Beginning Farmer Tax Credit Program

Beginning Farmer Tax Credit
and
Custom Farming Contract Tax Credit

Tax Credits Program Evaluation Study

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By
Estelle Montgomery

Research and Policy Division
Iowa Department of Revenue

Preface

Iowa Code Section 2.48 directs the Legislative Tax Expenditure Committee to review all tax expenditures with assistance from the Department of Revenue. This law also provides a schedule for such reviews and requires a review in 2020 of the Beginning Farmer Tax Credit Program. In addition, the Department was directed to assist the legislature by performing periodic economic studies of tax credit programs. This is the second evaluation study completed for the Beginning Farmer Tax Credit Program.

As part of the evaluation, an advisory panel was convened to provide input and advice on the study's scope and analysis. We wish to thank the members of the panel:

Lori Beary	Iowa Finance Authority
Nathan Crane	Farm Credit Services of America
Liesl Eathington	Iowa State University
Tim Johnson	Iowa Farm Bureau Federation
David Swenson	Iowa State University

The assistance of an advisory panel implies no responsibility on the part of its members for the content and conclusions of the evaluation study. This study and other evaluations of Iowa tax credits can be found in the evaluation study web page on the Iowa Department of Revenue website.

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Executive Summary

The Beginning Farmer Tax Credit Program has included the Beginning Farmer Tax Credit and the Custom Farming Contract Tax Credit. The program is administered by the Iowa Agricultural Development Division of the Iowa Finance Authority. Both tax credits are designed to encourage established farmers and other owners of agricultural assets to enter into leases and contracts with beginning farmers. Only the asset owner receives the tax credit. Beginning farmers do not receive a tax credit. Tax credits may be applied against corporation and individual income tax liability. Only the Beginning Farmer Tax Credit is currently available and awards are capped at $12.0 million each calendar year.

The program commenced on January 1, 2007, which is the effective date of the Beginning Farmer Tax Credit. Since its initial enactment, the Beginning Farmer Tax Credit Program has been altered in various forms. The most significant program modification was the inclusion of the Custom Farming Contract Tax Credit, effective for years 2013 through 2017. As of 2020, the asset owner can be awarded a tax credit equal to 5.0 percent of the amount paid to the asset owner under a fixed cash rent agreement and a fixed payment portion under hybrid and flex lease agreements. Alternatively, the asset owner can be awarded a tax credit equal to 15.0 percent of the amount paid to the asset owner under a crop share agreement. The tax credit is nonrefundable with a ten-year carryforward.

Initially, from 2007 to 2012, the rates for the tax credit were 5.0 percent and 15.0 percent, respectively. However, each were increased to 7.0 percent and 17.0 percent for tax years 2013 through 2017. Also, during this five-year timeframe, if the beginning farmer was a veteran, asset owners could be awarded an additional 1.0 percent of eligible cash rent or crop share payments for the first year of the agreement. Thus, for tax years 2013 through 2017, the credit was equal to 8.0 percent for the first year of a cash rent agreement with a veteran and 18.0 percent for the first year of a crop share agreement with a veteran. The additional credit for veteran farmers was not awarded in the first year of renewed agreements or new agreements with the same parties. At the start of the 2018 tax year, the tax credit rates for cash rent and crop share agreements reverted to 5.0 percent and 15.0 percent, respectively, regardless of the veteran status of the beginning farmer.

The major study findings include:

Other Federal and State Incentives for Beginning Farmers

- Numerous federal and state financial programs exist to support and promote beginning farming. However, there is no federal tax credit for the transfer of land or other assets from established farmers to beginning farmers, for the rental of land to beginning farmers, or for contracting with beginning farmers for custom work. Colorado, Iowa, Minnesota, Nebraska, and Pennsylvania offer beginning farmer tax credits or tax deductions.

- For purposes of their respective beginning farmer programs, the five states define beginning farmers along similar lines. Specifically, each state defines beginning farmers primarily in terms of financial net worth, length of farming experience, and the beginning farmer's plans to engage directly in farming. Despite these similarities, eligibility criteria for beginning farmers differ among the states in important ways, such as with respect to the net worth criterion.

Literature Review

- Farms are categorized by the USDA as either “family farms” or “non-family farms”. Family farms are when a principal operator (often with assistance from related individuals) is the owner of and decision maker for the majority of the business. These farms account for 98.0 percent of U.S. farms and 88.0 percent of U.S. production. Non-family farms are organized by unrelated partners closely held as non-family corporations.

- The USDA defines a beginning farmer in terms of farm experience; specifically, as a principal operator who has ten years or fewer of experience on the farm currenting being operated. By default, a principal operator farmer with over ten years of experience is considered an established farmer.

- For decades, the U.S. farmer population has been declining and getting older. Despite this, in 2017, the number of beginning farmers age 35 years or younger increased for only the second time in 100 years. In addition, among this age group, 75.0 percent of beginning farmers were first generation farmers.

- As of 2017, 67.0 percent of beginning farmers received their primary income from work off the farm. A beginning farmer’s spouse is more likely to work off the farm than the spouse of an established farmer. Beginning farmers are more likely to have less wealth and report more farm business debt than established farmers. Further, because their operations tend to be smaller, they produce and spend at less efficient scales production.

- There are barriers to entry for beginning farmers. As most beginning farmers do not inherit the land they operate, for entry into farming they must purchase or lease land to start and grow farming operations over time. Finding affordable land to purchase or lease using farm operation income has been cited as the leading barrier for farming entry by both first generation and multi-generation beginning farmers. It has also been cited as the top reason aspiring beginning farmers opt to abandon pursuing farming as a profession.

- There are also barriers to exit for established farmers that create barriers for entry for beginning farmers. For non-family transfers of land, which is the majority of land transfers in the U.S., purchases by or lease agreements with non-related beginning farmers are hampered through common fiscal barriers that delay an established farmer’s exit. Further, while heirs of inherited farmland can sell property without capital gains taxes, established farmers are disincentivized by tax code to sell property in an effort to avoid any associated gains taxes.

- Aside from land affordability struggles, student loan debt is identified by beginning farmers as their second most significant entry struggle. First generation farmers and those from multi-generational farming families are more likely than the average citizen to have a higher education degree. In addition, similar to entrepreneurs in other industries that do not have the benefit of employer-based health coverage, beginning farmers under 65 years struggle to afford and maintain health insurance benefits. Beginning farmers can receive health coverage through off-farm employment, their spouse’s off-farm employment, or they can purchase it through individual markets.

Descriptive Overview of Beginning Farming in Iowa

- In 2018, there were 84,396 family farms in Iowa operated by 125,936 principal operators. Of these, 10,273 farms, or 12.2 percent, were principally operated by 13,948 beginning

farmers as defined by the USDA. When family farms and principal operators are classified in terms of net worth applicable to the requirements of the Beginning Farmer Tax Credit Program, beginning farmer family farms in 2018 represented 21,626 farms operated by 31,717 beginning farmers, or 25.6 percent, of farm households in the state.

- Defined in the terms of Iowa's tax credit net worth requirements, beginning farms have a lower net worth than established farms. In 2018, the average annual household net worth of established farms was $2.6 million compared to an average net worth of beginning farm households of $371,319.

- In 2018, the average size of beginning farms in the state was 156 acres and the median size was 39 acres, or one fifth of the median size of farms whose household net worth exceeded the tax credit program's net worth threshold.

- In 2018, 80.5 percent of farms that received payments were established farms compared to 19.5 percent of beginning farms. Further, the program payments received by established farms are larger, in general, than payments received by beginning farms. In 2018, payments to established farms averaged $18,645; the average payment to beginning farms was $5,689.

Descriptive Statistics of Program Projects and Participating Beginning Farmers

- From 2007 to 2019, there have been 3,759 unique tax credit program projects. Until 2013, when the Custom Farming Contract Tax Credit was enacted, all such projects were associated with the Beginning Farmer Tax Credit. While the Custom Farming Contract Tax Credit was effective between 2013 and 2017, Beginning Farmer Tax Credit projects continued to comprise the majority of program projects.

- Since the start of the tax credit program, 1,004 beginning farmers, including partnerships, have participated in the program as a party to either a Beginning Farmer Tax Credit or Custom Farming Contract Tax Credit project. A beginning farmer may be party to multiple qualifying lease agreements in the same year or across years. For this reason, the number of beginning farmers participating in the tax credit Program is lower than the number of program project lease agreements.

- Considering each farmers' age as of his or her first year in the program, of those participating beginning farmers for whom age information is available, 82.0 percent were age 35 or below. Only 7.5 percent were between the ages 41 to 60 and 0.1 percent of beginning farmers participating in the program were above the age of 60.

- Since the start of the Beginning Farmer Tax Credit Program, the total sum of annual program projects, which can be duplicated from year to year depending on participation, have comprised a total of 738,169 acres under either cash rent or crop share agreements. Iowa has 24.5 million acres of harvested cropland, which means that 3.0 percent of harvested cropland in Iowa has been covered by Beginning Farmer Tax Credit agreements.

- Between 2013 and 2017, when the Custom Farming Contract Tax Credit was available, there have been a total of 99 Custom Farming Contract Tax Credit projects located in 32

Iowa counties involving 93 beginning farmers. Contract leases include various farm projects, including cattle feeding and tilling, spraying, planting, and harvesting both corn and soybeans.

Descriptive Statistics of Program Awards, Claims, and Asset Owners

- Awards are calculated upon application to the program as a tax credit equal to a percentage of the amount paid to an asset-owning taxpayer by a beginning farmer under an approved agreement. The award can be used to offset corporate or individual income tax liability owed by the asset owning taxpayer up to the amount approved for the award.

- From the start of the program, in 2007, through 2019, 12,806 tax credit awards have been made for a total of $70.7 million. Program claims are lower than award amounts, as demonstrated by a total of $40.9 million Beginning Farmer Tax Credit Program tax credits claimed between 2017 and 2019, which is $29.9 million less than total tax credits awarded during the same period.

- Keeping in mind that a given program project may have multiple asset owners. Of the 3,759 projects over the course of the program, 3,502, or 93.1 percent, have had at least one Iowa-resident owner.

- From 2007 to 2019, an estimated 28.8 percent of program projects were between one or more of a project's asset owners related to the one or more of a project's beginning farmers.

Economic Analysis of the Beginning Farmer Tax Credit Program

- A t-test analysis assessed the extent to which participation in the program is associated with positive economic outcomes and continued farming operations for beginning farmers. Findings suggest that program participants became more established in farming between 2009 and 2019 than did members of a comparison group.

- Analysis of farming occupation retention based on the filing of Schedule F's between 2009 and 2019 found retention rate among program participants that was 10.25 percentage points higher than that of a comparison group.

I. Introduction

The purpose of this evaluation study is to analyze tax data and other pertinent information to assess the Beginning Farmer Tax Credit Program, its utilization, and its economic . This study assesses whether participation in the program is associated with positive economic outcomes and sustainable, long-term farming operations for beginning farmers. The program has included the Beginning Farmer Tax Credit[1] and the Custom Farming Contract Tax Credit. Both tax credits were created to be available to established farmers and other owners of agricultural assets to encourage leases and contracts with beginning farmers in the state. As of January 1, 2018, the Custom Farming Contract Tax Credit expired, but claims were still made and awarded to farm owners who engaged the custom farm services of eligible beginning farmers until it reached its funding cap. The Beginning Farmer Tax Credit is available to taxpaying farm asset owners who lease land or other agricultural assets to eligible beginning farmers.

Section II of this report provides background on the tax credits, including a description of tax credit application procedures and beginning farmer eligibility requirements. Section III provides information about federal and state incentives to promote entry into farming and information about similar tax credits in other states. Section IV provides a review of existing literature concerning beginning farming and important related issues. Section V provides a brief overview of beginning farming in Iowa. Section VI presents data regarding participating program beginning farmers and projects. Section VII presents data regarding tax credit claims, awards, and asset owners. Section VIII provides an economic analysis of the effects of the program on participating beginning farmers. The final section of this report provides a brief conclusion.

II. Background of the Beginning Farmer Tax Credit Program

The Iowa Beginning Farmer Tax Credit Program commenced on January 1, 2007, which is the effective date of the Beginning Farmer Tax Credit, as defined in Iowa Code Sections 16.77-16.78A. Since its initial enactment, the program has been altered in various forms. The most significant program modification was the inclusion of the Custom Farming Contract Tax Credit, effective for years 2013 through 2017. Both tax credits have always been applicable against corporation and individual income tax liability and have been available to established farmers and other owners of agricultural assets to encourage enterprise with beginning farmers in the state[2]. Only the asset owner receives the tax credit. Beginning Farmers do not receive a tax credit.

A. The Beginning Farmer Tax Credit

The Beginning Farmer Tax Credit is allowed for agricultural asset owners that are subject to a lease or rental agreement with a beginning farmer. Assets eligible for the tax credit include agricultural land, depreciable machinery or equipment, buildings, bin storage, and breeding livestock. The rental of a rural residence, subleased assets, or land enrolled in the federal Conservation Reserve Program (CRP)[3] is not permitted and, if included in the submitted lease agreement, the value of the residence or land is excluded from the tax credit calculations. The lease obtained by the beginning farmer must be for a term of two to five years and cannot be at

[1] From 2007-2018, the Beginning Farmer Tax Credit was called the Agricultural Assets Transfer Tax Credit. Due to the passage of 2019 House File 768, its name was formally changed to the Beginning Farmer Tax Credit. However, no significant structural program details of the tax credit were altered.

[2] The Appendix provides a timeline of major changes to the Beginning Farmer Tax Credit Program.

[3] The USDA Farm Service Agency administered CRP pays a yearly rental payment in exchange for farmers removing environmentally sensitive land from agricultural production and planting species that will improve environmental quality.

a rate that is substantially higher than the market rate for similar agricultural assets leased or rented within the same community[4].

The asset owner can be awarded a tax credit equal to 5.0 percent of the amount paid to the asset owner under a fixed cash rent agreement, where the asset owner receives a fixed payment per acre leased regardless of crop price or yield. With this type of agreement, the asset owner is not usually involved in making any of the management decisions nor pays for any of the inputs. The asset owner can be awarded a tax credit equal to 5.0 percent of for the fixed payment portion under hybrid and flex lease agreements[5], where the asset owner receives a fixed payment per acre leased plus an additional payment that varies depending on the productivity of the land. In this scenario, only the flex portion of the lease receives a tax credit equal to 15.0 percent of the flex bonus amount paid.

Alternatively, the asset owner can be awarded a tax credit equal to 15.0 percent of the amount paid to the asset owner under a crop share agreement, where crop and livestock production and sales are shared between the asset owner and the farm operator. In this form of agreement, other income items, such as government payments can also be shared. Presumably, since crop share agreements are seen as a means for the beginning farmer tenant and asset owner to share the financial risks associated with farming, the higher tax credit rate for crop share agreements represents legislative intent to provide an additional incentive for asset owners to engage in such lease agreements.

