to improve health outcomes in their communities and for themselves, especially in the aftermath of a global pandemic. These concepts stood out, particularly among a Spanish-speaking participant group from California, who were especially motivated by the harmful impact on their families due to histories with pesticides in the farmworker community to farm organically and pesticide-free. The importance of local food towards health, community cohesion, and food justice appeared strong beacons, driving the farmers we interviewed to develop their farms for the benefit of others.

Approach

Within the participant sample, added-value production and local food channels like Community Supported Agriculture and home delivery were commonly cited business models regardless of farming experience. Many cited the need to add value through processing and food service to stay viable. Unlike the quantitative data captured in 2017, the qualitative responses were collected within the context of the COVID-19 pandemic. Interestingly, none of the participants cited the pandemic's ripple effects on global supply chains as motivation or a shift away from local food channels as fluctuations have become less severe. This suggests added value and local food approaches as being impacted by broader, longer-term factors.

Given the costs associated with starting a farm, many farmers across a range of experience levels had to obtain off-farm work and farm-related income opportunities. Off-farm jobs were common among significant others and farmers as the necessities of health care and other bills are not always covered by farm income. Some new farmers even had to scale their operations back to focus on off-farm work, rethinking their business models and even their future in farming. Some long-term farmers mentioned that they had only been able to farm full-time once their market was fully established.

Cooperative farming strategies were also a common theme among many participants. New and beginning farmers frequently mentioned the desire to farm

cooperatively, citing the many benefits of sharing land, infrastructure, and knowledge with their peers in similar situations. As they prepare to scale up from just a few acres, many expressed grappling with how they will afford more acreage without sharing costs with other farmers. Rising land and water costs are forcing new producers to think creatively about how to grow and sustain their operations through the next stage of business development. There is strong interest in farming cooperatively but also caution in taking on a much more complex management system, and several new farmers cited recent rejection for loans where they had attempted to apply as a cooperative entity.

Long-term farmers also mentioned cooperation in their approaches to farming. However, it was framed much more as an aggregation tool to reach larger markets, that is the cooperative distribution of farm products rather than the cooperative farming of the land itself. They were focused on reaching more customers as the local food markets shifted from on-farm and farmers' market interaction to online ordering and home delivery.

Challenges

The main challenges many farmers faced involved a lack of access to central elements of viable farm operations and sustainable livelihoods: a lack of access to information, healthcare, labor, capital, and, most of all, land. Firstly, the high cost and inflexibility of health care options factored into an increasingly complex financial calculus, where farmers at times opted to forgo annual check-ups or procedures to prioritize the farm. Notably, this was yet another arena where the idea of a cooperative business model was mentioned to support greater healthcare access.

A variety of other capital-based needs were often out of reach, especially for new and beginning farmers. The lack of access to capital affected decisions around necessary equipment and infrastructure for some farmers as input costs steadily rose. Climate volatility was a salient factor among livestock operations that became unexpectedly dependent on purchased feed. Labor also represented a significant challenge to new and long-term farmers alike, who could not often afford to compensate off-farm workers. Even when there was enough money, the seasonal nature of the work was noted to limit the availability and willingness

of part-time laborers to work.

The lack of access to suitable land was not unique among new farmers; long-term farmers also cited their struggles with finding land that was appropriate for their operations and aligned with their expansion goals. However, new farmers were more likely to report challenges with securing anything other than short-term land rental, often having moved their operations each year to a new lease agreement. They cited their work and investments in soil health as being disrupted each year, prompting many to hold off on developing their long-term goals until they could own the land they operated.

One of the biggest bottlenecks for new farmers was in the search to purchase their first piece of land. A lack of affordability was a chief concern among those in their search to acquire land, citing high costs close to the markets they had already developed. Even when the land was suitable and affordable, the necessary resources like water and housing may not have been included, thus creating another hurdle and point of negotiation needed for land-seeking farmers. These challenges were especially felt among farmers who self-identified as socially disadvantaged, including farmers of color, queer farmers, and single mothers.

