Sizing up the Farm Transition Challenges Facing Farmers and Ranchers

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For as long as agricultural producers have been farming and ranching in the United States, they have been worrying about who would follow in their footsteps. There has perhaps been no period in U.S. history that saw greater consolidation in the number of farms than in the 30 years following the end of World War II, when the number of farms in the United States was cut in half and the average farm size more than doubled.

Mechanization has meant that fewer people are needed to grow the food and fiber that feeds and clothes our nation. As a result, most of the people in our country are now multiple generations removed from the farm. In the case of absentee landlords, even those who continue to own land often have little connection to the daily realities of operating a farm or ranch. Perhaps no one has captured this sentiment better than U.S. Secretary of Agriculture Tom Vilsack, when at an agricultural appropriations hearing in February 2016 he said:

> *"Every one of us that is not a farmer is not a farmer because we have farmers. We delegate the responsibility of feeding our families to a relatively small percentage of this country. If you look at 85 percent of what is grown in this country, it is raised by 200,000 to 300,000 people. That is less than one-tenth of 1 percent of America.*
>
> *"But the other 99 percent of us can be lawyers and doctors and Peace Corps volunteers and economists and people that work for government and all of the other occupations because we never think about, well, gee, do I have to actually grow the food for my family? No. I go to the grocery store and get it.*
>
> *"So, I am free to do whatever I want to do with my life. That is an incredible freedom that we take for granted in this country. It is not true in most of the countries in this world. And then when we go to the grocery store, we walk out of it with more money in our pocket as a percentage of our paychecks than anybody else in the world."*[1]

Despite being far removed from the farm, the general public still takes a great interest in what happens on the farm—from concerns about the challenges faced by beginning farmers, to environmental impacts of production agriculture, to animal welfare, to the use of biotechnology, just to name a few. Concerns about farm size and consolidation inevitably lead to conversations about farm transitions: what are the barriers to entry for new producers? Who will take over these farms that are responsible for producing the vast majority of the food we consume? What, if anything, can and should policymakers do to facilitate farm transitions?

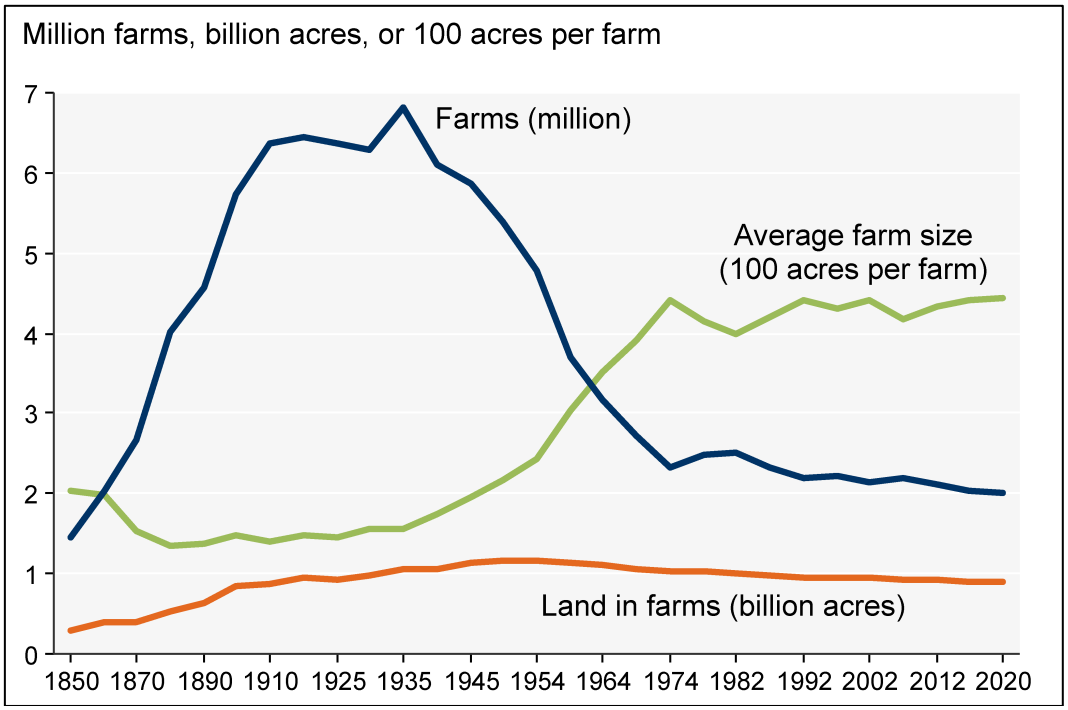
Congress itself set out to address a few of these questions by establishing the *Commission on Farm Transitions—Needs for 2050* in Section 12609 of the 2018 Farm Bill. The commission itself was never funded, but the issue remains front and center. In the event that Congress or the Administration chooses to fund the commission, this paper provides an overview of the size and scope of the issue.

[1] https://www.govinfo.gov/content/pkg/CHRG-114hhrg20558/pdf/CHRG-114hhrg20558.pdf

Background

As noted above and in Figure 1, post-WWII mechanization in agriculture resulted in a precipitous decline in the number of farms in the United States.[2] Larger equipment meant fewer farmers were needed. On the other side of the same coin, that equipment was more expensive, which meant farmers needed more acres to pay for it (or to achieve economies of size). As a result, the number of farms in the United States fell from roughly 6 million in the mid-1940s to fewer than 3 million in the mid-1970s. Not surprisingly, the average farm size more than doubled over that same timeframe.

Despite significant growth in the average farm size over the 30 years following WWII, today the average farm size is just 444 acres. Perhaps most interestingly, the average farm size has remained largely unchanged over the past 50 years (for example, compare 2020's average of 444 acres per farm to 440 acres per farm in the early 1970s).



Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, Census of Agriculture (through 2017) and *Farms and Land in Farms: 2020 Summary* (February 2021).