Initially, from 2007 to 2012, the rates for these tax credits were 5.0 percent and 15.0 percent, respectively. However, each were increased to 7.0 percent and 17.0 percent for tax years 2013 through 2017. Also, during this same five-year timeframe, if the beginning farmer was a veteran, asset owners could be awarded an additional 1.0 percent of eligible cash rent or crop share payments for the first year of the agreement[6]. Thus, for tax years 2013 through 2017, the credit was equal to 8.0 percent for the first year of a cash rent agreement with a veteran and 18.0 percent for the first year of a crop share agreement with a veteran. The additional credit for veteran farmers was not awarded in the first year of renewed agreements or new agreements with the same parties. At the start of the 2018 tax year, the tax credit rates for cash rent and crop share agreements reverted to 5.0 percent and 15.0 percent, respectively, regardless of the veteran status of the beginning farmer.

B. Custom Farming Contract Tax Credit

In addition to the Beginning Farmer Tax Credit, the program included the Custom Farming Contract Tax Credit from 2013-2017. The term “custom farming” typically refers to an arrangement wherein a non-land-owning farmer agrees to perform all the machine operations on the asset owner’s land in exchange for a set fee or rate, the asset owner keeps all of the crop and commodity payments, and the asset owner pays for all seed, chemicals, and other inputs. However, the Custom Farming Contract Tax Credit was allowed for asset owners who hired an eligible beginning farmer for piecemeal farm work, provided the beginning farmer owned the machinery being used. An example of custom farming work that would have qualified for the tax

[4] A substantially higher rate is defined by the Program as not more than 30.0 percent above the average cash rent for the county according to the previous year’s Iowa State University cropland survey.

[5] Example: A beginning farmer leases 160 acres of crop ground with a $200 per acre cash rent based and a flex bonus if the corn planed by the beginning farmer exceeds 174.4 bushels per acre.

[6] The enhanced first year 1.0 percent tax credit rate for veterans only applied to new projects to the Program.

credit is planting or harvesting. The land owner would have been awarded a tax credit equal to 7.0 percent of the gross amount paid to the beginning farmer under the contract. If the beginning farmer was a veteran, the credit award was 8.0 percent for the first year. The qualifying contract was initially limited to 12 months. However, effective for tax year 2015, the custom farming contract could be for a period of up to 24 months. As indicated above, the Custom Farming Contract Tax Credit was available for tax years 2013 through 2017. Claims were still awarded after the credit was eliminated until its funding cap expired.

C. Tax Credit Application and Eligibility

Beginning Farmer Tax Credit Program awards are based upon application to the Iowa Agricultural Development Division (IADD) within the Iowa Finance Authority (IFA). All tax credit awards have always been issued on a first-come, first-served basis. Applications are made jointly by both the asset owner and the beginning farmer and must include a financial statement for the beginning farmer. The IADD states that virtually all qualified applications are accepted with only an estimated 10 to 20 rejected each year due to failure to meet the eligibility requirements. Through January 1, 2022, application fees apply, ranging between $300 and $500 depending on the acreage size of the lease agreement. After that date, the total amount of fees IFA may charge applicants is limited to no more than the cost to administer the program. In FY 2020, the IADD received an approximately $155,000 in applications fees. Of that amount, approximately $77,500 was paid to the private contract vendor that maintains program records and data management. According to program administrators, the remaining annual application fee balance is not enough to pay for a full time equivalent (FTE) with other program costs. Therefore, the program is currently administered at a deficit.

An eligible beginning farmer under the program is defined as a state resident, aged 18 or older, with a "low or moderate net worth," which, as of the 2020 tax year, has been set by the IADD at $682,000[7]. The applicant must have access to adequate working capital and production items with no more than 10.0 percent ownership interest in an agricultural asset included in the agreement. Finally, the beginning farmer applicant must materially participate in the farm and have sufficient education, training, or experience in farming.

The application must include a copy of the signed lease agreement. Applications must be submitted by August 1, or until all tax credit allocations for the tax year have been awarded, to be eligible for an award for that same year. If a change is made to the lease agreement that impacts the total amount paid to the eligible asset owning taxpayer, the asset owner must contact the IADD within 30 days. The IADD will recalculate the tax credit based upon any decrease. If the amendment increases the total price paid, the tax credit award will not be increased unless an amended application is submitted and approved. This approval will not be granted unless the terms of the change are more favorable to the beginning farmer than the asset owner. The only other permittable agreement modifications allowed are if the name of the asset owner or beginning farmer has changed or if the asset owner died and the asset has been transferred to an estate or trust.

D. Beginning Farmer Tax Credit Program Limits and Provisions

An annual cap of $6.0 million was first imposed on the program in 2009. Beginning January 1, 2013, concurrent with the introduction of the Custom Farming Contract Tax Credit, the cap was

[7] The annual net worth calculation is based on the USDA's reporting of prices paid for commodities and services, interest, taxes, and farm wage rates. A historical account of each program year's net worth calculation can be found in Table 1.

increased to $12.0 million. Of this amount, $8.0 million was allocated to the Beginning Farmer Tax Credit and $4.0 million to the Custom Farming Contract Tax Credit. The IADD was allowed discretion to adjust the allocation of the $12.0 million between the tax credits by adoption of a resolution. Beginning January 1, 2018, the annual cap was reduced to $6.0 million and the Custom Farming Contract Tax Credit was eliminated. Beginning January 1, 2019, the annual cap was doubled to $12.0 million. The $7.9 million in agreements that existed as of the end of calendar year 2018, which included some remaining Custom Farming Contract Tax Credits, were not included as part of the new $12.0 million cap, which will continue without a sunset.

Program tax credit awards may not exceed $50,000 for an individual asset owning taxpayer over all eligible leases in which the asset owner is participating under either of the two tax credits in a given year. Tax credits can be awarded to a partnership, limited liability company, S corporation, estate, or trust. The amount claimed by the individual asset owner is based upon the proportional share of their earnings from the asset.

Leases or rental agreements for which tax credits have been awarded may be terminated by either the taxpayer or the beginning farmer. If the IADD determines that the taxpayer is not at fault for the termination, IADD will not issue a tax credit certificate for subsequent years, but any prior tax credit certificates issued will be allowed. If IADD determines that the taxpayer is at fault for the termination, any prior tax credit certificates issued will be disallowed, and the tax credits can be recaptured by the Iowa Department of Revenue (IDR).

Program tax credits are non-transferable except to the asset owner's estate or trust upon death. Program tax credits are nonrefundable, which means that, while they offset tax liability, any credit amount greater than tax liability in the tax year of claim is not paid to the claimant. Tax credits in excess of tax liability for awards issued in 2007 could be carried forward for up to five years; any unclaimed tax credits for awards subject to this five-year limitation expired in tax year 2012. For credits issued in tax years beginning on or after January 1, 2008, any credits in excess of tax liability may be carried forward for up to ten years.

III. Other Federal and State Incentives for Beginning Farming

A. Federal Incentives to Support Beginning Farmers

At the federal level, there is no l tax credit for the transfer of land or other assets to beginning farmers, for the rental of land to beginning farmers, or for contracting with beginning farmers for custom work. However, various federal U.S. Department of Agriculture (USDA) programs and targeted federal farm bill[8] initiatives include food, financial, and farm-based efforts to address the needs of beginning farmers. For example, when it is hard to access land and capital, a beginning farmer may also struggle to secure credit from conventional commercial lenders. In this situation, the beginning farmer may qualify for a Farm Service Agency (FSA) Guaranteed Farm Loan, which is serviced by commercial lenders but guaranteed against loss by the FSA up to 90.0 percent. Another form of FSA Guaranteed Farm Loan is a Conservation Loan, which provides access to credit for farmers and ranchers who want to implement conservation measures on their land. Once farming operations are established, FSA Farm Operating Loans are available for beginning farmers for operating expenses, equipment, minor improvements, and refinancing debt. Finally,

[8] The federal farm bill is an omnibus, multiyear law that is typically renewed by the U.S. Congress every five years. The farm bill governs the majority of U.S. agricultural and food programs and issues, such as commodity revenue supports, agricultural conservation, trade and foreign food assistance, farm credit, research, rural development, forestry, bioenergy, horticulture, domestic nutrition assistance, etc. As of this publication, the most recent farm bill is the Agriculture Improvement Act of 2018 (CRS, 2019).

within the FSA loan programs, a percentage of loans are targeted towards socially disadvantaged beginning farmers[9]. The FSA's Down Payment Program is offered to assist beginning farmers and socially disadvantaged beginning farmers with a loan for a down payment to purchase a farm (USDA, 2020b).

The USDA administers competitive grant programs to support training, education, outreach, and technical assistance for beginning farmers and beginning farmers that are socially disadvantaged or military veterans (CRS, 2019b). For example, the Farming Opportunities Training and Outreach (FOTO)[10] program awards grants to public and private state, tribal, local or regional groups. In return, these entities must provide education or training assistance to beginning farmers on issues such as financial and entrepreneurial training, soil health, marketing, strategies, business planes, etc. Other services can include mentoring programs, apprenticeships, and farm link programs that connect beginning farmers with retiring farmers or landowners (NYFC, 2020). There are preferences and provisions for beginning farmers within most USDA conservation programs, such as the Transition Incentives Program (TIP), which adds two more years of payments to retired farmers with land exiting the Conservation Reserve Program (CRP)[11] if they sell or rent the land to a beginning farmer (ERS, 2019a).

B. State Incentives for Beginning Farming

Many states also administer programs that offer financing for beginning farmers, such as the federal Aggie Bond program. This program allows private lenders and contract sellers to offer reduced interest rates to beginning farmers on loans to purchase land, farm equipment, farm buildings and breeding livestock (National Council of State Agricultural Finance Programs [NCOSAFP], 2020). Iowa's version of the Aggie Bond program is called the Beginning Farmer Loan Program and is also administered by the IFA (Iowa Finance Authority, 2020).

Some states offer tax credits or deductions for the transfer of land or other assets to beginning farmers, for leasing land to beginning farmers, or for contracting with beginning farmers for custom agricultural production (see Table 2). Programs with this purpose are currently offered by only Colorado, Iowa, Minnesota, Nebraska, and Pennsylvania[12] Nebraska's Beginning Farmer Tax Credit program is the longest-standing of such programs, having begun in the 1999 tax year. Until 2007, the initial year of Iowa's Beginning Farmer Tax Credit, Nebraska's was the only tax credit of its kind in the country. The Colorado Agricultural Lease Deduction Program and Minnesota Beginning Farmer Tax Credit Program both started in 2017. The Pennsylvania Beginning Farmer Realty Transfer Tax Exemption began accepting applications the summer of 2020.

[9] The USDA defines a socially disadvantaged farmer as a group member that has been subject to racial, ethnic, or gender prejudice because they identify as a member of a group without regard for individual qualities. This group historically consists of Native American Indians or Alaskan Natives, African Americans, Native Hawaiians or Pacific Islanders, Hispanics, and women (ERS, 2019a).

[10] As of the 2018 Farm Bill, the FOTO combines and expands the existing Beginning Farmer and Rancher Development Grant Program (BFRDGP) and the Outreach and Assistance to Socially Disadvantaged Farmers and Ranchers (OASDFR) (CRS, 2019b).

[11] The CRP is a voluntary program that contracts with framers to devote environmentally sensitive land to conservation benefits instead of being farmed or ranched (ERA, 2019a).

[12] See Table 2 for a side-by-side comparison of 2020 beginning farmer programs. Wisconsin used to offer a Beginning Farmer and Farm Asset Owner Tax Credit Program from 2011 to 2013. However, since the approval of Wisconsin's 2015 state budget, this tax credit only applies only to agreements made prior to January 1, 2014. Claims may still be made by eligible claimants awarded credits prior to its repeal (Wisconsin Department of Revenue, 2020).

For purposes of their respective beginning farmer programs, the five states define beginning farmers along similar lines. Specifically, each state defines beginning farmers primarily in terms of financial net worth, length of farming experience, and the beginning farmer's plans to engage directly in farming. Despite these similarities, eligibility criteria for beginning farmers differ among the states in important ways, such as with respect to the net worth criterion. Iowa's tax credit program requires the beginning farmer to have a "low or moderate net worth", which is set annually by IADD. Since 2006, the net worth limit of the Nebraska program has never exceeded $200,000[13]. Colorado allows for a net worth limit of $2.0 million or less and Minnesota allows for $851,000 or less. Pennsylvania's tax credit program is the least restrictive in terms of the net worth criterion with no set guidelines.

All five states require the beginning farmer to have experience and education in farming. However, Nebraska also requires a formal financial management education course. Pennsylvania and Colorado require education certifications or coursework from the tax granting authority before considering the beginning farmer's experience and education significant enough to have a chance of being successful. This includes requiring the beginning farmer to provide positive projected earnings statements. All states but Iowa require the beginning farmer to have less than ten years of experience.

Colorado, Minnesota, Nebraska, and Pennsylvania require the beginning farmer to provide the majority of labor and management on the farm, with Colorado and Nebraska placing an additional requirement that the beginning farmer farm fulltime. All of these states, except Pennsylvania, which only necessitates the beginning farmer to farm in the state, require the beginning farmer to be a state resident. However, in all five of these states, the taxpayer to whom the tax credit is awarded may be a non-resident.

The tax credits or deductions offered by all the state beginning farmer programs equal a percentage of the lease or contract between the asset owner and beginning farmer. In all cases, the tax credit is awarded to the asset owner, i.e., the established farmer, rather than to the beginning farmer. In the case of Minnesota and Pennsylvania, an additional one-time tax credit awarded to the asset owner is offered for the sale of land to beginning farmers for 5.0 percent of the lesser of the sale price or fair market value of the agricultural asset up to a maximum of $32,000. For beginning farmers, Minnesota and Nebraska also offer education tax credits. In Minnesota, up to a maximum of $1,500 per year for three years may be claimed for approved financial management programs that do not need to be tied to any asset sale or lease. In Nebraska, an additional one-time tax credit of up to $500 is available to lessee-beginning farmers for the cost of an approved financial management program.

Colorado and Nebraska have conducted similar beginning farmer tax expenditure studies to this report. In 2017, the Colorado State Auditor defined the intent of the Colorado Agricultural Lease Deduction Program to be a provided incentive for aging agricultural producers to lease their land and equipment to beginning farmers or ranchers to help them become established in the agricultural industry. The State Auditors study concluded that the deduction did not meet this purpose because of no program participation in its first enacted years. It speculated the deduction was too modest to encourage behavior change that would benefit beginning famers. Therefore,

[13] Nebraska's net worth limit is subject to annual adjustment as prescribed by Nebraska Revised Statute 77-5209 using a formula based on the Bureau of Labor Statistics Producer Price Index; the law requires that any adjustment to the net worth limit, as a result of indexation, be a multiple of $25,000 such that any prospective adjustment of less than this amount is rounded to the next lowest $25,000.

the study recommended the legislature review the administrative requirements for qualifying for the deduction and the amount of benefit to encourage asset owners to participate for the deduction's use (Colorado Office of the State Auditor, 2018). In 2018, the Nebraska Legislative Post Audit Office defined the purpose of the Nebraska Beginning Farmer Tax Credit as a program to ensure smaller farming entities remained a robust part of the state's economy by encouraging established farmers to lease land or other assets to beginning farmers. The Legislative Post Audit report suggested that some of the program's high number of acres leases conflicted with the legislative intent to support small farming operations. The report also suggested that the program was being administered in a way that allowed a small number of asset owners and beginning farmers to claim larger numbers of credits than the tax credit law allowed. While it found that more urban farmers than rural took advantage of the program, it did not speculate about the programs impact on encouraging new and beginning farmers in the state (Nebraska Legislative Post Audit Office, 2018).