Support

Though all farmers interviewed expressed some reliance on external support networks, the makeup of those webs of resources differed by the length of farming experience. New and beginning farmers were particularly reliant upon non-profits, extension organizations, and peer networks for support, much more so than direct state or federal support. Farmers found that groups like the National Young Farmers Coalition, the Practical Farmers of Iowa, the Detroit Black Farmers Association, the Northeast Organic Farming Association, and many more gave invaluable business and conservation technical support, financial assistance, and peer-to-peer support. New farmers noted that these organizations played a key role in helping them navigate the calculus of grants, loans, and other resources needed to improve their operations. Yet among those in their first few years of farming, there seemed to be less awareness of groups dedicated to supporting farmers, let alone state or federal support. This start up period proved

overwhelming for many farmers to comprehend the universe of non-profit and government actors and what they can offer. Many farmers, especially those in undocumented and secondary English-speaking communities, found themselves ineligible for government programs and thus unable to break out of the cycles of time-intensive labor and lack of capital to invest in more expedient or efficient alternatives.

Conversely, farmers with ten or more years of experience were considerably more likely to mention positive associations with government support of any kind than their less-experienced counterparts. Many had received support from various NRCS programs as well as low-interest loans through the Farm Service Agency (FSA) for purchasing land and infrastructure. Some non-profit-driven support was mentioned, mostly around business planning, but a much greater sense of assistance was derived from these larger opportunities through state and federal programs. Yet even while this type of support was much more common among established farmers, they still struggled to stay on top of the various opportunities and the documentation required; several mentioned feeling like full-time grant writers chasing any prospect of financial assistance and expansion.

Many farmers across all experience levels were aware of the grant opportunities and funding support out there. Still, they frequently mentioned a lack of time and guidance to write competitive grants that were likely to yield funding awards. This was most often tied to grants from FSA and NRCS, where many felt as though bigger farms with more resources and capacity were better able to apply and receive larger grant or cost-share funding. This led to a sense of defeat and cynicism among some farmers we interviewed who did not have enough capacity to apply for grants that could potentially help them.

There remain serious gaps in support noted among the farmers we interviewed, especially for producers of color. Due to a history of discrimination, these farmers expressed skepticism about what government support could even look like – and who it is really intended for. This was made clear by the Spanish-speaking interviewees, who commonly noted a lack of trust for external organizations and agencies who promised to deliver benefits, only to extract information and time

from their farming communities. Not only was there a consequent lack of trust, but a pervasive sense of unfairness around the allocation of resources given to white farmers in communities where farmers of color had been working for decades. This also resembled the sentiment shared among many small-scale farmers regardless of race: they perceived most benefits from federal loans and grants as geared towards larger farms, while smaller farms remain overlooked and underfunded.

Future

Despite the challenges and lack of support they highlighted, new and beginning farmers expressed optimism and inspiration when looking toward the future. They expressed this optimism not only towards the future growth of their operations but for the impact it would have on their communities and collaborators for years to come. Few new and beginning farmers mentioned planning for the future directly, either through estate or succession planning. Yet, long-term farmers described a myriad of approaches and concerns regarding planning the future of their farms. Their responses reveal that succession planning is ubiquitously complicated and tenuous. Many identified succession as the most difficult challenge facing their operation and expressed deep uncertainty about who would take over the farm.

While some long-term farmers we interviewed did have family or long-standing employees interested in someday taking over the farm, others expressed doubt and disappointment in their search for suitable successors. Some even revealed concern that younger generations of farmers had demands and expectations that were outright unrealistic. While these comments were not at all universal, they underscore a tension looming within the dynamic between landowners and land seekers negotiating land deals.

Several of the long-term farmers mentioned the value of agricultural conservation easements in supporting their vision for the future. These farmers – some with easements already in hand – expressed that permanent protection could help them in their goal of keeping the land in farming in perpetuity, even if it was not explicitly a mechanism for identifying a successor. Despite all this, these aging farmers expressed wanting to keep farming as long as physically possible. Those

entering farming expressed hopefulness despite the economic, social, and climate challenges looming ahead. With each harvest, each calving, each season of new life and abundance, these farmers felt inspired to do it all over again.

Discussion and Recommendations

Transforming Agriculture for Resiliency has sought to lay a foundation to understand better the magnitude of opportunities – gained and lost – as the country faces a significant generational and demographic transition in agriculture over the coming decades. Within this critical moment of shift in farm stewardship, the quantitative and qualitative results speak to more complex realities at the intersection of agriculture and identity.

While AFT’s research raises several key findings and recommendations, we do so with a note of caution and a call for better data and further research. The Census data available from NASS for Race, Ethnicity, and Gender profiles revealed how little is known and knowable about historically underrepresented producers from broad datasets, especially in parts of the country with smaller agricultural sectors and, therefore, limitations on data disclosure. Filling this information gap will be critical in not only supporting a more just agricultural future, but in ensuring a future for farming and ranching on the whole. With the exception of Black and African American producers, farmers and ranchers of color producers reported significantly higher rates of new and beginning farmers than in the White farming population. This supports the notion that America’s next generation of farmers is increasingly diverse.