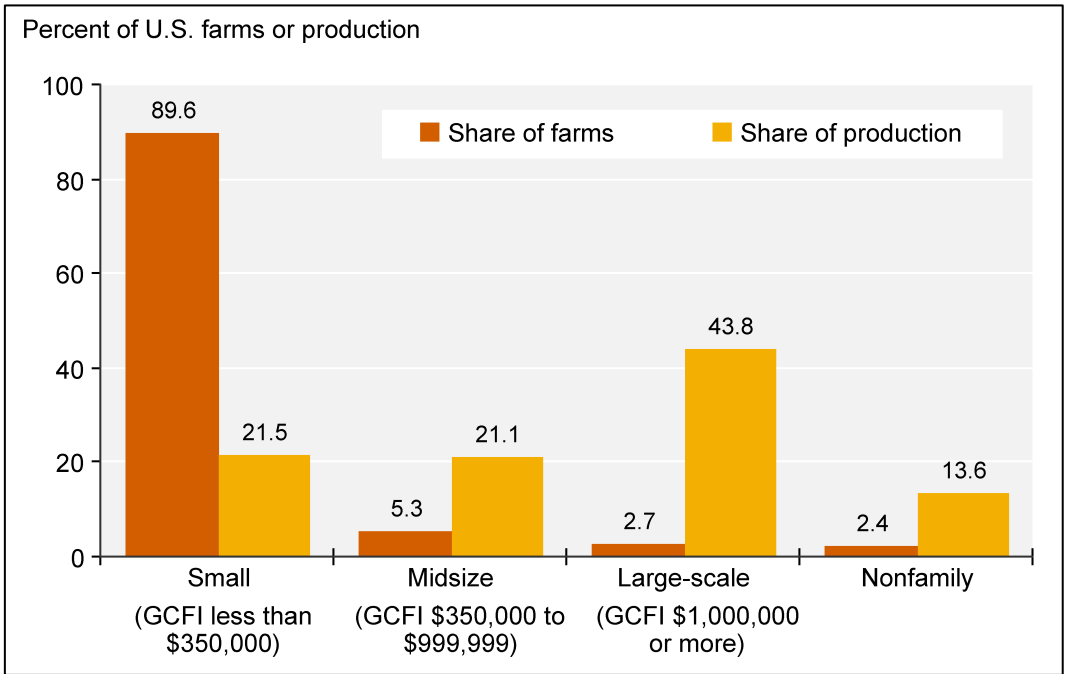
Figure 1. Farms, land in farms, and average acres per farm, 1850-2020

While the average farm size has remained largely unchanged over the last 50 years, that masks a pronounced skewness in the distribution of farms. As noted in Figure 2, 89.6% of farms account for just 21.5% of the value of production. By extension, just 10.4% of the farms (that 200,000 to 300,000 Sec. Vilsack mentioned above) accounts for 79.5% of the value of production. Within that group, there are still twice as many medium-sized farms as large-scale farms, but the large-

[2] https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/farming-and-farm-income/

scale farms produce twice as much. Bottom line, a very small number of farms account for most of the value of production.

These measures are all influenced by the fact that, since 1974, USDA has defined a farm as having $1,000 or more in agricultural sales.[3] To put that in context, the projected marketing year average price for corn (2021/22 marketing year) is $5.60/bu and the projected national average yield is 180 bu/ac, resulting in $1,008/ac in projected total revenue. In other words, growing less than 1 acre of corn in 2021 would meet the definition of farming. While USDA classifies farms with annual gross cash farm income (GCFI) before expense of $350,000 or less as small, the reality is that almost half of the farms in the United States have less than $10,000 in sales. Using the same illustration as above, that would equate to less than 10 acres of corn per farm.



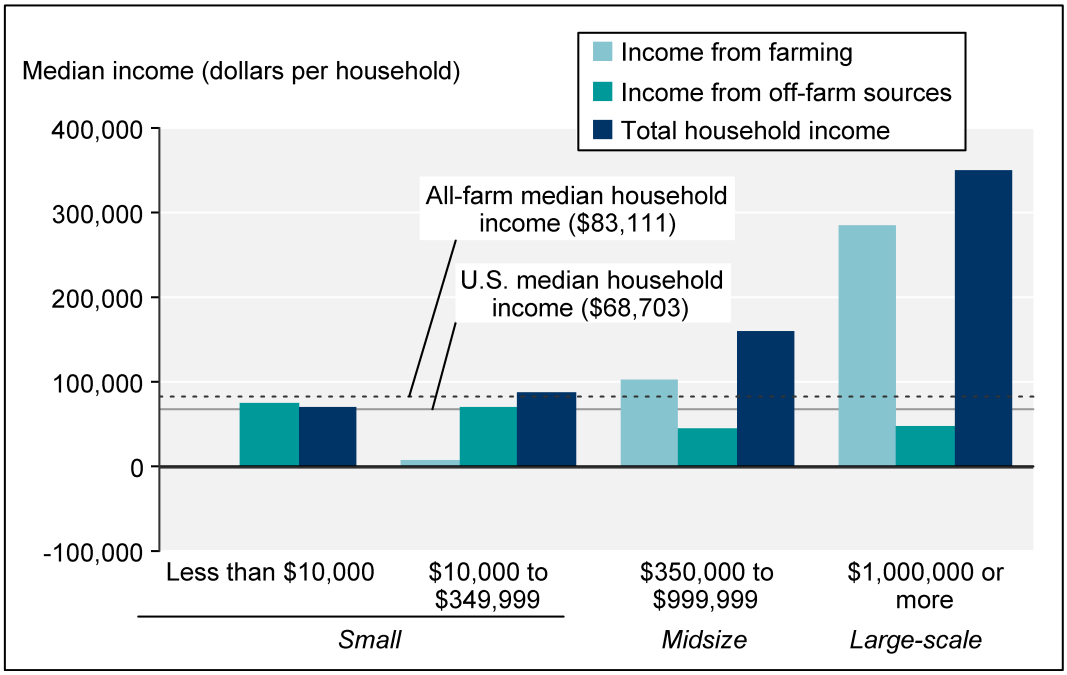
Note: GCFI = annual gross cash farm income before expenses. Nonfamily farms are those where the principal operator and their relatives do not own a majority of the business.
Source: USDA, Economic Research Service and National Agricultural Statistics Service, Agricultural Resource Management Survey. Data as of December 2, 2020.

Figure 2. Farms and their value of production by farm type, 2019

While the general public often equates small-sized farms with "family farms," the reality is much different. Figure 2 also illustrates an often-misunderstood fact: 2.4% of farms are non-family operations that account for 13.6% of production. This effectively means that 97.6% of farms in the United States are family-owned and they account for the overwhelming majority of the production in this country—86.4% to be exact.