IV. Literature Review

A. Defining Farms

For official reporting and evaluation purposes, the USDA defines what a farm is and then classifies types and sizes of farms within that definition. The definition of a farm is any place that produces and sells at least $1,000 of agricultural products during a given year. This definition also includes a farm enrolled in the Conservation Reserve Program and/or any place that *would have* produced and sold at least $1,000 of agricultural products during a given year if the acres of crops and head of livestock in that place *could have* normally sold for at least the $1,000 threshold (ERS, 2019a). This definition was established in 1974 and has never been adjusted for inflation or changes in the industry, such as higher commodity prices. Therefore, many operations that would not have been considered farms 45 years ago can be defined as farms today (USDA, 2018). Sumner (2014) notes, "The tiny threshold of $1,000 in sales represents an agricultural output of less than two acres of corn, less than one-half of a milk cow, and less than half of one litter from one mother sow".

Farms are categorized as either "family farms", where a principal operator (often with assistance from related individuals) is the owner of and decision maker for the majority of the business, or "non-family farms", which are organized by unrelated partners, closely held non-family corporations, or as publicly held corporations. As of 2018, non-family farms account for 2.1 percent of farms and 12.0 percent of production for all U.S. farms. The remaining 98.0 percent of farms and 88.0 percent of production is accounted for by family farms. Within these two categories, farm sizes are classified by gross cash farm income (GCFI)[14], not the physical size of acreage or quantity of livestock (ERS, 2019). However, historically, correlations can be generally drawn between GFCI and the physical size of a farm (Key, 2019).

Large-scale family farms generate a GCFI of $1.0 million or more a year and account for almost half of the share of U.S. agricultural production, but only 2.9 percent of U.S. farms. Midsize-family farms generate a GCFI of $350,000 to $999,999 a year and account for 5.5 percent of all U.S. farms. Small-scale family farms generate a GCFI of $350,000 or less. In 2018, these farms accounted for 48.0 percent of the land acreage operated by farmers. While almost half the

[14] Gross cash farm income (GCFI) is a measure of the farm's revenue, which includes the sale of crops and livestock, government payments, fees from production contracts, and other farm-related income (ERS, 2019).

farmland in the U.S., these farms account for 90.0 of the actual number of U.S. farms (ERS, 2019).

B. Beginning Farmers

Beyond discussions of farm types and sizes, principal operator farmers are organized as "established farmers" or "beginning farmers". The USDA, which administers a number of programs intended to assist beginning farmers, defines a beginning farm and farmer in terms of farm experience; specifically, as a principal operator who has ten years or fewer of experience on the farm currenting being operated. It is key for the beginning farmer *to be the principal operator* for the farm itself to be considered a beginning farm. For example, from 2013 to 2017, 436,700 new U.S. farmers with ten years or less of farm experience were operators or producers on farms in various capacities, but not the principal operator. Thus, those farms are not included as beginning farms. However, in the same timeframe, an average of 339,400 beginning family farms and ranches were started by beginning farmer principal operators. This accounts for 17.0 percent of all U.S. farms and 8.0 percent of U.S. agricultural production. Of these, 112,200 beginning farms, or 33.0 percent, produced at least $10,000 worth of agricultural product output. Only 2.0 percent of beginning farms had an agricultural output over $1.0 million a year. By default, a principal operator farmer with over ten years of experience is considered an established farmer (ERA, 2019a).

On average, beginning farmers own less land than established farmers. There is substantial leasing among young and beginning farmers and who tend to purchase more land while leasing, and less as they become established (Katchova & Ahearn, 2015). For decades, the U.S. farmer population has been declining and getting older (Rissing, 2019). This is evident in both established and beginning farmer populations (Shute, 2017). While only 10.0 percent of beginning farmers were 65 or older, compared to 36.0 percent of established farmers, the average age for beginning farmers with at least $10,000 GCIF was 43 years old between 2013 and 2017. Of all beginning farmers during this time range, only 30.0 percent were 35 years or younger (ERS, 2019a). Despite this long-term trend, according to Shute, in 2012, in the more recent period, beginning farmers 35 years or younger registered as an increase over the previous USDA Census of Agriculture for the second time in 100 years! In addition, among this age group population, 75.0 percent of the beginning farmers were first generation farmers (Shute, 2017).

More than earlier generations of beginning farmers have increased use off-farm employment as a primary income, supplemental income, risk management tool, savings for capital investments, and for fringe benefits (Mishra et al., 2016). As of 2017, 67.0 of beginning farmers received their primary income from work off the farm. Further, a beginning farmer's spouse is more likely to work off the farm than the spouse of an established farmer. Between 2013 and 2017, 60.0 percent of beginning farmer spouses worked off the farm compared to 41.0 percent of established farmer spouses. As a combined household, off-farm income represents 77.0 percent of annual income for beginning farmers (ERS, 2019a). Beginning farmers are more likely to have less wealth and report more farm business debt than established farmers. On average, they are highly leveraged with a debt-to-asset ratio of 29.0 percent. This is most likely because beginning farmer principal operators have less net worth to self-fund agricultural production and capital investments. Further, because their operations tend to be smaller, they produce and spend as less efficient scales of economy. They are also more motivated to assume the expense of expanding operations than larger scale family farms (ERS, 2019a).

C. Beginning Farmer Defining Success, Barriers to Entry, and Reasons for Exit

The goal structure a farming principal operator uses to define success is critical to understanding beginning farming entry barriers and reasons for exit (Katchova & Ahearn, 2015). Most beginning farmer training and support programs center on mastering farm financial skills. Similar to the generations before them, many beginning farmers indicate that the ability to keep land within their family structure and work independently are as important as profits to their goal structures. Growth of operations is also included as a definition of success for beginning farmers. However, this is focused mostly for younger beginning farmers. Older beginning farmers, who often enter farming with more capital and investments, tend to maintain farms that are a similar size to the operations they started (Katchova & Ahearn, 2015).

With 63.0 percent of young beginning farmers self-describing their operations as sustainable or organic, a growing number of beginning farmers also measure success by their abilities to impact positive food system change, environmental conservation, and sustainable farming (Shute, 2017). However, mostly because of land tenure and cost requirements, only 17.0 percent of this population has or is pursuing a USDA Certified Organic designation (Shute, 2017). Instead, more than ever, these beginning farmers self-promote to justify their higher prices and market their agricultural products in direct-to-consumer models that are a part of filling demand for popular local food movements (Rissing, 2019). Finally, beginning farmers strongly consider their personal satisfaction with a farming lifestyle and work balanced with personal relationships that support operations and themselves as a goal and measure for success (Rissing, 2019).

At a minimum, to enter farming, beginning farmers need to build and sustain production assets, such as land, water, equipment, inputs, labor, and knowledge. According to the *2017 National Young Farmer Survey*, finding affordable land to purchase or lease using farm operation income has been cited as the leading barrier for farming entry by both first generation and farm family beginning farmers. It has also been cited as the top reason aspiring beginning farmers opt to abandon pursuing farming as a profession (Shute, 2017). Prior to the 1980s, previous generations of beginning farmers benefited from the U.S. agricultural tradition of exiting established farmers arranging for beginning farmer successors to continue farming operations. This was predominantly achieved within multi-generational family farm structures that followed the life-cycle of an established farmer exiting operations to retire (Mirshra & El-Osta, 2016).

However, today, established farmers who face the option of a farming exit encounter exit barriers that create entry barriers for beginning farmers by limiting available and/or affordable farmland (Valliant et al., 2019). Living longer than any previous generation, many established farmers delay retirement far beyond past traditional retirement ages. Citing original motivations to live in a rural area and/or be a part of outdoor activities as important reasons they entered farming, studies have found that established farmers over 65 years desire to stay involved with operations to some capacity instead of fully retiring (Mishra & El-Osta, 2016). This is sometimes possible if a family member in the next generation succeeds them while allowing the established farmer to work alongside the new principal operator. Thus, established farmers without a familial successor are more likely to delay retirement. However, even with possible successors, established farmers are also likely to postpone retirement until an advanced age. That is because beginning farmers within the succeeding generation may delay farming starts or opt to not return to farming to focus on primary income and benefits from off-farm employment, if more economically viable in the short term for the potential beginning farmer (Mishra & El-Osta, 2016). As a respondent from the *2017 National Young Farmer Survey* stated about this barrier cycle delaying his entry to farming,

“Family dynamics of parents not willing to pass on the ranch yet, my wife and I had too many student loans and our kids to take care of to earn no money staying there for the next ten years waiting for it to happen so we moved to the city where we live and work currently and hope to find our own place if/when we can afford a piece of land to start over on.” (Shute, 2017).

For non-family transfers of land, which is the majority of land transfers in the U.S., purchases by or lease agreements with non-related beginning farmers are hampered through common fiscal barriers that delay an established farmer’s exit. For example, land ownership for the established farmer can serve as a form of “savings account” that is important to their financial security later in life. Further, while heirs of inherited farmland can sell property without capital gains taxes, established farmers are disincentivized by tax code in an effort to avoid any associated capital gains taxes (Valliant and Ruhf, 2019). Beyond exit barriers, many retirement age established farmers indicate that they simply never plan to exit farming or relinquish their principal operator roles to new generations. In these situations, retirement age established farmers can hire labor for physically taxing farm work while remaining in charge of operations. Some elect to stop producing agricultural products almost completely while still being considered a farm according to the USDA’s “$1,000 in revenue a year” definition of a farm (Valliant and Ruhf, 2019).

As most beginning farmers do not inherit the land they operate, for entry into farming they purchase or lease land to start and grow operations over time. Farms operated by younger beginning farms are more likely to use leasing land as an entry strategy and average smaller farm operations than older entrants or established farmers. (Katchova & Ahearn, 2015). In the U.S., 39.0 percent of all farmland was leased to tenants by non-operator landlords (Carlisle, 2019). In Iowa, 85.0 percent of farm land is used for agricultural purposes of some variety and 50.0 percent of that land is currently owned by non-operators who lease to tenants (Carter, 2016). In 2018, the median U.S. farm income reached its lowest point since 2002 and only 46.0 percent of growing operations had positive incomes. Given the “boom or bust” nature of agricultural production paired with expensive equipment start-up costs , beginning farmers cannot undertake many high capital land risks while maintaining lease rates or debt owed for land that cannot be paid primarily through agriculture production (Carlisle, 2019).. According to the USDA, in 2016, for every dollar worth of farmland only 16 cents of agricultural production was generated (Shute, 2017). Without personal or institutional subsidies, beginning farmers seeking affordable land must compete against their peers and established farmers, who are more likely to have access to credit or cash bids for increasingly high value farmland. In addition to a beginning farmer being outbid for land by an established farmer with more capital, the increasing value of farmland has made it a desirable investment acquisition for international and domestic shareholders who may desire to control and increase agricultural production through the work of tenant labor or leverage land as an asset in large portfolios. Non-farmers interested in converting land for non-agricultural profit, such as residential building or commercial infrastructure, also complicate and create land competition. Between 1992 and 2012, it is estimated 31.0 million acres of farmland was lost to other non-agricultural purposes. Beginning farmers operating farm-to-table or direct-to-consumer operations that benefit being near urban areas struggle significantly when seeking affordable land while they are in direct competition with non-farming land developers (Carlisle, 2019).

While beginning farmers who exit farming cite finances as an element of their farming exit choice, few reference this exit reason exclusively for why they decided to leave agriculture production. Aside from land affordability struggles, student loan debt is identified by this population as their second most significant struggle (Shute, 2017). First generation farmers and those from multi-

generational farming families are more likely than the average citizen to have a higher education degree. Fifty-seven percent of farmers from multi-generational farming families and 77.0 percent of first-generation farmers have pursued education beyond high school. Many young beginning farmers are denied loans to launch or grow their operations because of their existing student loan debt burden (Shute, 2017). In addition, similar to entrepreneurs in other industries that do not have the benefit of employer-based health coverage, beginning farmers under 65 years struggle to afford and maintain health insurance benefits. Beginning farmers can receive health coverage through off-farm employment, their spouse's off-farm employment, or they can purchase it through individual markets. However, only those beginning farmers who average $250,000 GCIF a year or more tend to be able to afford the latter option. In 2015, 18.0 percent of beginning farmers purchased health insurance through individual markets. While many states, including Iowa, have expanded Medicaid coverage due to the Patient Protection and Affordable Care Act, qualifying for this coverage would only be possible if the beginning farmer was physically disabled or low-income (Mirshra et al., 2018). Finally, as the demand for paid labor grows for all farming operations to implement economies of scale, the farm worker labor supply has experienced shortages since 2016. These shortages are attributable to increased immigration enforcement, less migration from Mexico, and the improvement of the Mexican economy. Often lacking capital to maintain competitive farm worker labor, beginning farmers cannot attract farm workers for operations assistance with traditional methods, such as increasing wages or introducing mechanical efficiencies (Carlisle, 2019).

V. Descriptive Overview of Beginning Farming in Iowa

A. Beginning Farmers in Iowa

According to estimates based on the 2018 annual Agricultural Resource Management Survey (ARMS)[15], there are 84,396 family farms in Iowa operated by 125,936 principal operators. Of these, 10,273 farms, or 12.2 percent, are principally operated by 13,948 beginning farmers as defined by the USDA's definition of principal operators with ten or fewer years of farming experience (Economic Research Service, 2020). However, as noted above, beginning farmers are defined by net worth, not years of experience, for the Iowa Beginning Farmer Tax Credit Program. When family farms and principal operators are classified by net worth according to the Iowa definition[16], beginning farmer family farms in 2018 represent 21,626 farms operated by 31,717 beginning farmers, or 25.6 percent, of farm households in the state (see Table 3 and Table 4). Thus, the Beginning Farmer Tax Credit Program relates to a group of beginning farms 13.4 percent larger than those defined by length of experience as ten years or less. It is notable that, when beginning farm households are defined in terms of net worth, the operators of 77.1 percent of those farms exceeded USDA definition of beginning farmer that would have ten years or less of experience. That is, only 7,263 beginning farmer principal operators, or 22.9 percent, with a net worth that was below the net worth threshold for participation in the Beginning Farmer Tax Credit Program in 2018 also had ten or less years of farming experience. When using this USDA's

[15] Because the ARMS sample is not a simple random sample, each observation has a different weight, or expansion factor, to reflect its probability of selection and, therefore, what part of the sampled universe it represents. Data and conclusions are not a precise representation of Iowa farming demographics.

[16] The Beginning Farmer Tax Credit Program's net worth limit applies to the individual beginning farmer rather than to the entire farm household. For purposes of this discussion, the tax credit program's net worth limit, as applied to household net worth, is assumed to be a useful criterion for distinguishing beginning farms and established farms in the state and is set at the program's 2018 requirement of $665,288 or less.

definition, this would mean that 6,685 Iowa beginning farmers identified by the USDA would *not* qualify for the Beginning Farmer Tax Credit Program. This could be due, in part, to the average annual net worth of these beginning farmers being $833,500 in 2018, or an average of $168,212 above the Beginning Farmer Tax Credit Program net worth requirement.