At the same time, the findings are grounded in the evidence that not all non-White producers should be regarded uniformly in how they are farming. There were many divergent trends that vary widely by racial or ethnic demographic group, reflecting the unique histories and circumstances each group has faced. While the discussion and recommendations highlights some notable differences between White producers – the farming majority – versus producers of color, this is not meant to consolidate them into binary groups. There are instances where similarities do exist, and these groups are referenced collectively, but not all operations with producers of color exhibited universal characteristics, and we have worked to highlight differences in alignment with the goals of this analysis when significant.

Recommendation 1: Improve outreach and support to Black or African American, Asian, and Hispanic farming communities for federal conservation assistance. Not only are historically underserved producers seeing more new and beginning farmers emerge, but these producers are also demonstrating greater investment in conservation practices despite less profitability and government support. Both Black or African American, and Asian producers were found to have implemented all conservation practices analyzed from the 2017 Census data at significantly higher rates than White producers in counties with available data, while Hispanic producers were found to have implemented cover crops at significantly higher rates. Yet these producers concurrently all reported significantly lower median values of government receipts, to which federal and state conservation funding can contribute greatly. This is likely due to a lack of trust and disparities in access, as identified in the qualitative interviews.

Altogether, this suggests that the bulk of Black or African American, Asian, and Hispanic producers are financing their conservation activities without the government’s support, when many more could stand to benefit from the additional investment. The qualitative analysis also suggest that these producers are conservation-minded and motivated to steward their land conscientiously but are limited both by long-term and secure tenure and a lack of capacity to apply for the programs in the first place.

Recommendation 2: Conduct further research on the relationship between land tenure, demographic identity, and conservation practice implementation to understand the implications for climate resiliency.

Among the most striking findings and well-positioned for further analysis is the relationship across tenure arrangement, demographic categories, and conservation practice implementation. According to a 2018 survey of non-operating landowners, AFT found that conservation practices are less likely to be used by farmers on rented land because of perceptions about

landowner views, difficulties communicating with landowners who may live some distance away, and due to the fact that most leases are verbal and typically run year to year, making conservation investment risky (AFT, 2020). This was underscored in the qualitative interviews for this project, where the farmers that relied on leased land indicated that they implement conservation practices but to a lesser degree than they ultimately hope out of fear of losing the investments made if their tenure arrangement changes.

However, the 2017 Census data we analyzed showed a different story. Those producers who either fully or partially leased land showed greater implementation of conservation practices than in situations with full ownership. Young producers, who showed higher farming rates on rented or partially rented land, implemented cover crops at double the rates of senior producers, while they implemented no till and conservation tillage at roughly 40 percent higher rates. Finally, for all REG groups of producers other than Black or African American producers, higher rates of conservation practice implementation were found in counties with lower rates of full ownership.

There are some possible reasons for these differences. The most recent NASS survey of Tenure, Ownership, and Transition of Agricultural Land (TOTAL) indicates that farms are leased at significantly higher rates in ranching states like Texas or in states dominated by row crop production and, therefore, predisposed to access the conservation practices tracked by the Census, including Illinois, Iowa, Minnesota, and Oklahoma (NASS, 2015). New and beginning farmers, young producers, and producers of color show more diversified operations on smaller acreage, which may skew the Census data on conservation practices toward specific operations.

Taken collectively, the potential for addressing climate change and supporting resiliency now and in the future is reliant on current and incoming generations of producers implementing conservation practices. Further research is needed to truly understand whether or not conservation goals identified and practices implemented by young and historically underserved producers will be strengthened or hindered based on tenure status. This is particularly important at this unprecedented moment when greater

government investments are being made at the state and federal levels in the 2022 Inflation Reduction Act and other legislation at all levels of government to support farmers in addressing climate change.

Recommendation 3: While all historically underserved producers require systems and structures that better support their resiliency, particular attention should be paid to the cumulative findings among Black or African American producers. Of all the demographic groups analyzed, the most standalone exceptions to identified trends were found with Black or African American producers. For this population, just 5 percent nationally is reported as under 35, making it apparent that far fewer are entering farming than in other demographic groups. Far greater numbers report farming as a primary occupation, which is more typical of older, established farmers. However, far less of the financial reward marked for older producers seems to be realized for their operations. Together, this suggests that young and new Black or African American producers may struggle to see farming as a viable career opportunity or to break into the field if they are set to inherit a less financially viable operation or a need to supply all of the capital for a new farm altogether. A long history of land loss and theft likely complicates these efforts and compounds the ability to apply for government assistance.