[3] https://www.nass.usda.gov/Publications/Todays_Reports/reports/fnlo0220.pdf

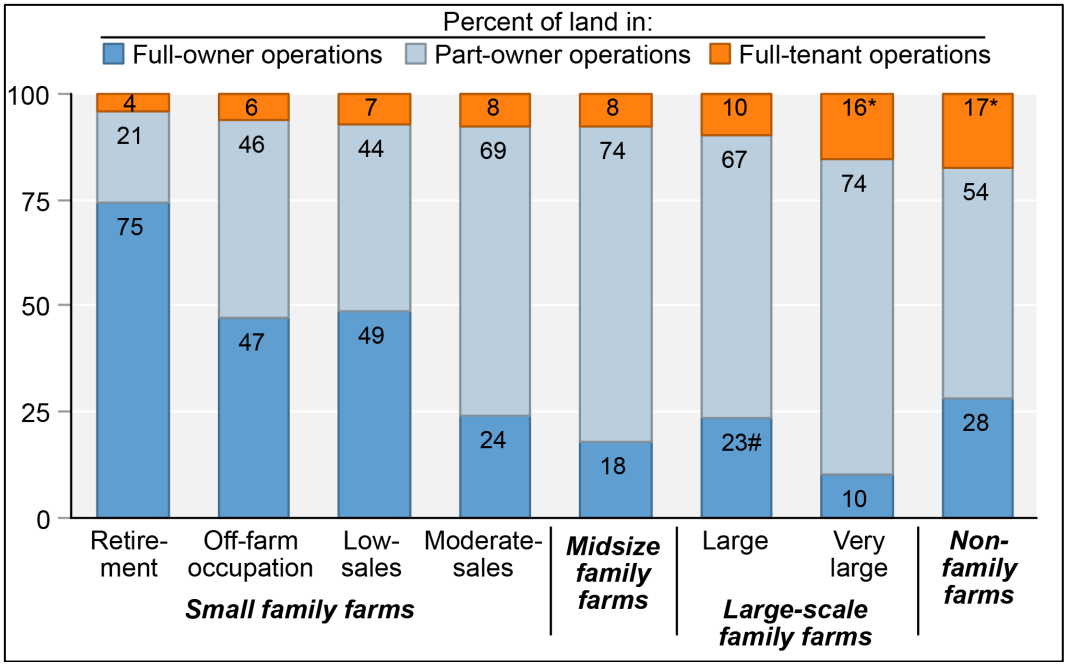
For small farms in particular (i.e. those with less than $350,000 in sales)—which, again account for 89.6% of all farms—virtually all of their income comes from off-farm sources. In fact, "income from farming" barely registers for small farms in Figure 3. By contrast, for large-scale operations, most of their total household income comes exclusively from farming (and ranching). Interestingly, both midsize and large-scale operations have roughly the same amount of off-farm income.



Note: Sales class reflects annual gross cash farm income before expenses (the sum of the farm's crop and livestock sales, Government payments, and other cash farm-related income).
Source: USDA, Economic Research Service and National Agricultural Statistics Service, Agricultural Resource Management Survey and U.S. Department of Commerce, Bureau of the Census, *Current Population Reports.* Data as of December 2, 2020.

Figure 3. Median household income of principal farm operators by source and sales class, 2019

In terms of land tenure, as noted in Figure 4, 75% of small retirement farms operate exclusively on owned land. For the remaining small family operations, roughly half of them operate exclusively on owned land. By contrast, for midsize and large-scale family farms, very few operate exclusively on owned land—in fact, the vast majority also include rented land. This adds yet another complicating factor: whoever takes over the farm must decide what to do with the rented land. It may make sense to keep the rented land in the operation (for economies of size), but it may also involve convincing a skeptical landlord that you are up to the task.

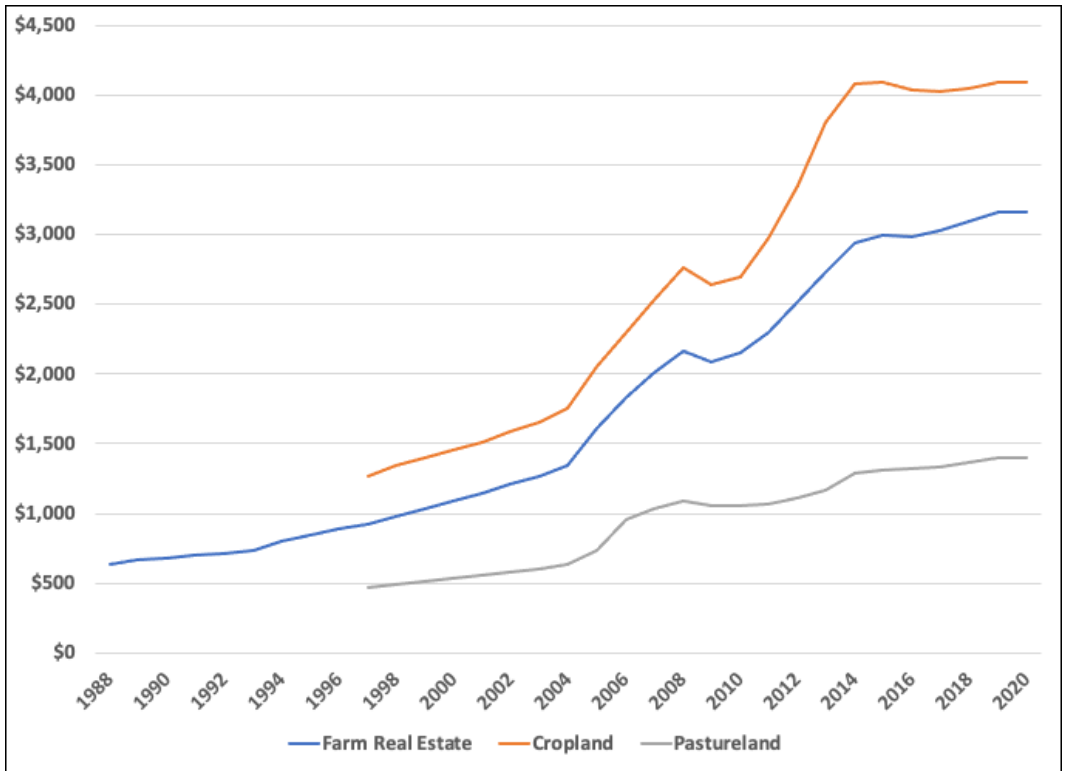


Note: Data exclude Alaska and Hawaii. A coefficient of variation (CV) between 25 and 50 is denoted with a (*) and a CV greater than 50 is denoted by a (#).
Source: USDA, Economic Research Service and National Agricultural Statistics Service, 2014 Tenure, Ownership, and Transition of Agricultural Land (TOTAL) survey.

Figure 4. Distribution of operated land by tenure and farm type, 2014.

While most large-scale family farms operate with rented land, it's important to note that most farms and ranches still have most of their retirement assets tied up in land. For context, farm real estate (i.e., land and buildings) accounts for an estimated 84 percent of the value of farm assets.[4] As noted in Figure 5, cropland values have tripled since 1997.