In either case, an examination of available data illuminates the ways in which beginning farmers are different from established farmers. The following discussion in this section is based on special USDA Economic Research Service tabulations from the 2018 annual ARMS for Iowa. The farm household with one principal operator is the unit of observation in the ARMS survey[17]. Thus, for the remainder of this section, the term "beginning farmers" refers to the principal operators of family farms whose household net worth as reported in the 2018 ARMS is below the Beginning Farmer Tax Credit Program's net worth eligibility threshold for 2018. As used in the rest of this section, the term "beginning farms" refers to these family farm households. Further, the term "established farmers" refers to those family farm households with a net worth above the tax credit Program's net worth eligibility threshold for 2018.

B. Age and Gender of Beginning Farmers in Iowa

Principal operators of a larger share of beginning farms are less than 35 years old compared to those of established farms (see Table 3). An estimated 12.3 percent of beginning farms' principal operators had not reached the age of 35, compared to 2.3 percent for established farms. Operators of more than a 14.9 of beginning farms were over the age of 65 compared to 32.8 percent for established farms. In both beginning farms and established farms, men outnumber women, accounting for a total of 87.8 percent of Iowa's principal farm operators overall. However, when compared to the 2013 ARMS data available for this tax credit's 2015 study, this is a decrease of 4.0 percent. This decrease is attributable to an equal rise in female principal operators for established and beginning farms of, respectively, 10.7 percent and 10.6 percent for principal operators in each classification.

C. Net Worth and Farm Income of Beginning Farmers in Iowa

Defined in the terms of Iowa's tax credit net worth requirements, beginning farms have a lower net worth than established farms (see Table 3). In 2018, the average annual household net worth of established farms was $2.6 million compared to the average net worth of beginning farm households estimated at $371,319. The median annual net worth of established farms and beginning farms, respectively, was $1.8 million and $415,663. As with overall net worth, established farms in general had a greater farm net worth than beginning farms. In 2018, the average farm net worth of established farms was almost $2.0 million. The average farm net worth of beginning farms was $195,002 and the median farm net worth was $210,186.

Regardless of whether they are operated by beginning farmers or established farmers, most Iowa farms are not large; just 4.4 percent of family farms overall had gross cash farm income of more than $1.0 million. However, 5.7 percent of established farms met this criterion, compared to 0.8 percent of beginning farms. While 43.6 percent of family farms in Iowa have a gross value of income production of less than $250,000, 47.1 percent of beginning farms households have

[17] Note: In 2017, the ARMS survey changed its definition of a beginning farmer to be a "principal producer", not a "principal operator", with ten years of farm experience or less. Because one farm operation can have multiple principal producers, this change dramatically increased the amount of Iowa beginning farmers classified according to ARMS data. Therefore, publicly availably ARMS data for 2018 will conflict with the data presented here, which was specially reformatted for this study's analysis consistency by the USDA to fit the prior definition of a principal operator with ten years or less of experience.

production under that level. The USDA's system of categorizing operations in terms of gross cash farm income shows that 92.0 percent of beginning farm households are small; that is, this population had gross cash farm income of less than $350,000 in 2018.

The average net cash farm income[18] of all farm households in the state was $126,321 in 2018. For beginning farmers this measure is somewhat lower, at $62,572, and for established farms somewhat higher, at $144,091. Therefore, on average, established farm households earn over double from farm related sources than beginning farms. Beginning farmers are less likely than established farmers to be engaged in farming as their primarily fulltime occupation. In 2018, 17,856, or 56.3 percent, of Iowa's beginning farmers had a primary income from something other than farming. Thus, farming was the primary occupation of the beginning farmer principal operators for 43.7 percent of beginning farms. The pattern is different for established farms, 66.6 percent of established principal operators were primarily engaged in farming as their fulltime occupation in 2018.

D. Operations of Beginning Farmers in Iowa

Not only do beginning farmers operate fewer farms, they tend to operate smaller farms. In 2018, the average size beginning farm in the state was 156 acres and the median size beginning farm in the state was 39 acres (see Table 3). As noted above, while beginning farms comprise 25.6 percent of farm households, they account for just 16.0 percent of agricultural production and 11.4 percent of farmed acreage in Iowa. Thus, established farm households account for 84.0 percent of the total value of agricultural production in the state and 88.6 percent of farmed acreage.

Livestock represents a greater share of overall production by beginning farm households than crops, with livestock making up 61.2 percent of their total production. The allocation of production between livestock and crops is roughly the reverse for established farms; that is, 56.0 percent of the value of production by established farms is derived from crops. The way in which production is allocated between crops and livestock by beginning and established farms comports with indicators of production specialization. Over 27,000, or 43.7 percent, of established farms specialize in row crops including grains and oilseeds; by contrast, only 8,400, or 38.8 percent, of beginning farms specialize in row crops. On the other hand, 17.6 percent of beginning farms specialize in livestock production, including beef, dairy, hogs, and poultry, and 21.0 percent of established farms specialize in these areas. Almost 7.0 percent of Iowa beginning farms specialize in the production of fruits and vegetables compared to just 2.7 percent of established farms.

As discussed in Section IV, row crop production is more typically associated with government agricultural program payments than other farmland uses. Similarly, because row crop production is largely the domain of established farmers, most farm households that receive government payments are established farm households. In 2018, 80.5 percent of farms that received payments were established farms compared to 19.5 percent of beginning farms. Further, the program payments received by established farms are larger, in general, than payments received by beginning farms. In 2018, payments to established farms averaged $18,645; the average payment to beginning farms was $5,689.

[18] Net cash farm income equals the market value of products sold, government payments, and farm-related income minus total farm production expenses.

VI. Descriptive Statistics of Program Projects and Participating Beginning Farmers

A. Beginning Farmer Tax Credit Program Project Counts

From 2007 to 2019[19], there have been 3,759 unique tax credit program projects (see Table 5). Until 2013, when the Custom Farming Contract Tax Credit was enacted, all such projects were associated with the Beginning Farmer Tax Credit. While the Custom Farming Contract Tax Credit was effective between 2013 and 2017, Beginning Farmer Tax Credit projects continued to comprise the majority of program projects. Of the 2,335 program projects initiated between 2013 and 2017, just 92 were the Custom Farming Contract Tax Credit projects. Throughout the program's existence while also including the Custom Farming Contract Tax Credit, unique Beginning Farmer Tax Credit projects comprised 97.6 percent of all projects initiated.

B. Program Beginning Farmer's Demographics

A beginning farmer may be party to multiple qualifying lease agreements in the same year or across years. For this reason, the number of beginning farmers participating in the tax credit program is lower than the number of program project lease agreements. Since the start of the tax credit program, 1,004 beginning farmers, including partnerships, have participated in the program as a party to either a Beginning Farmer Tax Credit or Custom Farming Contract Tax Credit project.

Many beginning farmers participated in multiple projects. In an IDR analysis of program data that sampled 116 beginning farmers which participated in a new program project in 2009 and were able to be matched to available tax data over the course of ten years, just 26 beginning farmers, or 22.4 percent, participated in only one project for the entirety of the timeframe. Although, by default, all sampled participating beginning farmers have been associated with at least a single project, those 77.6 percent of beginning farmers that participated in more than a one project averaged three to four separate and often overlapping program projects between 2009 and 2019. Thus, while projects may only last from two to five years, depending on the approved lease agreement upon application for a tax credit award, many qualifying beginning farmers continued to initiate new projects while participating in current projects and/or after a previous project's approved term has expired. For this sampled participate group, between 2009 and 2019, 100.0 percent of participants were involved with one or more program project for at least two years; 55.2 percent of participants were involved with one or more program project for two to five years; 60.3percent of participants were involved with one or more program project for five to 11 years; and, 7.0 percent of participants were involved with one or more program project every year of available data for the program's existence.

As discussed in previous sections, Iowa's beginning farmers, whether defined in terms of farming experience as under USDA program guidelines or in terms of net worth as for the program, represent a range of ages. When defined in terms of net worth, USDA data suggests that 31.4 percent of Iowa beginning farmer households' principal operators are less than 35 years old and 4.2 percent are age 65 or over (see Table 3). In contrast to the range of ages represented among beginning farmers in Iowa overall, 82.0 percent of beginning farmers participating in the program are age 35 or below (see Figure 1). Only 7.5 percent were between the ages 41 to 60 and 0.1 percent of beginning farmers participating in the program were above the age of 60.

[19] Due to this study being completed during the 2020 tax year, 2019 Beginning Farmer Tax Credit Program data is the most recent available data for this evaluation.

As explained in Section II, between 2013 and 2017, if a participating beginning farmer was a veteran, asset owners could be awarded an additional 1.0 percent of eligible rent or crop share payments for the first year of the agreement. Therefore, for tax years 2013 through 2017, beginning farmer veteran demographic data is available for new qualifying tax credit rate enhancement projects. It should be noted that beginning farmers already participating in the program prior to 2013 are not included in demographic data available because renewed project agreements or new agreements between the same parties already in the program did not qualify. During this period, 81 out of 2,203 new projects spanning 25 Iowa counties self-identified a veteran as a beginning farmer. Ranging from 18 to 61 years old, the average age of program veteran beginning farmers was 36 years old.

C. Program Beginning Farmers Net Worth

As noted before, program eligibility requirements include a maximum net worth criterion that has been indexed since 2008, to the USDA Prices Paid by Farmers Index. In both 2007 and 2008, the criterion was $500,000. The minimum net worth among program participating beginning farmers was -$175,000 in 2012 and the maximum net worth was $692,463 in 2015 (see Table 1). From 2007 to 2015, the net worth range (the difference between the largest and smallest values) steadily increased from $276,120 in 2007 to $577,663 in 2015. While this net worth range decreased slightly from 2016 to 2019, these net worth disparities represent a wide range of net worth within the maximum set by program requirements. For veteran beginning farmers between 2013 and 2017, the minimum net worth among program participating beginning farmers was $11,254 and the maximum net worth was $657,019. The average net worth for all participating veteran beginning farmers during this timeframe was $395,003.

D. Program Project Acres and Iowa

Program data for the Beginning Farmer Tax Credit, including all but 92 Custom Farming Contract Tax Credit projects, includes information about project acreage and other lease terms, such as whether farm buildings or machinery are included in the lease. The predominant asset under lease is primarily only crop land. Based on an analysis of lease descriptions, which are not standardized for aggregate analysis, at least 131 crop land project leases also included machinery, buildings, equipment, livestock, and/or storage bins. Fifty-five additional project leases excluded crop land and were only for machinery, buildings, equipment, livestock, and/or storage bins. These 186 projects represent only 4.9 percent of Beginning Farmer Tax Credit projects, suggesting that. For veteran beginning farmer projects between 2013 and 2017, all but one project leases were for only crop land.

At the start of the Beginning Farmer Tax Credit Program, including projects begun in both 2007 and 2008 (years for which program data are combined), the total sum of annual program projects, which can be duplicated from year to year depending on participation, have comprised a total of 738,169 acres under either cash rent or crop share agreements (see Table 6). Iowa has 24.5 million acres of harvested cropland (Iowa State University, 2016). Which means that 3.0 percent of harvested cropland in Iowa has been covered by Beginning Farmer Tax Credit agreements. For the history of the program, the average project size, in terms of the number of acres leased, has been quite consistent. Over all program years, the average number of acres leased, whether on a cash rent or crop share basis, is 198 (see Table 6). The average number of acres leased by veterans from 2013-2017, whether on a cash rent or crop share basis, trended slightly higher at 234. For all projects in any single year, the average project size has been no lower than 194 nor higher than 216. The large increase in program acreage in 2014 reflects an increase in the

number of projects, rather than an increase in the average number of acres leased in that year. Despite a consistency throughout the existence of the program in the average number of acres leased by project, unique project sizes vary considerably. The median number of acres for the entire program existence that were leased was 154. However, the number of acres leased for unique projects at any given time could range from the lowest of project with eight acres to the highest project with 1,767 acres.

E. Program Project Lease Types

In addition to information about acreage, program data for the Beginning Farmer Tax Credit includes information about whether each project's tenant payments are made on the basis of a cash rent, crop share, or hybrid lease arrangement. These lease types are explained in Section II. Over the course of the program, cash rent and crop share projects have been about equally common while the numbers of hybrid lease projects have been just a fraction of the others (see Figure 2). Cash rent projects in operation in 2008 numbered 243 compared to 206 crop share projects. Also, in that year there were just 29 hybrid leases, accounting for just 6.0 percent of the number of projects in place in that year. Cash rent projects also slightly outnumbered crop share projects in 2009. It is worth noting that the number of crop share projects remained less than cash rent projects given that the tax credit rate offered for crop share in those years was three times less than that offered for cash rent projects. Thereafter, the situation was reversed, with crop share projects outnumbering cash rent projects in years 2010 through 2013. Crop share projects outnumbered cash rent projects by the greatest margin in 2012, when 278 crop share projects accounted for 52.0 percent of the 533 total projects operating that year. Cash rent projects outnumbered crop share rent projects by the greatest margin in 2017, when 921 cash rent projects accounted for 57.1 percent of the 1,613 total projects operating that year.

In terms of acreage, cash rent and crop share projects are uniformly comparable in size for all years of the program (see Figure 3). Over years 2008 through 2019, the average size of cash rent projects ranges from 189 acres to 207 acres. The average size of crop share projects ranges from 191 to 214 acres. It is notable, that hybrid projects are larger on average than either cash rent or crop share projects in all years except 2008; but, it should be remembered, hybrids represent a much smaller number of projects and the difference is minimal.

Because both the number and average size of cash rent and crop share projects are about equal each year, the total number of acres represented by each lease type are fairly comparable overall. More specifically, the relative number of acres in each lease type closely tracks the number of projects on a year to year basis (see Figure 4). Thus, with approximately 50,000 cash rent project acres and approximately 41,000 crop share project acres in 2008, cash rent acres outnumbered crop share acres by 24 percent in that year. In subsequent years, the magnitude of the gap in acreage by lease type fluctuated but never exceeded this level. The number of acres represented by each lease type was approximately equal in 2010. In each year thereafter, the number of crop share acres exceeded cash rent acres. In 2014, the number of crop share acres exceeded cash rent acres by 4 percent. In all years, hybrid lease project acres are far fewer in number than acres in other lease types. As noted above, this is because there are fewer hybrid leases in the program than cash rent or crop share leases.

F. Custom Farming Contract Tax Credit Usage

Between 2013 and 2017, when the Custom Farming Contract Tax Credit was available, there were 99 Custom Farming Contract Tax Credit projects located in 32 Iowa counties involving 93 beginning farmers. Contract leases included various farm projects, including cattle feeding and

tilling, spraying, planting, and harvesting both corn and soybeans. The average payment to a beginning farmer under the Custom Farming Contract Tax Credit contracts in 2017 was $45,538. The IADD has suggested the low usage of the Custom Farming Contract Tax Credit is attributed to the way eligibility was structured for the credit. Specifically, to qualify, the beginning farmer had to perform contracted work with equipment owned by said farmer and, historically, beginning farmers lack the capital and resources to own such equipment for the most commonly needed custom farming work.