Unlike any other demographic group, counties with more fully owned and operated tenure arrangements had higher rates of conservation adoption and higher average dollar amounts received from government sources among Black or African American producers. Though further research is needed, this suggests that authority and autonomy over the land is particularly important to these producers in their decision about using conservation practices. They are making gains in accessing funding from public sources that have been systemically denied.

Recommendation 4: Improve key data sources that set the standard for measuring and tracking shifts in demographic characteristics, land tenure and access, adoption of conservation, and farm viability over time.

When AFT set out on this project, we aspired to

evaluate data that could offer a complete view of the resiliency of agriculture in the country. While the data sets we used, namely the Census of Agriculture and TOTAL, offer important windows into what is happening across the country and are valued sources of information for agencies, policymakers, organizations, and others at all scales and levels of government, the picture is left incomplete making it difficult for these entities to fully evaluate and address the tsunami of change happening across U.S. agriculture and land tenure. Specifically, the extent of data released by NASS in the REG profiles reveals how little is known and knowable about historically underserved producers, especially in areas with smaller agricultural sectors.

For instance, there are several steps that can be taken to improve the TOTAL survey and make its findings even more relevant. This includes expanding TOTAL to enable state-level findings for all 50 states, increasing the frequency of the survey to every five years, as opposed to its current rate of every ten years, and collecting additional data on landowners regarding demographic information such as race, ethnicity, and gender, investments in conservation and conservation program participation, types of rental and whether or not landowners have an identified heir and, if so, if their heir plans to keep the land in agricultural use. These and other modifications have been identified by stakeholders, including AFT, as priorities for program changes by Congress in the next Farm Bill. [Complete recommendations are available here.](#)

Recommendation 5: Strengthen the capacity of organizations to support technical assistance and networking for new and beginning farmers and succession planning for senior farmers.

What was consistent across the qualitative interviews was the sense of overwhelm and uncertainty farmers of all experience levels, ages, and REG categories in accessing the support they need. Collectively, this points to a need for solutions that help all farmers in navigating available resources, particularly for historically underserved farmers and ranchers who face high barriers to attaining access to land, capital, markets, and technical assistance.

New and young farmers identified non-governmental organizations as playing an outsized role in connecting them to technical resources and each other, while

long-term farmers found support in government agencies. Building capacity at both to provide one-to-one, customized services can help orient farmers and ranchers in meeting their unique needs through services such as coaching, skill development, and planning related to financial management, conservation practices, farm transfer and succession, and access to land and capital.

This work is particularly critical to addressing historic and systemic barriers facing farmers and ranchers of color, who have been structurally denied opportunities to access capital, land, technical support, and USDA program for generations. Of the counties with data available to analyze, AFT found that operations with White producers have statistically significantly higher median net cash farm incomes than operations with Black, American Indian, Alaska Native, or Hispanic producers. This highly disparate finding suggests that even in similar geographies, climates, and agricultural economies, White producers fare far better financially than most producers of color. Very few counties with operations with historically underserved producers reported positive median values, suggesting that much more than half of all operations were not profitable in 2017. This finding bears stark implications for the short-term viability of these farms and ranches. It underscores the reality that producers of color struggle to receive support and access to more viable agricultural opportunities.

One way to strengthen direct support to address this challenge would be to create an Office of Small Farms within USDA. An Office of Small Farms could serve as the core administrative and coordinating body within USDA on all policies impacting small farms. The Office could ensure that initiatives and other targeted investments are designed in a way that considers the unique challenges facing small farmers and inclusive of historically underserved producers. The Office could also serve as a resource for USDA agencies and offices, including NRCS EPD, by tracking data on, informing outreach to, and providing outreach for small farms, including historically underserved producers. It could also coordinate technical assistance, helping them to access the full complement of USDA programs.

Conclusion

Ensuring that a new and next generation of farmers and ranchers can enter agriculture, find farmland, manage it well, and stay operating successful farm businesses is critical to the economic, social, and environmental health of our nation. The findings, discussion and recommendations included here offer insights into the experiences of producers operating across the generations with learnings on tenure status, conservation practice adoption, and local market participation within counties with concentrations of different racial and ethnic identities. However, there remains much to do to truly capture the scope of how agriculture is poised to transform and put these recommendations into action to enable resiliency. AFT is grateful for the opportunity to have partnered with NRCS on this initial analysis and looks forward to identifying pathways for further engagement with NRCS and other partners on these and other issues.