[4] https://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/assets-debt-and-wealth/

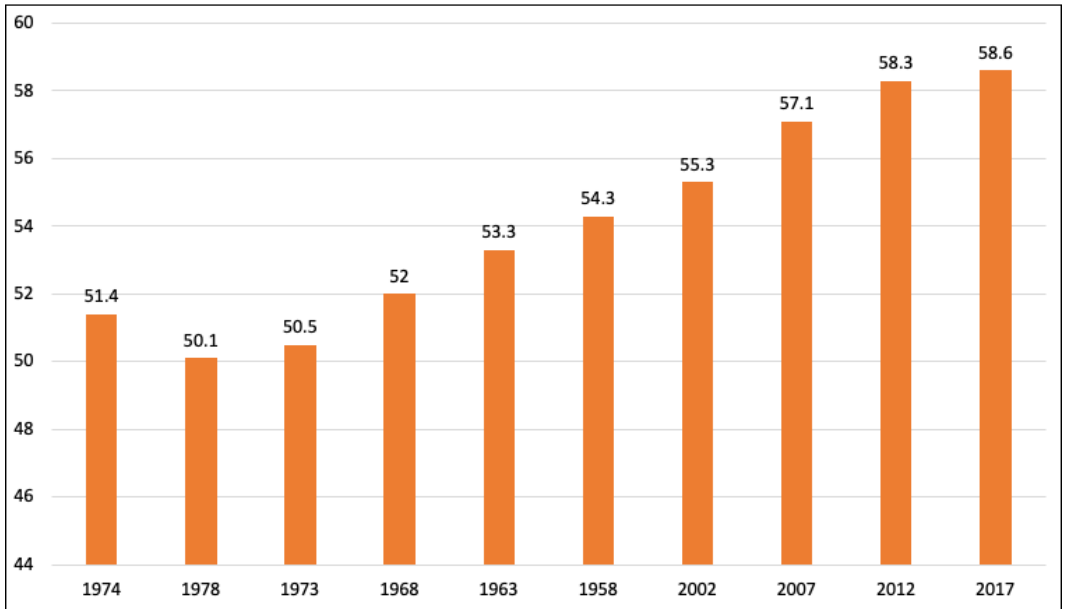


Source: USDA/NASS.

Figure 5. Farm Real Estate Values (Including Buildings), Cropland Values, and Pastureland Values (in $/Acre), 1988-2020.

Another often-cited barometer of the state of farm transitions is the average age of farmers. As shown in Figure 6, the average age of farmers (principal operators) has climbed from 50.1 years of age in 1978 to a high of 58.6 years of age in the most recent census. While that statistic often attracts attention, it largely parallels the change in life expectancy for the total U.S. population, which has increased from 69.7 years in 1960 to 79.4 years in 2015.[5]

[5] https://www.census.gov/content/dam/Census/library/publications/2020/demo/p25-1145.pdf

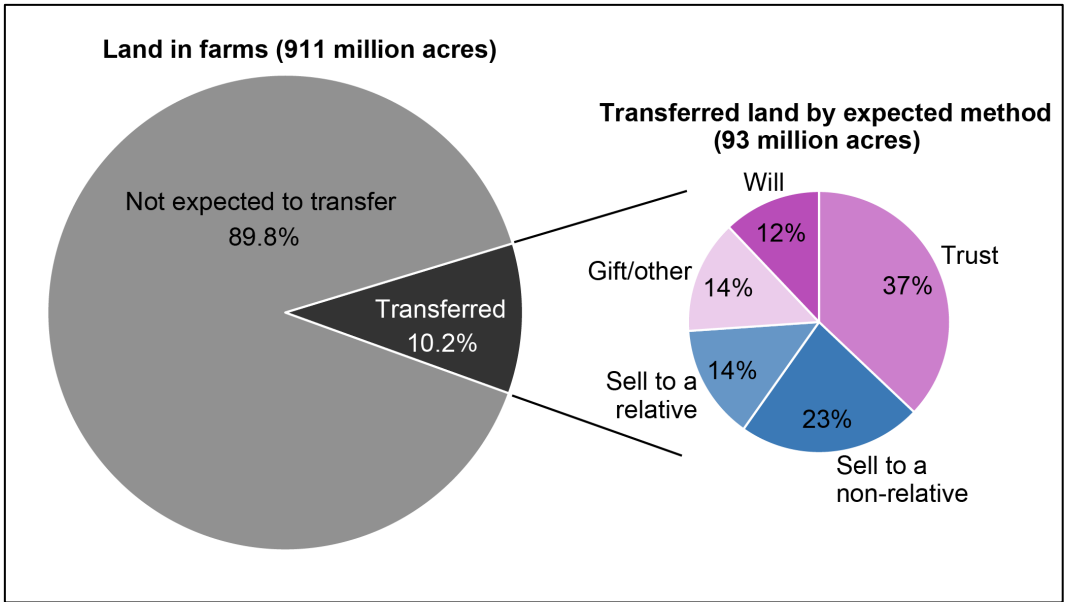


Source: Census of Agriculture, National Agricultural Statistics Service (NASS)

Figure 6. Average Age of Principal Operator by Census of Agriculture Period

As noted in Figure 7, the result of USDA's 2014 Tenure, Ownership, and Transition of Agricultural Land (TOTAL) survey indicated that roughly 10.2% of the land in farms in the U.S. (or approximately 93 million acres) were expected to change hands during the 2015-2019 period. The American Farmland Trust (AFT) estimates that 40% of the agricultural land (370 million acres) will change hands in the next 2 decades.[6] In Canada, one study estimated that 75% of the land will change hands over the next 10 years but only 8% of the farms have a transition plan.[7] Naturally, the absence of a transition plan increases the likelihood that an operation is discontinued, exacerbating the trend in farm consolidation. And, while it is somewhat encouraging that roughly half of the land appears to be connected to a will or trust—indicating some degree of transition planning—that still doesn't mean there is a plan in place to continue operating (Figure 7). As noted in Figure 7, the other half plan to give the land away or sell it, again without clarity on whether there is a plan in place to continue operating.

[6] https://farmland.org/transition2021/
[7] https://www.farms.com/news/fcc-survey-shows-most-farmers-would-consider-transition-plan-164547.aspx



Note: Data exclude Alaska and Hawaii.
Source: USDA, Economic Research Service and National Agricultural Statistics Service, 2014 Tenure, Ownership, and Transition of Agricultural Land (TOTAL) survey.

Figure 7. Land in farms expected to transfer in 2015-19.

In summary, there are a large number of small farms that produce a small share of the food in this country. These farms rely primarily on off-farm income which averages about the same as median U.S. household income. At the same time, there is a very small number of large farms that produce the lion's share of the food produced in this country. These farms rely heavily on farm income which averages well above median U.S. household income, but they put a large amount of assets at risk in the production of that income. These two bookends present a number of unique policy and political challenges. While smaller sized farms seemingly capture the imagination and interest of policymakers, it's the larger, full-time family farmers who are producing most of the food and fiber in this country.