VII. Descriptive Statistics of Program Awards, Claims, and Asset Owners

A. Awards to Asset Owners

Awards are calculated upon application to the program as a tax credit equal to a percent of the amount paid to an asset owning taxpayer by a beginning farmer under an approved agreement.[20] The award can be used to offset corporate or individual income tax liability owed by the asset owning taxpayer up to the amount approved for the award. As outlined in Section II, if the tax credit award is in excess of the asset owners tax liability during a given tax year, the remaining unclaimed amount of the award can be carried forward for future tax years. Tax credit certificates for tax credit awards are issued for leases in place during the tax year for which a credit can first be claimed. From the start of the program in 2007 through 2019, $70.7 million in tax credits have been awarded to asset owning taxpayers issued a total of 12,806 tax credit certificates (see Table 7). As noted above, 99.5 percent of awards have been for the Beginning Farmer Tax Credit totaling $70.4 million in awards to asset owning taxpayers issued 12,707 tax credit certificates. For the five years it was available, 0.5 percent of awards were for the Custom Farming Contract Tax Credit totaling $343,463 in awards to asset owning taxpayers issued 99 tax credit certificates.

Between 2007 and 2017, both the number of tax certificates issued and award amounts for the Beginning Farmer Tax Credit Program increased fairly steadily (see Table 7). Numbering 287 in 2007, the number of certificates increased sharply in the following year to 651. Following this trend, the number of tax certificates issued and award amounts continued to increase until the program peaked in 2017. The largest year-to-year increases took place between 2013 and 2014, when the number of certificates increased from 651 to 937, and between 2018 and 2017, when the number of certificates increased from 1,537 to 1,857. Program administrators indicated the significant jump in 2014 certificates reflected a substantial increase in marketing of the program. The increase in 2017 and subsequent substantial decrease in 2018 is most likely attributable to the program's 2013 provisions expiring at the end of 2017 and, due to a lack of legislative intervention. The allocation for both the Beginning Farmer Tax Credit reduced from $12.0 million to $6.0 million and the Custom Farming Contract Tax Credit was eliminated.

Aligning with steady increases in issued tax certificates between 2007 and 2017, the amount of tax credits award amounts for the Beginning Farmer Tax Credit also increased (also in Table 7). In 2007, tax credit awards amounted to $1.3 million. By 2017, there were $9.5 million. The upward trend in tax credit award amounts partly reflects increases in Beginning Farmer Tax Credit average award amounts during the period. In terms of award amounts per certificate, average certificate amounts range from $3,123 in 2008 to $9,362 in 2013 (again in Table 7).The trends in average awards during this period reflect upward trends in the average cash rents and average corn and soybean prices during the same period. The average Beginning Farmer Tax Credit

[20] Example: A beginning farmer leases 160 acres of crop ground at $200 an acre for a total of $32,000 in gross rental income for the asset owning taxpayer. Therefore, the tax credit awarded to the asset owner is $32,000 x 5.0% =$1,600.

award is always higher in those years in which cash rental rates are higher. For example, high average tax credit awards in 2012 and 2013 coincide with statewide average cash rental rates being high. The peak in rental rates in 2013 followed the peak in corn and soybean prices in 2012. In addition, the decrease in average award amounts in 2014 reflect a slight decrease in cash rental rates from the prior year. In addition, between 2013 and 2017, when the program had five years of enhanced tax credit percentages, the average award amounts per certificate average certificate amounts was $6,612. During this same period, while the Custom Farming Contract Tax Credit was in effect, average award amounts per certificate average certificate amounts ranged from $2,897 in 2013 with ten issued tax certificates to $4,100 with 28 issued tax certificates.

B. Tax Credit Claims by Asset Owners

As explained above, asset owners may claim the program tax credit up to the awarded amount for each eligible tax year. However, when tax credit awards are in excess of the asset owner's income tax liability during a given tax year, the full award amount is not claimed with the remaining amount carried forward to a future tax year to be claimed or forfeited if the tax certificate has expired. Therefore, program tax claims are lower than award amounts, as demonstrated by a total of $40.9 million Beginning Farmer Tax Credit Program tax credits claimed between 2017 and 2019, which is $29.9 million less than total tax credits awarded during the same period (see Table 8). Similar to the rest of the program's trends, claims have increased steadily since the initial year of the program. Claims for 2007 amounted to $657,000. Claim amounts increased in all but two of the subsequent years with the peak being in 2017 when claims amounted to $5.3 million. As of the 2019 tax year, claims total $40.6 million for the Beginning Farmer Tax Credit and $276,520 for the Custom Farming Contract Tax Credit. Over the course of the program, nearly all claims have been made against individual income tax (see Table 9). Claims against corporation income tax represent 1.9 percent of all claims since the beginning of the tax credit.

Since program tax credit awards in excess of tax liability issued in 2007 had a carryforward period of only five years, of the tax credit awards issued in that year, 97.0 percent were claimed prior to the expiration of the carryforward period at the end of 2012 (see Table 10). Of these tax credit awards, 52.0 percent were claimed in the first tax year, 21.0 percent were claimed in the second tax year, and 8.0 percent were claimed in the third tax year. Starting in 2008, tax credits awarded in that year and beyond, have been allowed a ten-year carryforward period. For tax credit awards issued in 2008 and 2009, the only two years that have reached the ten-year carryforward expiration, 93.0 percent and 75.0 percent, respectively, of awards were claimed. Of the tax credit awards issued in 2008, 51.0 percent were claimed in the first tax year, 14.0 percent were claimed in the second tax year, and 6.0 percent were claimed in the third tax year. Of the tax credit awards issued in 2009, 37.0 percent were claimed in the first tax year, 15.0 percent were claimed in the second tax year, and 8.0 percent were claimed in the third tax year. It should be noted that tax credit awards issued in 2009 and after, demonstrate an overall decreased percentage of tax credit awards claimed in the in the first year. On average, between 2009 and 2019, 33.1 percent of tax credit awards were claimed in the first year the tax credit award is issued. For this same period, 45.0 percent to 59.0 percent of tax credit awards were claimed by the third eligible tax year. By definition under this tax credit program, this trend reflects that all asset owning taxpayers receive at least two consecutive years of nonrefundable awards, with many receiving five years of awards. This could be due, in part, to these taxpayers with an income tax liability below their annual tax credit awarded amount potentially finding themselves with a growing amount of available tax credits from non-related programs to offset their overall income tax liability in the second, and

likely, third year of awards as they continue to offset tax liability using the program tax credit awarded in the first tax year.

C. Asset Owner Demographics

As discussed in Section VI, from 2008 to 2019, the number of cash rent project agreements (including hybrid and flex projects) and crop share project agreements entered into between the program's asset owners and beginning farmers, have been relatively balanced. However, in terms of asset owner income generated from these agreements, on average, crop share project agreements, with an estimated $69,845 income received a year, have yielded larger income revenues than cash rent project agreements, with an estimated $46,782 average income received a year (see Table 6). The year-to-year percent difference in the average lease agreement income received by project for the two lease types ranges from 34.0 percent in 2008 to almost than a 100.0 percent between 2011 and 2013 when corn and soybean prices were at record highs. In 2012, the highest average income received by crop share project agreements was $114,094 a year compared to an average income received of $56,299 a year by cash rent project agreements in the same year.

Keeping in mind that a given program project may have multiple asset owners. Of the 3,759 projects over the course of the Program, 3,502, or 93.1 percent, have had at least one Iowa-resident owner. The percentage of projects without Iowa-resident asset owners has trended slightly upwards since 2012 and peaked in 2017 when 127 projects had no Iowa-resident asset owners. The increase is estimated to reflect increased awareness among nonresidents as a result of expanded program marketing since 2014.

From 2007 to 2019, an estimated 28.8 percent of program projects were between one or more of a project's asset owners related[21] to the one or more of a project's beginning farmers. Until 2014, an estimated average of eight asset owners a year were related to the one or more of a project's beginning farmers. In 2014, and estimated 208 asset owners were related to the one or more of a project's beginning farmers, which more than doubled in 2015. By 2017, and estimated 779 asset owners were related to the one or more of a project's beginning farmers, which declined to an estimated 667 in 2018 and 663 in 2019. The increase is estimated to reflect increased awareness among asset owners related to beginning farmers as a result of expanded program marketing since 2014. Between 2013 and 2017, 22 veteran beginning farmers were related to asset owners. This represents 27.2 percent of all self-identified new veteran beginning farmer projects which participated in the enhanced tax credit rate program modification for veteran famers during this timeframe.

As explained in Section II, modifications to program agreements are allowed are if the name of the asset owner or beginning farmer has changed or if the asset owner died and the asset has been transferred to an estate or trust. From 2007 to 2012, no program projects were tied to asset owner trusts or estates. However, by 2017, 20.5 percent of program projects had at least one trust or estate-related asset owner. This could demonstrate a tendency for Iowa farmland to stay within a former asset owners family estate instead of being sold to new, unrelated individuals or corporations. It should be noted that program tax credit certificates are not transferable upon sale of assets even if the new asset owner opted to continue the same project with the beginning

[21] Note: Asset owners self-identify related beginning farmers upon application to the Beginning Farmer Tax Credit Program. Forms of relationships to asset owners have included child, grandchild, niece/nephew, great niece/nephew, sibling, cousin, and uncle/aunt. Relationships include those through marriage, i.e. in-law, step, etc. Numbers are estimated because data available is not standardized for aggregate analysis.

farmer who held an agreement with the pervious asset owner. Therefore, data regarding instances when property is sold in its entirety verses a portion being retained by an asset owner or an asset owner's estate is not available. An analysis of project lease modification descriptions[22], revealed the following. About 73.1 percent of program asset ownership was transferred to a trust or estate with immediate family members as beneficiaries or inherited by immediate family members which opted to continue the relationship with the beginning farmer. Approximately 13.5 percent of all or a portion of asset ownership was sold to new asset owner who was not the beginning farmer leasing from the previous asset owner. Lastly, 13.5 percent of all or a portion of asset ownership was inherited by or sold to the beginning farmer leasing from the previous asset owner.

VIII. Economic Analysis of the Beginning Farmer Tax Credit Program

In addition to descriptions of program scope, awards, and claims this evaluation study provides an economic analysis of the Beginning Farmer Tax Credit Program. While the tax benefits of the program accrue to asset owners, rather than to the beginning farmers to whom assets are leased, the program's ultimate purpose is to promote entry into farming. This analysis assesses the extent to which participation in the program is associated with positive economic outcomes and viable occupations in farming. Specifically, the economic analysis addresses the question, "Did beginning farmers who participated in a lease for which a Beginning Farmer Tax Credit was awarded experience better economic outcomes than similarly-situated farmers who did not participate?" Further, "After completing program projects, did the beginning famers continue to operate as farmers beyond program involvement and for a period of time that transitioned them from beginning farmers to established farmers?"

In order to assess the link between program participation and improved economic outcomes, this analysis compares farmers who participated in the program to a control group of non-participant farmers. The participant and control groups are compared with respect to changes each group experienced in the following indicators between 2009 and 2019:

i. Farm income
ii. Ratio of farm expenses to net income
iii. Continued engagement in farming

The three indicators noted above are included in the analysis because they represent a range of considerations previously discussed in this evaluation and because they are available directly from tax records. Each of these factors and its rationale for inclusion in the analysis are described below.

A. Beginning Farmer Economic Outcome Measures

The analysis uses tax records maintained by the Iowa Department of Revenue, including data elements from Iowa individual income tax returns and federal individual income tax returns. The focus is on the federal Schedule F which reports farm income and expenses for federal and Iowa tax purposes.

[22] Project descriptions are not standardized for aggregate analysis or available for all lease modifications. These descriptions span the entirely of the program and are related to transferring an asset owners' tax-credit certificate to a trust or estate, the removal of one of a project's asset owners because that owner sold their share of the asset and no longer qualifies for the tax credit, or the reduction of a tax credit award amount because the asset owner sold all or a portion of the asset.

1. **Farm Income**
   As noted in previous chapters, on average, beginning farmers have lower farm income than established farmers. When the respective groups are defined in terms of eligibility for participation in the program, average farm income of established farmers was nearly ten times greater than that of beginning farmers when the respective groups are defined in terms of eligibility for participation in the program. The connection between farm income and persistence in farming is well attested in the research literature explored in this evaluation. For this analysis, farm income is measured as net farm income profit or loss as reported on the Schedule F. This variable is calculated by subtracting total farm expenses, such as fertilizers, fuel, labor hired, seed/plants, storage, etc., from gross farm income, which includes variables such as sales of livestock, agricultural program payments, cooperative distributions, etc.

2. **Ratio of Farm Expenses to Net Farm Income**
   As noted in previous chapters, the ratio of farm operating expenses to farm income is higher among beginning farms as compared to established farmers. A higher operating expense ratio is indicative of greater financial risk. Beginning farmers typically sustain greater level of farm expenses as a share of net farm income than their more established counterparts. For this analysis, the ratio of operating expenses to farm income is measured as total farm expenses divided by net farm income profit or loss as reported on the Schedule F.

3. **Continued Engagement in Farming**
   For this analysis, continued engagement in farming is assessed by whether a farmer who filed a Schedule F in 2009 also filed a Schedule F in 2019.

B. Economic Analysis Overview

The indicators described above are useful for assessing whether program participants have become established in farming because they represent important ways in which beginning and established farmers differ. The analysis compares a **treatment** group of beginning farmers participating in the program to a **control** group of similar beginning farmers at two points in time, tax years 2009 and 2019. This range is selected because program data is available for all ten years and because it comports with the general USDA definition for a farmer's transition from beginning to established farmer; specifically, according to this definition, this happens when a farmer sustains farming operations for a period of ten years or more. The analysis is intended to address whether program participants became more established in farming during this period than did members of the control group in terms of the indicators selected for analysis.

C. Participant Group and Control Group

For this analysis, the participant group consists of those beginning farmers who began their participation in a lease for which a *new* project Beginning Farmer Tax Credit was awarded in 2009 and who could be matched to tax records. The number of farmers in the participant group is 114. Note that the participant group under analysis does not include new beginning farmers who first participated in the program after 2009. Therefore, the number of participants included in the analysis is lower than the total number of beginning farmers who have participated in the program in all years. A beginning farmer may participate in multiple projects at any one time, with no limitation on the number of new projects undertaken by a qualified beginning farmer. Thus, the number of new projects for any year does not represent the number of farmers initially

participating in the program nor the number of beginning farmers who participated in the program overall. For example, of the beginning farmers associated with a new program project in 2009, 43.1 percent also participated in separate, new program projects in the prior year.

For purposes of selecting a control group, individuals in the participant group were coded with respect to four factors: their Principal Agricultural Activity classification based on the North American Industry Classification System (NAICS) six-digit codes, federal filing status, approximate 2009 farm income, and the U.S. Congressional District in which they resided in 2009 (see Table 12).

For NAICS codes, members of the participant group were coded with respect to the NAICS code that best identified their primary farming activity as reported on their 2009 Schedule F. The three categories of Crop Production, Animal Production, and Forestry and Logging encompass a total of 14 different subcategories for identification purposes. However, only six subcategories apply to the entirety of the participant group, as follows :

- 111100: Oilseed and grain farming (59.5%)
- 111900: Other crop farming (16.4%)
- 112111: Beef cattle ranching and farming (15.5%)
- 121112: Cattle feedlots (0.9%)
- 112210: Hog and pig farming (6.0%)
- 112900: Other animal production (1.3%).