Works Cited

- Freedgood, J., M. Hunter, J. Dempsey, A. Sorensen. (2020). Farms Under Threat: The State of the States. Washington, DC: American Farmland Trust.
- National Young Farmers Coalition. 2020. Land Policy Report: Towards a More Equitable Farming Future. National Young Farmers Coalition (NYFC). Retrieved from <https://www.youngfarmers.org/land/wp-content/uploads/2020/11/LandPolicyReport.pdf>
- Petrzelka, P., Filipiak, J., Roesch-McNally, G., and Barnett, M. J. 2020. Understanding and Activating Non-Operator Landowners: Non-Operator Landowner Survey MultiState Report American Farmland Trust farmland.org/NOLS.
- USDA National Agricultural Statistics Service, 2015. Farmland ownership and tenure. Results from the 2014 Tenure, ownership and transition of agricultural land survey. www.agcensus.usda.gov/Publications/2012/Online_Resources/Highlights/TOTAL/TOTAL_Highlights.pdf.
- USDA National Agricultural Statistics Service, 2017 Census of Agriculture. Complete data available at www.nass.usda.gov/AgCensus.

Appendices

Quantitative Analysis

JG utilized descriptive statistics, primarily median values of select metrics, to observe differences by identity category due to the non-normal and highly skewed data distribution, as medians are not as impacted by extreme outliers as means. For this same reason, JG conducted Wilcoxon Rank Sum Tests to compare medians by identity category rather than a standard two-sample t-test. The Wilcoxon test examines whether the difference in the medians of two groups is or is not statistically significantly different than zero without assuming the populations are normally distributed. In the results, a significant probability value, or p-value, shows that the observed difference in median values between the two groups is statistically significant.

In the tests presented in this paper, the county is the unit of analysis, and each REG test compares one identity category to the White identity category. The White sample reflects only the counties that are also included in a given other identity sample. So rather than compare median values for all White operations in the country to the median values for a given other identity in only the subset of counties for which data existed, the included counties are consistent across the two identity categories. The Wilcoxon tests include the median value of a given variable for each identity and the p-value for the test comparing the median value of the white identity operations to the median value for operations of a shared other identity.

To identify patterns of relationships at multiple levels (identity, tenure status, specific REG category), JG ran correlation matrices to observe relationships across all variables of interest. Possible clusters of variables emerged, which are highly correlated with one another in bivariate pairs. From this initial analysis, AFT and JG selected a subset of variables that reflect the categories of interest based on the research questions and conducted cluster analyses within each identity category and tenure status. Cluster analysis is a form of multivariate regression that seeks to define groups or clusters, by minimizing the differences among observations across a set of variables within a cluster and maximizing the differences between them. While there are several estimation techniques, JG used the daisy function and Gower metric due to the high degree of variability in the scales of each variable included in each cluster analysis, as well as high degrees of non-normality.

Extreme outlier values were removed from each variable in the cluster analysis, with the goal of bringing skewness below 1.0. However, too much data would have been lost if additional observations were removed to further decrease skewness. Exploratory cluster analysis using both the silhouette and elbow methods was then conducted to determine the most fitting number of clusters for a given analysis. Finally, results were calculated using median values for each cluster rather than means, again due to large variances in some of the included variables. The results of the cluster analysis identify clusters of counties in which an identity group and tenure status have a specific pattern of characteristics.

Qualitative Analysis

Between February and April 2022, 15 farmers participated in individual interviews via phone, with each interview lasting 30-60 minutes. During this time, 38 farmers attended 13 group listening sessions held via video call lasting one hour each. Groups were made up of 2-4 people and composed based on participant availability, except for one session, which was conducted in Spanish with a consultant from Globally You. The Spanish language session was virtual with six farmer participants from California.

DIA collected data from the focus groups and interviews using Otter.ti transcription software and note-taking. Participants received a follow-up email with a link to a Google Form to share any additional thoughts or insights subsequent to their interview and to capture contact information to distribute the honorarium. DIA also used Atlas.ti qualitative data analysis software to organize the data, which they analyzed inductively using thematic analysis in order to determine the most significant and meaningful themes and findings. Those results were presented to AFT in a 50-page summary report, and full interview transcripts were also made available to allow AFT to conduct further review to inform the overall analysis.