Challenges

When we talk about farm transitions, we generally are referring to the transfer of an established operation from one generation to the next. The challenges often arise in transitioning large-scale, full-time operations, given they are both capital intensive and technologically complex. The risks are also substantial—equipment and operating costs alone are large enough to bankrupt most Americans in a single growing season—to say nothing of the weather. Bottom line, these operations are generally at a scale that that makes it very difficult for a new entrant to take over operations.

With that said, every farm transition also involves the individual(s) to whom the farm is being transferred. That may involve a family heir, but that is often not the case. Further, attention increasingly is being focused on those who are simply trying to get into the business of farming

or ranching, independent of an existing operation. While we would argue that barriers to entry are an entirely different discussion, there is clearly a farm transition nexus, and they are addressed in this paper.

Perhaps the most challenging issue with transitioning farms and ranches between generations is that every farm is unique. And, to some degree, every challenge faced by an agricultural producer can have an impact on efforts to transition farms between generations. As noted above, some farms are very small; some are huge. Some farms have heirs who are already in place and working in the operation; others have heirs but it's not clear if or how they will be involved going forward; and some have no heirs at all. Some are growing high-value crops; others are growing commodity row crops; and others are raising livestock exclusively. Every single farm is unique, and so are the challenges they confront when determining how to transition an operation.

AFPC has a unique perspective on these issues, because during our representative farm meetings, a large number of topics get organically brought into the conversation. Thus, we have been privy to many discussions on generational transfers of agricultural operations, particularly as current operators with whom we work start to consider their own retirement. In the most traditional sense, it starts with passing along an existing farming operation, so we will start there.

Getting Out of a Farming or Ranching Operation

When it comes time to consider options for transitioning out of an existing farming or ranching operation, it boils down to whether to gift or sell the operation, to whom, and when. Of course, the devil is in the details—particularly the legal and tax implications—both of which are quite complicated. Following are a few of the challenges producers face in trying to get out of farming or ranching.

- **Taxes and Retirement**. For those who are looking to get out of farming or ranching, their assets are often tied up in land and equipment. If they sell those assets to generate cash for retirement, they likely would be saddled with a significant long-term capital gains tax liability. Under current law, if they simply pass those assets along as part of an inherited estate, long-term capital gains do not apply. Naturally, some may choose to pass an operation along to an heir before death, but that generally requires the operator to have sufficient cash on hand for retirement. Others may choose to rent out their land and/or equipment, but that requires having enough owned land to generate sufficient rental income on which to live in retirement (and if this strategy involves selling the equipment in retirement, that can generate its own tax problems).

  Several policy proposals considered in recent years would have significant tax implications for farm and ranch owners. A recent report by AFPC analyzed two proposed changes to stepped-up basis and estate taxes that could have enormous impacts on farms and ranches transitioning to the next generation.[8]

[8] https://afpc.tamu.edu/research/publications/files/708/RR-21-01.pdf

- **Human Capital**. Not only do farmers and ranchers generally want to see their operations continue in agriculture, but they also want to set up the new operator to be successful. This takes careful planning that often involves mentoring the chosen successor for years, even if it means delaying retirement. However, finding someone willing to take over an agricultural operation can be a difficult endeavor. One of the main challenges is simply identifying a younger person who is willing to accept the risks involved in agricultural production and run the farm, be it a family member or not. If the current farm owner has children, they usually look to them as possible successors. However, many of the representative farm panel members we work with encourage their children to go off to college or get a job that isn't a part of the farm operation, often as a means of seeing if the child truly wants to run the family farm. In our interactions with representative farm panelists, the most cited reason for children not returning to the farm or ranch is that they concluded that they could earn a higher return with less capital at risk outside of agriculture.

  Increasingly, the eligibility rules for qualifying for the farm safety net are serving as another barrier that is keeping heirs from returning to the farm. For children who have moved away from the farm, one means of starting to transition back into the operation is to participate remotely (e.g. they are responsible for all inputs and for marketing the crop, but they are paying custom rates to have others do the field work). Some policymakers argue that unless someone is physically on the farm doing the actual labor, they shouldn't be eligible for the farm safety net. Under current law, unless they own the land they are farming, these younger producers can have a great deal of difficulty in qualifying as "actively engaged in farming or ranching" even though they are financially "at risk" in the operation.

  While not as common as transitioning the farm to a family heir, many representative farm participants try to identify a non-family member to pass the farm to if the farmer has no children or the children do not want to take over the operation. The potential non-family member heirs are usually neighbors or perhaps those who have worked with the farmer or rancher for the summer or harvest time.

For producers that have neither generated significant savings nor accumulated enough land to generate significant rental income in retirement, it seems their only recourse is to hold on to their operations until death, with the heir left hoping they can hold things together once they take over (if they haven't already started their own separate operation or opted for a simpler life elsewhere). Usually, the last option an operator wants to pursue is simply putting the farm up for sale to the general public; however, this is often done out of necessity.

Getting Into a Farming or Ranching Operation

While it naturally depends on whether you are joining an operation that is transitioning or simply trying to start out on your own, following are a few key challenges facing beginning farmers and ranchers:

- **Access to Credit**. As noted throughout this paper, agriculture is an extremely capital-intensive business. Access to credit is essential. As noted in the following section on resources, Congress has long recognized this challenge and has provided a number of resources to help address it.

- **Access to Land**. Access to land is also often cited as a barrier to entry for beginning farmers and ranchers. While this is inextricably linked to all of the other challenges discussed above, it is often cited as a challenge, particularly for those producers who are looking to start out on their own. Even in the case where a beginning farmer or rancher finds land to rent, they may confront hesitation from landowners who are reluctant to rent land to a new producer without a documented history of production. While admittedly anecdotal, another complaint we often hear is that the only land some beginning farmers and ranchers are able to access is land that does not have "base acres," meaning the land is ineligible for the traditional income support programs in the farm safety net. A legislative change that could address this would be to establish base on previously unbased land if farmed by a new or beginning farmer.

- **Technical Complexity**. Even if beginning farmers and ranchers are able to access credit and land, modern-day farming and ranching is extraordinarily technologically complex. Fortunately, a number of resources are available—including from private industry—that help educate producers, but it is still a significant amount of information to digest.

- **Risk**. As noted throughout this paper, agriculture is an extraordinarily risky business. Without the farm safety net, including Federal crop insurance, getting into the business would be an even bigger challenge—arguably an insurmountable one.

Some of these challenges may be even more pronounced depending on the type of business you are entering. For example, only recently has crop insurance been significantly expanded for livestock producers, and while Whole Farm Revenue Protection (WFRP) was designed primarily for specialty crop producers, adoption has been very limited.

Resources Available

Ironically, despite the enormous farm transition challenges facing farmers and ranchers, very little attention is paid to the issue in the farm bill. The notable exception—mentioned earlier—was the establishment of the *Commission on Farm Transitions—Needs for 2050* in Section 12609 of the 2018 Farm Bill. As noted above, that commission was never funded.