For federal filing status, participants were coded as "Single"[23] (46.6%) or "Married Filing Jointly"[24] (53.5%). For their approximate 2009 farm income, participants were coded according to the position of their farm income within the distribution of farm income for the entire group; specifically, each participant was assigned one of six possible codes depending on whether their 2009 farm income was between the 1st and 10th percentile for the entire group, the 10th and 25th percentile, and so on; the following percentiles employed as thresholds: 1st, 10th, 25th, 50th, 75th, 90th, 99th. For coding participants with regard to their Congressional district of residence, the analysis employed the current boundaries for the four Congressional districts in Iowa in place since 2013 according to zip codes. The boundaries of the Congressional districts bifurcate the state approximately in half both north to south and east to west such that each district comprises a quadrant of the state.

The control group was selected from among the pool of all farmers who filed a Schedule F in 2009. Each member of the pool was assigned a code with respect to his or her value on each of the four factors described above for the participant group. For each member of the participant group, it was found that there were at least five, and at the most 21, beginning farmers in the control pool who matched that participant on all four selection factors. Of those members of the control pool who matched a participant on all four selection factors, five were randomly selected into the control group for each member of the participant group. Thus, the distribution of the control group on the four characteristics for selection matches that of the treatment group. In addition, because for some participants the number of control pool matches was not more than five, the control group is as large as it is possible to be.

[23] Single: This status normally applies if a person is not married. It applies if they are divorced or legally separated under state law.

[24] Married Filing Jointly: If married, a person and their spouse can file a joint tax return.

Note that other important considerations are not factors in control group selection. For example, whether the farmer operates his or her own land or land leased from another owner is not a factor in control group selection because data on this factor is not available in tax records. However, such factors are controlled for through randomization. That is, randomizing the selection of control group members reduces the possibility of systematic bias.

D. Beginning Farmer Tax Credit Program Economic Analyses and Results

This economic analysis employs the statistical t-test procedure to assess the research questions. T-tests are tests to evaluate whether two groups are statistically significantly different from one another. Specifically, the procedure tests whether the difference in the two-sample means is sufficiently great that it is unlikely to have been a matter of chance that the two means are different. For this study, t-tests were used to evaluate whether the group of beginning farmer participants in the program and the control group were statistically significantly different from each other with respect the indicators described above. T-tests were used to evaluate group means for net farm income and farming expenses as a percentage of net income. The indicator of interest, continued engagement in farming, cannot be evaluated using the t-test because the indicator does not involve a group mean.

The analysis compares the participant group to the control group at two points in time using data from the 2009 and 2019 tax years (see Table 13). There were 114 identifiable farmers participating in new Program projects in 2009. The control group includes 560 farmers. Mean values and standard deviations for each group for each indicator are presented. In addition, the table shows the results of the t-test for the differences between the groups. In 2009, the average net farm income of participants in the Beginning Farm Tax Credit Program was $-1,232 compared to $-1,478 for the control group. For tax credit program participants, the average ratio of farm expenses to net income was 11.9. For the control group, the average was 19.7.

The results of the t-tests comparing the two groups in 2009 indicate that differences between the two groups on each indicator are not statistically significant. That is, the participant and control groups were not significantly different with regard to their net farm income and ratio of farm expenses to net income. These findings are necessary for an analysis of the impact of the program on the participant group, that it is not different from the control group before the treatment is applied at the start of the period under investigation.

The next step is to compare outcomes for the two groups in tax year 2019, ten years after beginning farmers had first participated in the Beginning Farmer Tax Credit (see Table 13). The table shows mean values, standard deviations for each group for each indicator as well results of the t-test for differences between the groups. In 2019, the average net farm income was $9,417 for program participants and $-10,736 for the control group. For program participants, the average ratio of farm expenses to net income was 11.2 and for the control group the average was 10.9. The average net farm income for participants increased over seven times compared to the control group decreasing by a similar amount and these differences are statistically significant. That is, based on statistical analysis, the difference is unlikely to be the result of chance alone and likely to be in some way related to program participation. However, with respect to the other indicator of interest, the differences between the groups are not statistically significant.

With respect to the question of continued engagement in farming that could not be measured by a t-test, the participant group retained 86.0 percent of beginning farmers compared to the control group's 76.0 percent retention rate.

E. Discussion of Results

The economic analysis provides evidence that there is a positive relationship between participation in the Beginning Farmer Tax Credit Program and certain aspects of farming that typically differentiate beginning and established farmers. The findings of this analysis suggest that program participants became more established in farming between 2009 and 2019 than did members of the comparison group. Program participants had statistically significantly increased average farm income net profits over the course of ten years and compared to the control group, which, on average, realized less farm net income from their position in 2009. In terms of staying engaged in farming once entering, from 2009 to 2019, the participate group had a retention rate that was higher by ten percentage points over the control group.

The implications of this analysis, including both what it found and what it did not find, should not be overstated. Although the analysis found a relationship between program participation and certain characteristics of beginning farmers, the analysis procedures employed do not, in general, describe the strength of this relationship nor the size of the effect. Alternatively, lack of evidence of a strong relationship with a sizable effect does not indicate that such does not exist.

This economic analysis is intended to add to the understanding of the relationship between participation in the Beginning Farmer Tax Credit Program and certain positive economic outcomes. As such, it relates to a narrow set of concerns. A full consideration of the connection between tax incentives and entry into beginning farming is beyond the scope of this or any other single study. While this economic analysis provides a unique perspective on the questions it addresses, it is subject to important limitations. For example, although program participants and control group members share some characteristics, as with the hundreds of farmers in the state, they face a host of unique local and personal circumstances that cannot be accounted for.

IX. Conclusion

This evaluation study provides an overview and analysis of the Beginning Farmer Tax Credit Program, which includes both the Beginning Farmer Tax Credit and the Custom Farming Contract Tax Credit. Administered by the Iowa Agricultural Development Division of the Iowa Finance Authority, since 2018, only the Beginning Farmer Tax Credit is available to established farmers and other owners of agricultural assets to encourage leases and contracts with beginning farmers in Iowa.

This evaluation study presents a context for consideration of the tax credit program by providing background on other state and federal incentives for beginning farming. Only five states, including Iowa, currently offer tax credits for the leasing of agricultural assets to beginning farmers.

A review of scholarly literature describes the key findings from research on beginning farming, particularly the important barriers to entry into and exit from farming that the Beginning Farmer Tax Credit Program is intended to help overcome. In addition, this report describes what is known about beginning farming in Iowa based on analysis of data from the federal Agricultural Resource Management Survey. This analysis illuminates the important ways in which beginning farmers are different from established farmers.

Since its start in 2007, a total of $40.8 million in tax credits have been claimed through the program. Through 2019, there have been 3,851 program projects and 1,004 beginning farmers have participated in the program. This evaluation study presents a range of data concerning

program awards and claims as well as descriptive statistics concerning lease agreements and participating beginning farmers and asset owners.

Finally, an analysis assessed the extent to which participation in the program is associated with positive economic outcomes and sustainable farming operations for beginning farmers. Overall, this analysis concluded that farmers who initially participated in the program in 2009 were more established and profitable in farming ten years later than other similarly situated beginning farmers who did not participate in the program.

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Beginning Farmer Tax Credit Program

Tax Credits Program Evaluation Study

Tables and Figures

Appendix 1. Time Line of Major Program Changes by Effective Date

January 1, 2007	The Agricultural Assets Transfer Tax Credit is first available.
July 1, 2009	Program cap of $6.0 million per fiscal year is imposed on the Agricultural Assets Transfer Tax Credit.
January 1, 2013	The Custom Farming Contract Tax Credit becomes effective for tax years 2013 through 2017. Together, with the Agricultural Assets Transfer Tax Credit, the two tax credits are called the Beginning Farmer Tax Credit Program. The overall annual program cap is increased from $6.0 million to $12.0 million for the five years during which the Custom Farming Contract Tax Credit is available. The carry forward period for the two credits under the Beginning Farmer Tax Credit Program is extended to ten years from five years for credits awarded in 2008 and later. The Agricultural Assets Transfer Tax Credit percentage for cash rent agreements is increased from 5.0 percent to 7.0 percent; the percentage for crop share agreements is increased from 15.0 to 17.0 percent effective for tax years 2013 through 2017. If the beginning farmer is a veteran, the tax credit rates are 8.0 or 18.0 percent for the first year of the contract. The Custom Farming Contract Tax Credit is available for landowners who hire a beginning farmer to do custom work and allows the landowner to claim 7.0 percent of the value of the contract as a tax credit. If the beginning farmer is a veteran, the credit is 8.0 percent for the first year.
January 1, 2015	With the passage of 2015 House File 624, Custom Farming Contract Tax Credits may be awarded for contracts of terms of up to 24 months. Under prior law, a custom farming contract could be for a term of no more than 12 months.
January 1, 2018	The previous 2013 provisions expire and, without legislative intervention, the allocation for both Beginning Farmer Tax Credits is reduced from $12.0 million to $6.0 million a year. The Custom Farming Contract Tax Credit is eliminated. The tax credit for cash rent leases decreases from 7.0 percent to 5.0 percent and the tax credit for crop share leases decreases from 17.0 percent to 15.0 percent. The additional 1.0 percent credit for leasing to a beginning farmer who is a veteran is eliminated.
January 1 ,2019	With the passage of 2019 House File 768, the Iowa Finance Authority may issue up to $12.0 million in tax credit certificates each tax year, an increase from $6.0 million under 2018 law. The $7.9 million in agreements that existed as of the end of calendar year 2018 are not included as part of the new $12.0 million cap. The formal name of the “Agricultural Assets Transfer Tax Credit” is changed to the “Beginning Farmer Tax Credit”. However, there are no major structural changes to the actual tax credit and it continues to provide tax credits to eligible Iowa taxpayers who lease agricultural land (and associated improvements or equipment) to qualified beginning farmers.

Although the Iowa Finance Authority (IFA) will retain oversight authority for the program, the bill requires the Agricultural Development Board to designate one of its members to serve on the IFA's board of directors. The Agricultural Development Board is also tasked with reviewing and recommending approval of applications for the tax credit. Changes (enacted mid-2019) take effect upon enactment and applies retroactively to January 1, 2019, to tax years beginning on or after that date.

Table 1: Net Worth of Beginning Farmers by First Year of Program Participation

Year	Maximum Net Worth for Program Eligibility	Minimum Net Worth	Median Net Worth	Maximum Net Worth	Net Worth Range	Average Net Worth
2008*	$500,000	-$37,082	$111,345	$313,202	$350,284	$125,107
2009	$600,000	-$5,162	$55,666	$306,980	$312,142	$88,603
2010	$555,600	-$3,705	$100,702	$299,810	$303,515	$114,175
2011	$577,825	-$46,046	$56,817	$291,263	$337,309	$86,110
2012	$647,165	-$175,477	$125,135	$334,803	$510,280	$125,087
2013	$691,172	-$11,100	$63,379	$364,148	$375,248	$107,560
2014	$678,731	-$48,100	$171,094	$667,737	$715,837	$211,634
2015	$703,844	$14,800	$150,594	$692,463	$677,663	$240,070
2016-2017*	$645,284	$20,410	$140,648	$574,596	$554,186	$199,718
2018-2019*	$680,589	$145,216	$398,602	$668,388	$523,172	$401,267

Source: Iowa Agricultural Development Division

Note: Data reflects farmer net worth as of the farmer's first year of participation in the tax credit program. For partnerships, where multiple net worth's are listed, the table reflects data for the partner with the highest net worth.

* Data for these years is combined to protect participant confidentiality. The higher of the possible net worth thresholds is used to represent program eligibility

Table 2: Comparable 2020 Beginning Farmer Tax Credit Programs by State

State	Colorado	Iowa	Minnesota	Nebraska	Pennsylvania
Program/Tax Credit	Agricultural Lease Deduction Program	Beginning Farmer Tax Credit	Beginning Farmer Tax Credit	Beginning Farmer Tax Credit	Beginning Farmer Tax Credit
Tax credit/deduction applies to	Individual Income Tax	Individual Income Tax Corporate Income tax	Individual Income Tax	Individual Income Tax Corporate Income tax	Individual Income Tax
Beginning Farmer (BF) Requirements					
State Resident	X	X	X	X	NA, but must farm in state
Farm experience/Ed	X	X	X	X	X
Capital/assets access	NA	X	NA	NA	X
10 yrs. or less experience	X	NA	X	X	X
Participant in earning	X	X	X	X	X
Annual net worth cap	$2.0 million	$682,000	$851,000	$200,000	NA
Business Courses	X	NA	X	X	NA
Certified by state as a BF	NA	NA	NA	NA	X
Close relation to owner	Allowed	Allowed	Not allowed	Allowed	Not allowed
Credit Amount to Asset Owner	20% of lease agreement	5% of cash rent agreement; 15% of crop share agreement	5% of sale price; 10% of cash rent agreements; 15% of crop share agreements	10% of cash rent agreements; 15% of crop share agreements	5% of sale price; 10% of gross lease income
Program Benefit to BF	NA	NA	Cost of business course up to $1500 a year for 3 year	One-time income tax credit up to $500 for approved business course; Personal property tax exemption up to $100,000 over 3 years	NA
Applicable Agricultural Assets					
Land	X	X	X	X	X
Machinery/Equipment	X	X	X	X	X
Livestock	X	X	X	X	X
Buildings	X	X	X	X	X
Bin Storage	X	X	X	X	X
Sale Requirements	NA	NA	No	NA	No
Lease Requirements	3 years or longer	2-5 years	3 years	3 years	3 years
Tax Credit Limit	Up to $25,000 a year for lease agreements	Up to $50,000 a year for lease agreements	Up to $32,000 of sale price (one-time); Up to $7,000 a year for lease agreements; Up to $10,000 a year for crop share agreements	None	Up to $32,000 of sale price (one-time); Up to $7,000 a year for lease agreements
Tax Credit Program Cap	100 deductions a year	$12.0 million	$12.0 million	Not capped	$6.0 million
Transferability	No	No	No	No	No
Refundability	No	No	No	Yes	No
Carryforward	No	10 years	15 years	NA	No
Initial Award Year	2017	2007	2017	1999	2019
Ending Year	2020	NA	NA	NA	NA

Sources: Iowa Finance Authority; Colorado Office of the State Auditor, (2018); Minnesota Department of Agriculture, (2019); Nebraska Department of Revenue, (2018); Pennsylvania Department of Community & Economic Development, (2020).