For the most part, large-scale, full-time operations are left to sort out matters with their tax accountants and attorneys. They do so against the backdrop of tax laws that have evolved over the past 250 years.

However, as noted above, except for those with sufficient savings or land to generate rental income, the system does little by way of offering producers the opportunity to retire from farming without liquidating their businesses. Rather than looking for opportunities to facilitate

farm transitions for these operators, current discussions—including proposals to eliminate stepped up basis and reduce estate tax exemption levels—would drastically compound the problems facing these operations.

By contrast, a tremendous amount of attention is being paid to beginning farmers and ranchers. The following list of resources for beginning farmers and ranchers was provided by the 2018 Farm Bill alone (quoted directly from the Congressional Research Service):[9]

- **Farming Opportunities Training and Outreach (§12301)**. Combines and expands the existing Beginning Farmer and Rancher Development Grant Program and the Outreach and Assistance to Socially Disadvantaged Farmers and Ranchers. Authorizes competitive grants to support training, education, outreach, and technical assistance. Provides annual mandatory funding of $30 million (FY2019), rising to $50 million (FY2023), and authorizes $50 million in annual appropriations.

- **Local Agriculture Market Program (§10102)**. Combines and expands the existing Farmers' Market and Local Food Promotion Program and the Value-Added Agricultural Product Market Development Grants. Provides $50 million annually in mandatory funds and reserves 10% of grant funding for BFRs and other historically underserved producers.

- **Underserved Producers (§11108)**. Establishes a definition of underserved producer. Provides additional assistance to certain underserved groups in obtaining federal crop insurance.

- **Tree Assistance Program (§1501)**. Increases cost sharing to 75% for BFRs and other producers.

- **USDA Conservation Programs (Title II)**. Provides preferences for BFRs and other historically underserved producers under some programs (§2204, §2403, §2501, §2706).

- **BFR Individual Development Accounts Pilot Program (§5301)**. Reauthorizes appropriations for the program, which, to date, has never been funded or implemented.

- **Farm Credit Programs (Title V)**. Provides additional support for, and requires additional reporting regarding, BFRs and historically underserved producers to gain access to credit (§5104, §5306, §5413, §5316).

- **State Agricultural Mediation Programs (§5402)**. Expands state agricultural grants to support mediation services related to credit counseling and other issues requiring mediation.

- **Competitive, Special, and Facilities Research Grant Act (§7504)**. Requires USDA priority research areas to consider barriers to entry for underserved farmers and ranchers.

[9] https://crsreports.congress.gov/product/pdf/IF/IF11227

- **Reports on Land Access and Farmland Ownership Data Collection (§12607)**. Requires USDA to submit a public report within a year of enactment on barriers that prevent BFRs from acquiring or accessing farmland.

- **BFR Coordination (§12304)**. Establishes a national BFR coordinator to provide outreach and technical assistance to help BFRs participate in USDA farm programs.

As noted earlier, access to credit is vital for beginning farmers and ranchers. This reality has long been recognized with successive farm bills addressing this topic. Beyond traditional financing sources like commercial banks and the Farm Credit System, USDA has a robust farm loan program, including financing for both operating and ownership. In addition to direct lending, USDA also offers loan guarantees, which provide FSA backing for loans made by USDA-approved traditional lenders.

Some may argue that the farm safety net obviates the need for other resources, particularly for larger producers. But, we would argue that few operators—other than those that are independently funded—would be able to take on the risk of farming without it. Arguably, if the farm safety net were eliminated, only those producers with off-farm income, or the larger producers who can sufficiently manage risk, would be able to survive. In other words, it would serve to further accelerate the skewness in the distribution of farm sizes we see now.

As noted above, little attention is paid by the Federal government to helping facilitate the transfer of established farming operations. And, in spite of all of the resources available for beginning farmers, it is still extraordinarily difficult for producers to break into farming and ranching—particularly full-time—because it is risky, capital intensive, and technologically complex. It's also clear that much more could be done to link those with an interest in farming or ranching with those who are looking to retire.

Illustration

Perhaps the most effective way to illustrate some of the challenges facing farmers and ranchers as they look to transition operations is through an example. For over 30 years, the Agricultural & Food Policy Center (AFPC) at Texas A&M has maintained a farm-level policy simulation model (FLIPSIM) developed by Richardson and Nixon (1981) for analyzing the impact of proposed policy changes on U.S. farms and ranches.[10] AFPC currently uses a next generation simulation model—Farm Economics and Solvency Projector (FarmESP)—developed by Dr. Henry Bryant, that moves to the Python platform and includes all of the previous generation's policy and tax capabilities with a significant upgrade in terms of crop insurance capabilities. The data to simulate farming operations in FarmESP comes primarily from AFPC's database of representative farms. Information to describe and simulate these farms comes from panels of farmers (typically 4-6 producers per location) located in major production regions in 30 states

[10] J.W. Richardson and C. J. Nixon, "The Farm Level Income and Policy Simulation Model: FLIPSIM," Texas A&M Department of Agricultural Economics Technical Report 81-2, May 1981.

across the United States (Figure 4). The farm panels are reconvened frequently to update their representative farm's data. The representative farms are categorized by their primary source of receipts—for example, feedgrain, wheat, cotton, rice, dairy, and cattle ranches.