Table 3: Iowa Farm Households, by Household Net Worth, 2018

	Established Farmer (by Net Worth of Farm Household)	Beginning Farmer (by Net Worth of Farm Household)	State Total
Farm Households			
Number of family farms	62,770	21,626	84,396
Percent of family farms	74.4	25.6	100
Number of total operators	94,219	31,717	125,936
Value of production			
Percent of total value of production	84.0	16.0	100
Farm Size			
Farm size (mean operated acres)	420	156	352
Farm size (median operated acres)	195	39	150
Percent of acres	88.6	11.4	100
Percent distribution by gross value of production			
Less than $10,000	25.9	40.3	29.6
$10,000 to $249,999	42.4	47.1	43.6
$250,000 or more	31.7	12.6	26.8
Percent distribution of farms by typology (Gross cash farm income)			
Small (GCFI < $350,000)	74.4	92.0	78.9
Midsized (GCFI $350,000-$999,999)	19.9	7.1	16.6
Large or very large (GCFI > $1 million)	5.7	0.8	4.4
Percent distribution of value of production			
Percent crop value of production	56.0	38.8	53.2
Percent livestock value of production	44.0	61.2	46.8
Specialization of operation (percentage)			
Grains, oilseeds, tobacco, cotton	43.7	38.8	42.5
Fruits, nuts, vegetables, greenhouse	2.7	6.5	3.7
Beef, dairy, hogs, or poultry	21.0	17.6	20.1
Other crops or livestock	32.5	37.1	33.7
Farms receiving government payments	48,250	11,704	59,995
Percent of all farms receiving payments	80.5	19.5	100.0
Percent of farms within group receiving payments	76.9	54.1	71.0
Average government payment (all farms)	$14,332	$5,689	12,117
Average government payment (payment farms)	$18,645	$10,512	17,057
Percent of payments	88.0	12.0	100.0
Major occupation of principal operator (percentage)			
Farm or ranch work	66.6	43.7	60.7
Work other than farming/ranching	33.4	56.3	39.3
Farm household finances			
Farm income, average	$61,288	$12,171	$48,702
Off-farm income, average	$82,802	$62,572	$77,618
Total income, average	$144,091	$74,743	$126,321
Total income, median	$180,513	$63,814	$95,139
Net worth, average	$2,653,651	$371,319	$2,068,820
Net worth, median	$1,771,521	$415,663	$1,287,217
Farm net worth, mean	$1,989,983	$195,002	$1,530,032
Farm net worth, median	$1,185,650	$210,186	$829,889
Gender of principal operator (percentage)			
Male	89.3	89.4	89.3
Female	10.7	10.6	10.7
Age of principal operator			
Mean age of principal operator	60	52	58
Less than 35 years old (percent)	2.3	12.3	4.9
35-44 years old (percent)	6.4	13.9	8.4
45-54 years old (percent)	10.6	22.3	13.6
55-64 years old (percent)	47.8	36.6	44.9
65 years old or more (percent)	32.8	14.9	28.3
Experience of operators farming (percentage)			
More than 10 years of farming experience	91.5	77.1	87.8
10 years or less of farming experience	8.5	22.9	12.2

Source: 2018 USDA Agricultural Resource Management Survey, Economic Research Service Staff Analysis Note: For this table, beginning farm households are those with net worth of not more than $665,288 in 2018.

Table 4: Iowa Farm Households, by Years of Farming Experience, 2018

	Established Farmer (by years of experince being greater than 10 years)	Beginning Farmer (by years of experince being 10 year or less)	State Total
Farm Households			
Number of family farms	74,123	10,273	84,396
Percent of family farms	87.8	12.2	100.0
Number of total operators	111,988	13,948	125,936
Value of production			
Percent of total value of production	95.8	4.2	100.0
Farm Size			
Farm size (mean operated acres)	375	187	352
Farm size (median operated acres)	154	79	150
Percent of acres	93.5	6.5	100.0
Percent distribution by gross value of production			
Less than $10,000	28.8	35.3	29.6
$10,000 to $249,999	42.1	54.2	43.6
$250,000 or more	29.1	10.5	26.8
Percent distribution of farms by typology (Gross cash farm income)			
Small (GCFI < $350,000)	77.1	92.5	78.9
Midsized (GCFI $350,000-$999,999)	17.9	7.0	16.6
Large or very large (GCFI > $1 million)	5	0.5	4.4
Percent distribution of value of production			
Percent crop value of production	51.8	85.5	53.2
Percent livestock value of production	48.2	14.5	46.8
Specialization of operation (percentage)			
Grains, oilseeds, tobacco, cotton	41.4	50.1	42.5
Fruits, nuts, vegetables, greenhouse	4.2	0.00	3.7
Beef, dairy, hogs, or poultry	20.7	15.8	20.1
Other crops or livestock	33.7	34.1	33.7
Farms receiving government payments	52,709	7,246	59,995
Percent of all farms receiving payments	87.9	12.1	100.0
Percent of farms within group receiving payments	71.1	70.5	71.0
Average government payment (all farms)	$12,660	$8,202	12,117
Average government payment (payment farms)	$17,803	$11,628	17,057
Percent of payments	91.8	8.2	100.0
Major occupation of principal operator (percentage)			
Farm or ranch work	64.6	33.2	60.7
Work other than farming/ranching	35.4	66.8	39.3
Farm household finances			
Farm income, average	$52,504	$21,269	$48,702
Off-farm income, average	$74,611	$99,319	$77,618
Total income, average	$127,115	$120,588	$126,321
Total income, median	$93,135	$115,009	$95,139
Net worth, average	$2,240,025	$833,500	$2,068,820
Net worth, median	$1,479,037	$709,026	$1,287,217
Farm net worth, mean	$1,669,971	$520,312	$1,530,032
Farm net worth, median	$906,295	$365,287	$829,889
Gender of principal operator (percentage)			
Male	89.7	86.8	89.3
Female	10.3	13.2	10.7
Age of principal operator			
Mean age of principal operator	60	44	58
Less than 35 years old (percent)	1.2	31.4	4.9
35-44 years old (percent)	6.2	23.9	8.4
45-54 years old (percent)	13.7	12.7	13.6
55-64 years old (percent)	47.3	27.8	44.9
65 years old or more (percent)	31.6	4.2	28.3
Experience of operators farming (percentage)			
More than 10 years of farming experience	100.0	0.0	87.8
10 years or less of farming experience	0.0	100.0	12.2

Source: 2018 USDA Agricultural Resource Management Survey, Economic Research Service Staff Analysis Note: For this table, beginning farm households are those with 10 years of less of principal operator farming experience in 2018.

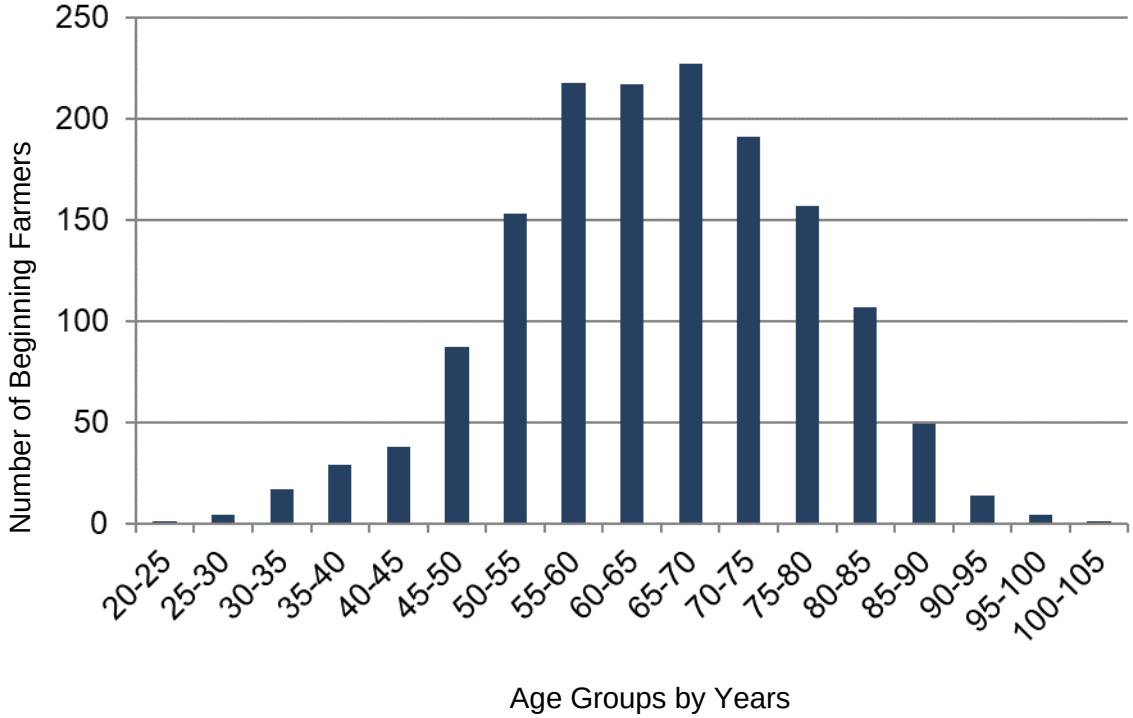
Table 5: Number of New Beginning Farmer Tax Credit Projects by Tax Credit

Project First Year	Number of New Beginning Farmer Tax Credit Projects	Number of New Custom Farming Contract Tax Credit Projects	Total Tax Credit Program Projects	New Beginning Farmer Tax Credit Projects Percent of Total
2008*	488	--	488	100.0%
2009	148	--	148	100.0%
2010	180	--	180	100.0%
2011	140	--	140	100.0%
2012	167	--	167	100.0%
2013	194	10	204	95.1%
2014	408	11	419	97.4%
2015	453	22	475	95.4%
2016	511	25	536	95.3%
2017	637	24	661	96.4%
2018-2019**	433	--	433	100.0%
Total	3,759	92	3,851	97.6%

Source: Iowa Agricultural Development Division Database
*Includes projects begun in 2007.

** Data for these years is combined to protect participant confidentiality.

Figure 1: Number of Beginning Farmers in the Program by Age Group



Source: Iowa Agricultural Development Division Database
* Includes only farmers whose age was reported in the Iowa Agricultural Development Division Database. The age of each person in multiple-farmer partnerships is counted individually. Therefore, figures will not align with reported Program projects. Age is reported as the beginning farmer's first year of Program participation.

Table 6: Estimated Lease Income under Beginning Farmer Tax Credit Contracts by Year

Certificate Year	Cash Rent Projects*	Cash Rent Lease Income*	Cash Rent Project Average Lease Income	Crop Share Projects	Crop Share Lease Income	Crop Share Project Average Lease Income	Cash Rent Lease Income X Tax Credit Rate	Crop Share Lease Income X Tax Credit Rate	Crop Share Lease Income Percent of Total
2008	282	$10,594,952	$37,571	206	$10,381,813	$50,397	$529,748	$1,557,272	75%
2009	303	$11,918,673	$39,336	230	$12,481,393	$54,267	$595,934	$1,872,209	76%
2010	297	$12,622,587	$42,500	273	$18,420,914	$67,476	$631,129	$2,763,137	81%
2011	293	$14,705,741	$50,190	295	$28,548,636	$96,775	$735,287	$4,282,295	85%
2012	260	$14,637,699	$56,299	278	$31,718,080	$114,094	$731,885	$4,757,712	87%
2013	288	$14,965,132	$51,962	286	$30,433,281	$106,410	$1,047,559	$5,173,658	83%
2014	442	$22,841,800	$51,678	392	$29,737,218	$75,860	$1,598,926	$5,055,327	76%
2015	618	$30,312,304	$49,049	483	$29,767,482	$61,630	$2,121,861	$5,060,472	70%
2016	774	$38,036,106	$49,142	586	$36,098,188	$61,601	$2,662,527	$6,136,692	70%
2017	987	$45,231,841	$45,828	650	$38,713,859	$59,560	$3,166,229	$6,581,356	68%
2018	737	$32,067,571	$43,511	533	$29,898,752	$56,095	$1,603,379	$4,484,813	74%
2019	640	$29,059,887	$45,406	519	$34,238,249	$65,970	$1,452,994	$5,135,737	78%
Total	5,921	$276,994,293	$46,782	4,731	$330,437,865	$69,845	$16,877,458	$52,860,680	76%

Source: Iowa Agricultural Development Division Database
*Includes hybrid projects.

Table 7: Beginning Farmer Tax Credit Program Awards by Award Year

	Beginning Farmer Tax Credit			Custom Farming Contract Tax Credit			Beginning Farmer Tax Credit Program Total	
Award Year	Number of Certificates	Certificate Amount	Average Certificate Amount	Number of Certificates	Certificate Amount	Average Certificate Amount	Number of Certificates	Certificate Amount
2007	287	$1,259,113	$4,387	--	--	--	287	$1,259,113
2008	651	$2,032,777	$3,123	--	--	--	651	$2,032,777
2009	696	$2,659,104	$3,821	--	--	--	696	$2,659,104
2010	767	$3,598,519	$4,692	--	--	--	767	$3,598,519
2011	789	$5,222,990	$6,620	--	--	--	789	$5,222,990
2012	726	$5,756,780	$7,929	--	--	--	726	$5,756,780
2013	640	$5,991,784	$9,362	10	$28,974	$2,897	650	$6,020,758
2014	921	$6,513,533	$7,072	14	$30,045	$2,146	935	$6,543,578
2015	1,197	$6,953,384	$5,809	22	$89,703	$4,077	1,219	$7,043,087
2016	1,509	$8,493,635	$5,629	28	$114,786	$4,100	1,537	$8,608,421
2017	1,832	$9,504,530	$5,188	25	$79,955	$3,198	1,857	$9,584,485
2018	1,411	$5,989,152	$4,245	--	--	--	1,411	$5,989,152
2019	1,281	$6,407,065	$5,002	--	--	--	1,281	$6,407,065
Total	12,707	$70,382,366	$5,539	99	$343,463	$3,469	12,806	$70,725,829

Source: Iowa Agricultural Development Division Database

Table 8: Beginning Farmer Tax Credit Program Claims by Tax Credit

Tax Year	Beginning Farmer Tax Credit Claims	Custom Farming Contract Tax Credit Claims	Beginning Farmer Tax Credit Program Total Claims
2007	$656,106	--	$656,106
2008	$1,315,362	--	$1,315,362
2009	$1,359,910	--	$1,359,910
2010	$1,794,200	--	$1,794,200
2011	$2,332,066	--	$2,332,066
2012	$3,237,388	--	$3,237,388
2013	$3,111,619	$15,606	$3,127,225
2014	$3,771,262	$19,519	$3,790,781
2015	$3,867,112	$47,277	$3,914,389
2016	$5,076,962	$92,444	$5,169,406
2017	$5,210,519	$65,562	$5,276,081
2018	$4,604,384	$24,912	$4,629,296
2019	$4,238,426	$11,200	$4,249,626
Total	$40,575,316	$276,520	$40,851,836

Note: Claim totals differ slightly from Table 9 due to that table's rounding of income tax types prior to total claim calculations.
Source: Iowa Department of Revenue IA 148 Tax Credit Schedule Claims Database.