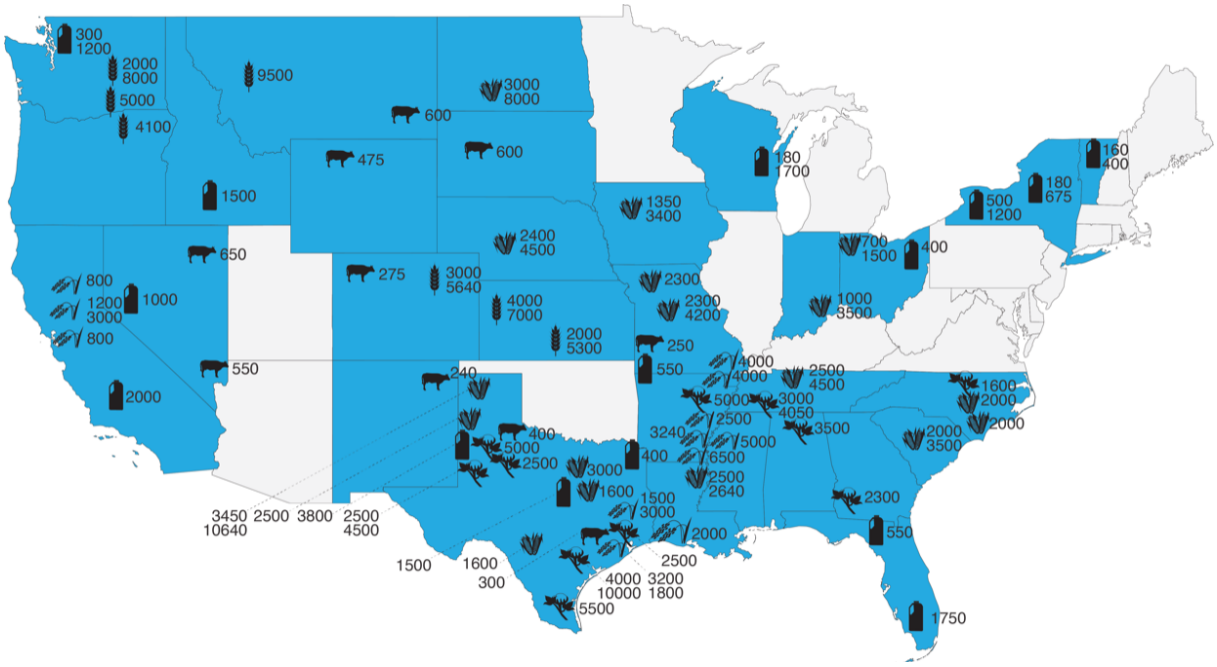


Figure 4. Map of AFPC Representative Farms and Ranches.

To illustrate the difficulty that young producers would encounter as a new entrant into production agriculture (particularly in taking over an existing operation), the 64 representative crop farms and 20 dairy farms were analyzed with 80 percent beginning debt-to-asset ratios on land and equipment rather than the 20 percent for crop farms and 30 percent for dairies typically assumed on AFPC's representative farms. Obviously, many of the farms are so large that it would be difficult for a new entrant to begin operations at that scale. In fact, many of the farms are doing little more than breaking even under the baseline assumptions (in spite of having received significant MFP and CFAP payments in 2019 and 2020); thus, at a rudimentary level, the results indicate just how difficult it would be to start a new operation at an economical size.

Each of the farms was analyzed over the 2018 to 2026 period evaluating two scenarios:

- **Base**: Normal baseline assumptions; normal debt level assumptions (20% beginning debt-to-asset ratio for crop farms and 30% for dairy farms).

- **80% Debt Alternative**: 80% starting debt for both the crop farms and dairies with the purchase in 2017 and the first payment due in 2018.

Table 1 contains a summary of average ending cash balances in 2026 across 5 farm types for each the two scenarios. For most of the farm types, adding that much debt moves the operations from having a positive cash balance in 2026 to a negative. Across all farm types, during the relatively short study period (2018 to 2026) the added debt would result in a significantly lower

ending cash balance. The farms were analyzed assuming any carryover balances could be refinanced with the next year's operating loan which is probably not a realistic assumption in this situation.

Table 1. Average Ending Cash Balances in 2026 by Farm Type.

Farm Type and No. of Farms	Base Ending Cash 2026 ($1,000)	80% debt Ending Cash 2026 ($1,000)	Decrease in Ending Cash ($1,000)
Feed Grain -- 25	885.51	(1,451.51)	2,337.02
Wheat -- 11	457.69	(1,225.63)	1,683.32
Cotton -- 13	1,470.41	304.19	1,166.22
Rice -- 15	(348.56)	(1,925.65)	1,577.09
Dairy --20	936.44	(1,352.98)	2,289.42

While it is hard to generalize from the results—because it's not terribly likely that a newer producer would be able to borrow those levels of debt—it does illustrate the difficulty in borrowing one's way into a full-time established operation (which is precisely the scenario confronting many large-scale, full-time operations).

To further illustrate the difficulty of getting into farming, the moderate size (1,350 acre) Iowa feed grain farm was adjusted to reflect a new entrant who does not have access to the capital that would be required in the previous scenario. Land in the Midwest is valued at more than $9,000 per acre and cash rents on this farm are $270 per acre. A few of the scenarios will look at cash renting and custom farming as alternatives to owning land and equipment. The following scenarios were analyzed:

- **Base**: Normal assumptions from the January 2021 FAPRI/AFPC Baseline were maintained, including a beginning debt-to-asset ratio set at 20%. The farm owns 250 of 1,350 acres farmed with the remaining acres cash rented for $270/acre. The farm also owns and finances all buildings and equipment. The Baseline assumes that the farm is an established operation.

- **Alternative 1 (cash rent and self-farm):** The farmer begins his operation in 2017 and cash rents 100% of his land (no owned land) for $270/acre; thus, no cropland debt is assumed. However, it is assumed that the farmer purchased buildings and equipment to farm the land himself. The beginning debt-to-asset is set at 80% for these purchases.

- **Alternative 2 (cash rent and custom farm):** The farmer begins his operation in 2017 and cash rents 100% of his land (no owned land) for $270/acre. Further, the farmer chooses to have the cropland custom farmed by another farmer. No equipment other than a pickup was included on the farm. Thus, no land, equipment (other than pickup), or building debt was incurred. Other changes include the removal of property tax and labor expenses. Fuel, utilities, liability insurance, repairs and maintenance, and environmental costs were decreased to match the minimal assets of the farming operation. Custom

farming expenses charged to the farmer were obtained from the Iowa State 2021 Custom Rate Survey.

- **Alternative 3 (buy land and custom farm)**: The farmer begins his operation in 2017 by buying land (250 acres to match our baseline amount of owned land on IAG1350) and buildings. The remaining 1,100 acres are cash rented for $270/acre. The farmer will have the land custom farmed by another farmer. All custom farm assumptions from Alternative 2 apply with the exception of the property tax, which was set at baseline levels. Land and building debt-to-asset ratios are set at 80%.

- **Alternative 4 (buy land and self-farm)**: This alternative is similar to the Baseline but assumes that the farmer begins farming in 2017 by buying land (250 acres), buildings, and equipment. The land is farmed by the owner and debt-to-asset levels are set at 80%.

- **Alternative 5 (cash rent and self-farm with rent assistance)**: This is the same as Alternative 1, but it is assumed that the government (or another outside entity) covers half of the cash rent. The cash rental rate is $270 per acre, so the benefit to the farmer is $135/acre ($182,250 per year on 1,350 acres). All other assumptions are the same as Alternative 1.

The results indicate that even under the base scenario with 250 owned acres and 20 percent debt, the farm does not cash flow. The results for Alternative 1, cash renting with owned equipment, indicate a lower annual net cash farm income than the Base. This results in lower ending cash balances and a slightly higher probability of having negative ending cash balances.

Alternative 2 (cash rent and custom farm) results in slightly worse income but higher ending cash than Alternative 1 or the base. However, due to lack of assets and the projected cash deficits, Alternative 2 results in the lowest Real Net Worth of all scenarios. Alternative 3 (buy land and custom farm) has the second lowest ending cash and real net worth. Alternative 4 (buy land and self-farm) results in the lowest ending cash of all scenarios.

The last alternative was provided to illustrate just how important land cost is on profitable operations. Alternative 5 (cash rent and self-farm with rent assistance) provides the operator with a subsidy that effectively lowers the rent by one-half (or $135 per acre). Under this scenario, a young farmer would go from negative annual net cash farm income to a positive $200,000 in most years. The purpose of this alternative was to illustrate the sort of commitment it would take if policymakers wanted to seriously assist beginning farmers. None of these scenarios address the challenges faced by producers looking to get out of farming or ranching.

Table 2. Results for Select Strategies for a Beginning Farmer on the Moderate Iowa Feedgrain Farm.

Base		**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
	Net cash farm income	-52,611	150,708	155,901	131,514	128,038	107,622	88,019	71,735	50,034
	Ending cash	-219,144	-271,037	-287,449	-362,159	-407,489	-491,906	-604,671	-746,130	-887,881
	Real net worth (2018 dollars)	2,492,591	2,524,822	2,525,392	2,676,421	2,821,858	2,745,279	2,648,999	2,553,546	2,443,605
		2018	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
	Probability End cash negative	1	1	1	0.99	0.96	0.95	0.94	0.97	0.97
	Prob. Real net worth greater than in 2018	0	0.96	0.94	0.86	0.9	0.77	0.66	0.56	0.46
Alternative 1		**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
	Net cash farm income	-101,662	99,588	103,090	77,054	71,796	49,439	27,761	9,205	-14,988
	Ending cash	-238,411	-298,224	-321,135	-403,372	-458,698	-553,616	-679,559	-835,829	-994,207
	Change in cash	-238,411	-59,814	-22,911	-82,237	-55,326	-94,918	-125,944	-156,270	-158,378
	Real net worth (2018 dollars)	673,322	648,116	613,252	537,309	450,922	342,080	205,399	50,867	-131,022
		2018	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
	Probability End cash negative	1	1	1	1	0.96	0.96	0.96	0.98	0.98
	Prob. Real net worth greater than in 2018	0	0.06	0.09	0.22	0.22	0.19	0.14	0.1	0.08
Alternative 2		**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
	Net cash farm income	-113,945	85,522	94,955	69,887	63,756	42,801	22,344	6,319	-13,440
	Ending cash	-185,945	-196,804	-202,976	-255,969	-317,002	-392,371	-484,737	-589,740	-708,954
	Change in cash	-185,945	-10,859	-6,172	-52,993	-61,034	-75,369	-92,366	-105,003	-119,213
	Real net worth (2018 dollars)	-184,237	-197,541	-203,089	-265,124	-337,219	-424,548	-532,669	-654,311	-799,372
		2018	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
	Probability End cash negative	1	1	1	0.95	0.91	0.91	0.91	0.94	0.95
	Prob. Real net worth greater than in 2018	0	0.07	0.17	0.3	0.27	0.26	0.18	0.14	0.11
Alternative 3		**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
	Net cash farm income	-145,483	52,461	60,547	33,891	25,916	2,710	-20,599	-39,463	-62,747
	Ending cash	-289,972	-397,981	-505,428	-668,028	-843,706	-1,039,422	-1,259,825	-1,498,873	-1,760,243
	Change in cash	-289,972	-108,009	-107,447	-162,600	-175,678	-195,716	-220,403	-239,048	-261,371
	Real net worth (2018 dollars)	257,897	215,984	181,630	215,919	245,426	66,249	-133,311	-335,102	-562,717
		2018	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
	Probability End cash negative	1	1	1	1	1	1	1	1	1
	Prob. Real net worth greater than in 2018	0	0.04	0.05	0.44	0.48	0.3	0.17	0.1	0.06
Alternative 4		**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
	Net cash farm income	-120,682	79,665	82,142	55,041	48,572	24,884	1,465	-19,171	-45,910
	Ending cash	-327,033	-477,622	-594,585	-772,854	-929,378	-1,130,257	-1,368,093	-1,642,498	-1,925,588
	Change in cash	-327,033	-150,589	-116,963	-178,269	-156,524	-200,879	-237,837	-274,405	-283,090
	Real net worth (2018 dollars)	794,700	748,729	698,508	727,901	754,676	569,276	359,278	142,940	-101,484
		2018	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
	Probability End cash negative	1	1	1	1	1	1	1	1	1
	Prob. Real net worth greater than in 2018	0	0.05	0.04	0.37	0.43	0.29	0.16	0.1	0.05
Alternative 5		**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
	Net cash farm income	84,535	293,801	302,413	277,711	276,214	256,925	240,126	228,117	211,955
	Ending cash	-52,215	5,623	100,312	156,862	252,463	313,010	354,420	375,489	405,178
	Change in cash	-52,215	57,838	94,690	56,550	95,601	60,547	41,410	21,069	29,688
	Real net worth (2018 dollars)	859,518	955,597	1,038,059	1,120,767	1,210,567	1,283,637	1,345,285	1,404,681	1,456,870
		2018	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**
	Probability End cash negative	1	0.08	0	0.11	0.1	0.1	0.1	0.13	0.12
	Prob. Real net worth greater than in 2018	0	1	1	0.97	0.95	0.94	0.94	0.93	0.94

Conclusions

In this paper, we have described the changing size and structure of U.S. farms and ranches and highlighted the challenges facing agricultural producers as they transition operations between generations.

If no action is taken by policymakers, the world will continue to turn. But, it's up to policymakers to decide if they are content with the current trajectory. Increasingly, rural America is dotted with very large family-owned farms that are responsible for the vast majority of the production in this country. For those rural communities that rely heavily on employment and income from farming and ranching, when an operation dissolves without an heir (or someone else) to take over and keep the operation going, that likely means one less family living in the community. Over time, it gets harder and harder to maintain infrastructure in the community, with schools consolidating, hospitals closing, churches sitting abandoned, etc., a phenomenon we have seen playing out across the countryside.

In spite of this reality, very little attention is paid to the challenges faced in transitioning these large-scale, full-time, family-owned operations to the next generation. Instead, some policymakers are contemplating changes to tax law that would make the problem even worse. Additionally, existing regulations like Actively Engaged determinations make it even harder to recruit young producers to participate in the farming or ranching operation.

While the plight of small farms is often a focus of attention, those farms account for a very small share of the production in this country. As for beginning farmers and ranchers, the farm bill includes a number of resources, but as we highlight, it's still enormously challenging to get into farming and ranching, particularly if you are going to do it at any scale.

Regardless of the policy landscape, discussing plans for transitioning your operation and adopting a plan is paramount, however challenging and unpleasant those conversations may be.