Table 9: Beginning Farmer Tax Credit Program Claims by Tax Type

	Individual Income Tax		Corporation Income Tax		Program Total Claims	
Tax Year	Amount	Percent of Total	Amount	Percent of Total	Amount	Percent of Total
2007	$652,653	99.5%	$3,453	0.5%	$656,106	100.0%
2008	$1,307,154	99.4%	$8,208	0.6%	$1,315,362	100.0%
2009	$1,343,383	98.8%	$16,527	1.2%	$1,359,910	100.0%
2010	$1,786,286	99.6%	$7,914	0.4%	$1,794,200	100.0%
2011	$2,316,812	99.3%	$15,254	0.7%	$2,332,066	100.0%
2012	$3,227,733	99.7%	$9,655	0.3%	$3,237,388	100.0%
2013	$3,080,370	98.6%	$45,209	1.4%	$3,125,579	100.0%
2014	$3,710,061	98.0%	$77,628	2.0%	$3,787,689	100.0%
2015	$3,828,472	98.0%	$78,709	2.0%	$3,907,181	100.0%
2016	$4,992,648	96.8%	$163,271	3.2%	$5,155,919	100.0%
2017	$5,145,918	97.9%	$108,347	2.1%	$5,254,265	100.0%
2018*	$4,457,410	96.4%	$165,971	3.6%	$4,623,381	100.0%
2019*	$4,136,770	97.9%	$89,863	2.1%	$4,226,633	100.0%
Total	$39,985,670	98.1%	$790,009	1.9%	$40,775,679	100.0%

Note: Claim totals differ slightly from Table 8 due to rounding of income tax types prior to total claim calculations.
Source: Iowa Department of Revenue IA 148 Tax Credit Schedule Claims Database
* Program claims data for tax years 2018 and 2019 is incomplete.

Table 10: Timing of Beginning Farmer Tax Credit Program Claims by Award Year

	Tax Credit Claim Year														
Award Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Three Years After Award	Total to Date
2007	52%	21%	8%	6%	6%	3%	--	--	--	--	--	--	--	81%	96%
2008		51%	14%	6%	8%	4%	5%	4%	1%	--	--	--	--	71%	93%
2009			37%	15%	8%	6%	4%	3%	2%	1%	1%	--	--	59%	75%
2010				33%	15%	10%	6%	3%	2%	2%	2%	1%	1%	57%	74%
2011					26%	20%	8%	5%	2%	2%	2%	2%	1%	53%	67%
2012						27%	11%	8%	4%	3%	2%	3%	2%	45%	60%
2013							28%	12%	8%	7%	2%	3%	2%	49%	63%
2014								32%	11%	8%	5%	5%	3%	51%	64%
2015									31%	14%	7%	5%	4%	52%	61%
2016										33%	11%	8%	4%	52%	56%
2017											32%	13%	7%	52%	52%
2018												26%	11%	--	37%
2019													27%	--	27%

Sources: Iowa Agricultural Development Division Database and Iowa Department of Revenue IA 148 Tax Credit Schedule Claims Database.

Table 11: Beginning Farmer Tax Credit Project Acreage by Project First Year

Project First Year	Number of BFTC Projects	Minimum Number of Acres by Project	Median Number of Acres by Project	Maximum Number of Acres by Project	Average Number of Acres by Project	Total Number of Project Acres
2008*	488	8	160	1,090	203	96,986
2009	148	25	154	990	194	28,098
2010	180	18	150	1,163	200	36,041
2011	140	8	160	902	216	30,284
2012	167	21	145	1,119	190	31,551
2013	204	38	149	1,230	199	38,444
2014	419	22	145	1,727	200	81,044
2015	476	18	153	1,151	201	90,017
2016	536	29	150	1,497	196	98,802
2017	661	23	146	1,767	185	116,110
2018-2019**	433	38	167	1,150	194	90,792
Total	3,852	23	153	1,253	198	738,169

Source: Iowa Agricultural Development Division Database
*Includes projects begun in 2007.

** Data for these years is combined to protect participant confidentiality.

Figure 2: Number of Beginning Farmer Tax Credit Projects by Lease Type

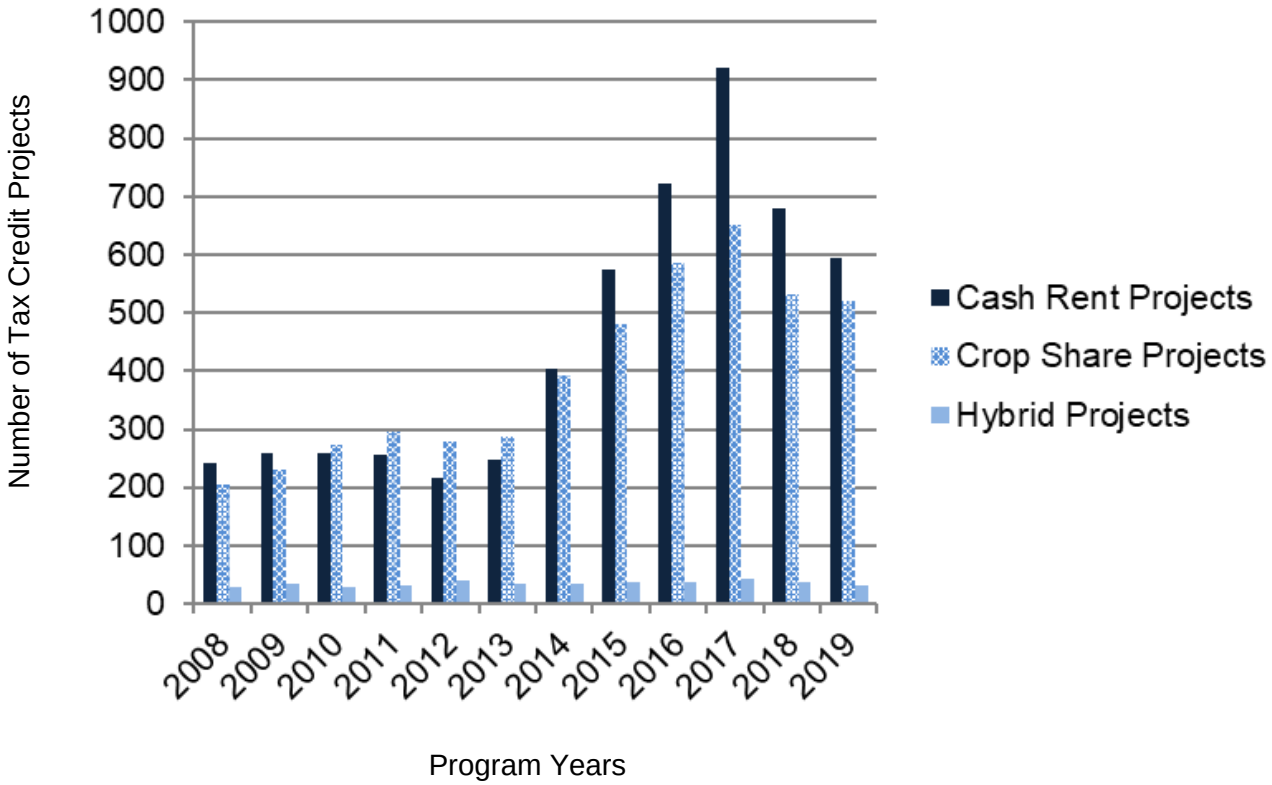


Figure 3: Average Beginning Farmer Tax Credit Project Acres by Lease Type

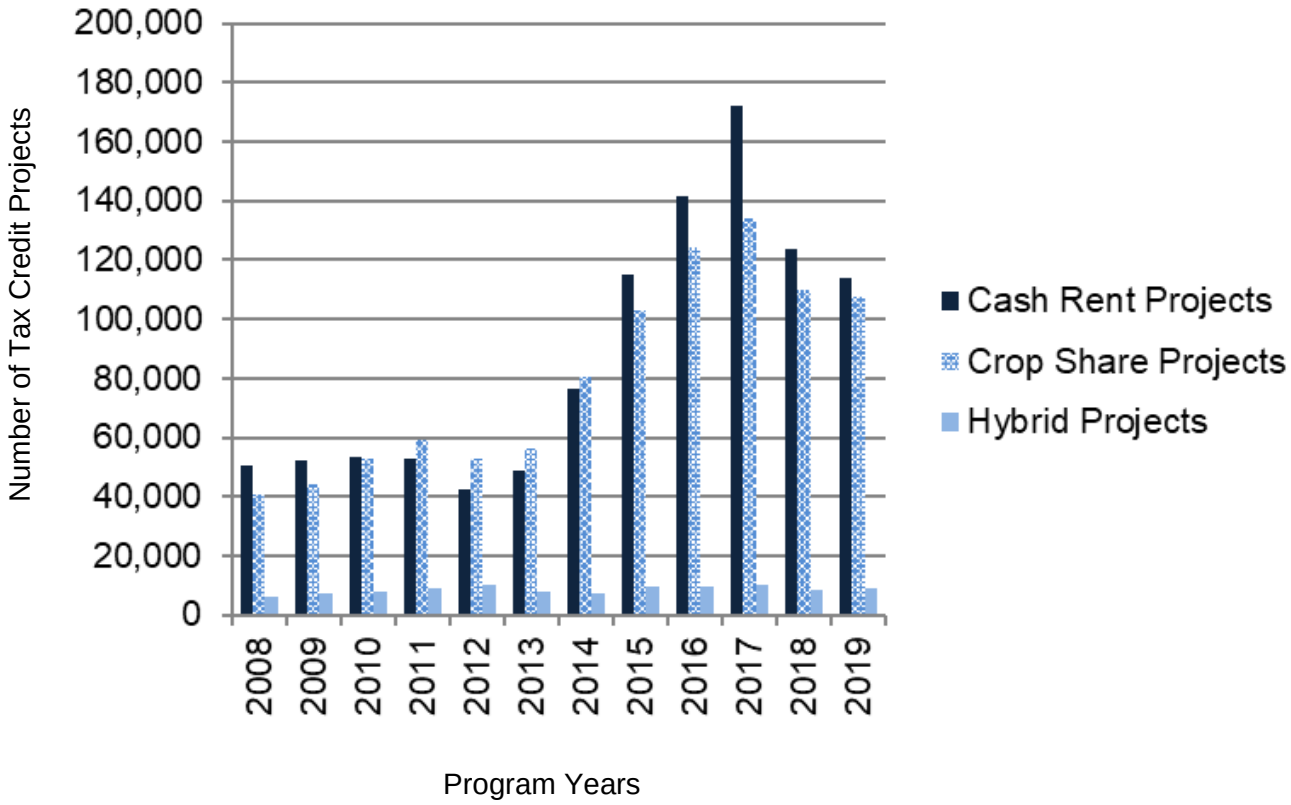


Figure 4: Total Beginning Farmer Tax Credit Project Acres by Lease Type

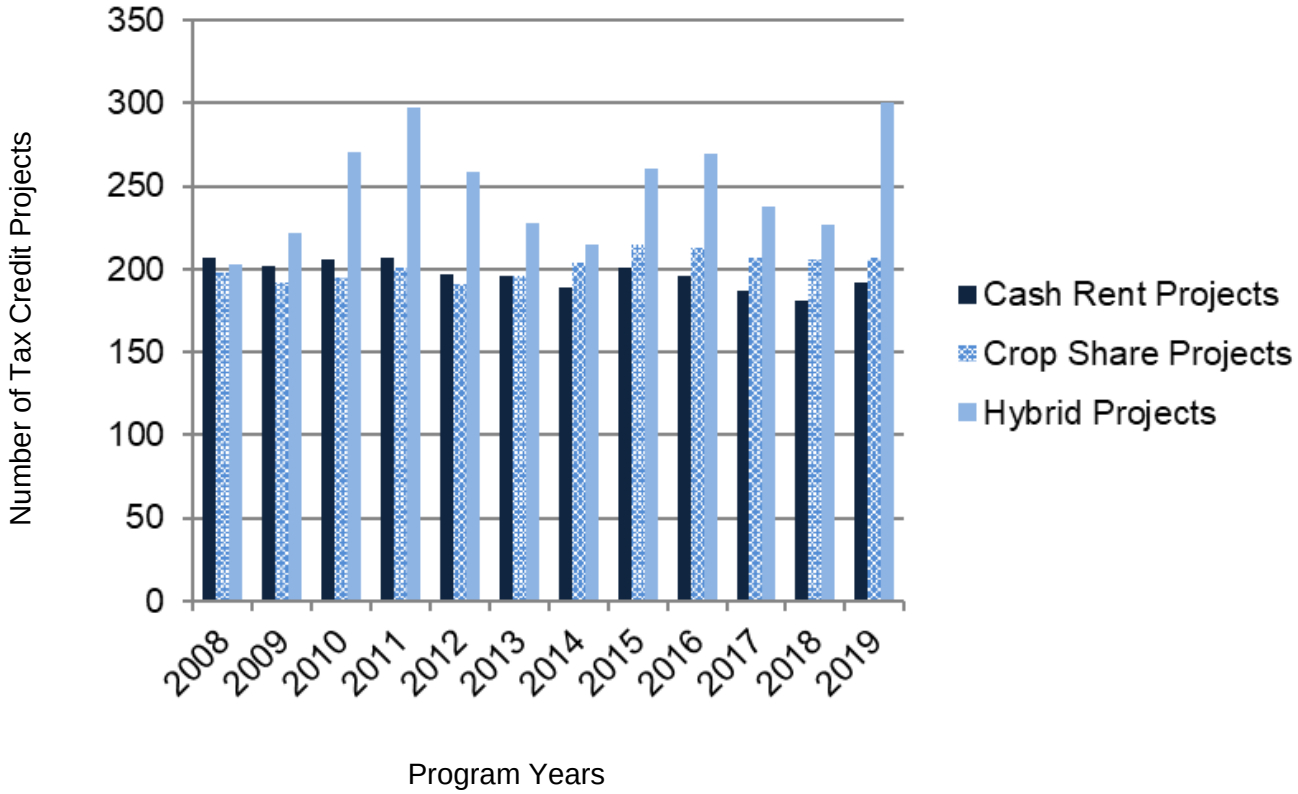


Table 12: Selection Factors and Values for Control Group Selection

Factors	Values
Congressional District	1st 2nd 3rd 4th
Federal Filing Status	1: Single 2: Married Filing Jointly
NAICS Code	111100: Oilseed and Grain Farming 111900: Other Crop Farming 112111: Beef Cattle Ranching and Farming 121112: Cattle Feedlots 112210: Hog and Pig Farming 112900: Other Animal Production
Net Farm Income in 2009	($148,884) - ($28,460) ($28,460) - ($8,608) ($8,608) - $1,412 $1,412 - $12,543 $12,543 - $30,651 $30,651 - $53,976

Sources: StatisticalAtlas.com Overview of Iowa Congressional Districts (2020); Internal Revenue Service Schedule “Instructions for Schedule F (Form 1040)” (2020); Iowa Department of Revenue Tax Credit Schedule Claims Database.

Table 13: Beginning Farmer Tax Credit Beginning Participant and Control Group Descriptive Statistics

	2009					2019			
	Participant Group	Control Group	t-Value	Significance		Participant Group	Control Group	t-Value	Significance
N	114	560			N	98	424		
Net Farm Income					Net Farm Income				
Mean	($1,232)	($1,478)	-0.21	0.84	Mean	$9,417	($10,736)	1.97	0.01*
SD	$18,436	$18,023			SD	$30,368	$30,693		
Ratio of Farm Expenses to Net Farm Income					Ratio of Farm Expenses to Net Income				
Mean	11.9	19.7	-0.38	0.71	Mean	11.2	10.9	0.24	0.81
SD	65.0	46.8			SD	33.9	36.4		

*Statistically significant at the 0.05 level.

Sources: Iowa Department of Revenue Tax Credit Schedule Claims Database.