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Beginning Farmers: Barriers and Possibilities

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Introduction

During the past century, U.S. agriculture has made tremendous productivity gains, but those gains have come with a price. The large productive farms of today have left little room for young and beginning farmers. The increased efficiency, which is the goal of every farmer, increases the capital, both human and financial, that is required for entrance into the industry and that capital requirement has made it difficult for new farmers. Without the new generation, farm numbers will continue to drop and farm size will continue to increase.

In 2011, the National Young Farmers' Coalition released the results of its nationwide survey of young farmers. Thirteen hundred people responded to the survey consisting of farmers (81%) and other occupations (19%). Sixty eight percent of the participants in the survey were under 35 years of age with less than 10 years of farming experience. The participants were asked a number of questions dealing with programs which assisted young farmers, and programs or problems needing additional assistance. The most frequent program listed by young farmers as important (74%) was an apprenticeship program which allowed young people to work and learn on the farm with hands-on experience under the guidance of an experienced mentor. The experience gained in an apprenticeship program covered both general farm work and management. Many times the bond between mentor and mentee lasted beyond the growing season.

The second most important program mentioned is the local partnership programs which are sponsored by farmer markets and Community Supported Agriculture programs (CSA). The CSAs and farmer markets encourage people to "Buy Local" which assists young and small farmers in marketing their production. The groups also work with farmers addressing technical challenges and infrastructure problems. The third most frequent response was the CSA program (49%). The CSAs provide a business model for young producers in which members commit in spring to buying a full season supply of produce and pre-paying for their share. The program provides young farmers with the capital to produce the year's crop.

Areas which provide the main obstacles for young farmers are lack of capital (78%), land access (68%), health care (47%), access to credit (40%) and business planning and marketing skills (36%). Lack of capital is the most frequent mentioned obstacle for young and beginning farmers. Typical farmers today require over $1 million in assets, that is, $2.3 trillion in U.S. farm

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assets for 2.1 million farms (ERS-UDSA). Young and beginning farmers cannot be expected to acquire assets at that level so they struggle to increase production efficiency to compete in world markets. More than 73% of the respondents stated that they depend on off-farm income. In fact, almost 45% of the young farmers "under the age of 25" annually work over 100 days off of the farm compared to 34% of the "45 to 54 age group" and 27% of the "55 to 64 age group"(NASS, 2007Census of Agriculture).

The second major barrier for young and beginning farmers is the acquisition of farm land. The majority of farm land is being concentrated in the hands of older farmers. According to a 1999 report "Agricultural Economics and Land Ownership Survey", 40% of the land owners in the United States were over 70 years old compared to 1.7% of land owners who were under the age of 35 years. It is estimated by David Kohn and Alex White that by 2030, 70% of the nation's farmland will change hands and 25% of the current farmers will retire.

The third major obstacle for young and beginning farmers is the lack of health insurance. Farming is a risky and dangerous occupation with little access to health insurance. -- Most farmers are self-employed and do not have company sponsored health insurance. Even a minor injury will cost thousands of dollars and prevent the owner/manager from working. Chang, Langelett and Waush found that farmers who had health insurance tended to remain in agriculture compared to farmers who did not have health insurance.

A recent survey, of banks by the Federal Reserve's Tenth District, found that young farmers had higher debt-to-equity ratios than others, banks made fewer loans to those younger farmers, and lenders required higher levels of collateral relative to other farm borrowers. The banks stated that young farmers struggled to compete in land markets and had difficulties obtaining needed capital. Escalating land values further impeded young farmers. Many programs have been designed to support young, beginning and small farming operations; however, the current nature and profitability structure of agriculture makes it difficult to both obtain financing and then to service the ongoing debt.

The objective of this study is to review USDA and Farm and Ranch Business Management Education program data to determine the age distribution of farmers, its changing nature over time, the financial characteristics of the farms and potential for future young farmers to enter agriculture.

Characteristics of American Agriculture

The organizational structure of agriculture is dominated by self-employed persons. In 2007, 86% of persons engaged in agriculture were self-employed. Partnerships covered 8% of agriculture while corporation and others were 4% and 1%, respectively (NASS, 2007 Census of Agriculture). The transfer of assets in agriculture from one generation to the next generation occurs between individuals, typically between father/mother to son/daughter. In other industries, the corporation is the most popular form of business arrangement which allows for ease in the transfer of assets. In agriculture, it takes a beginning farmer to replace a retiring farmer.

Between 1910 and 1940, U.S. farm numbers remained above 6 million which indicates that the number of beginning farmers equaled the number of exiting farmers (Figure 1). Beginning in the 1940s, U.S. farm numbers began to fall, indicating that exiting farmers out-numbered beginning farmers. By 1980, the United States had about 2.4 million farms. The reduction in farm numbers

has slowed; by 2010, there were 2.1 million farms remaining in the United States. North Dakota has followed a similar trend with peak numbers occurring in 1936, during the Great Depression (Figure 2). Farm numbers in the state are above 30,000. They have stayed at that level for over 20 years.

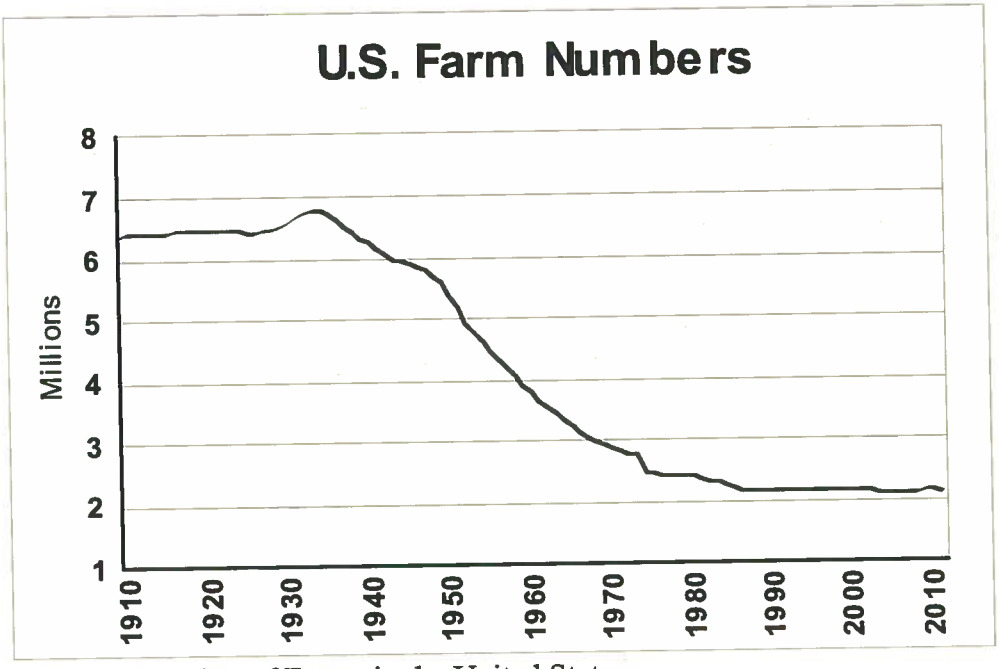

Figure 1. Number of Farms in the United States.
Source: USDA-ERS

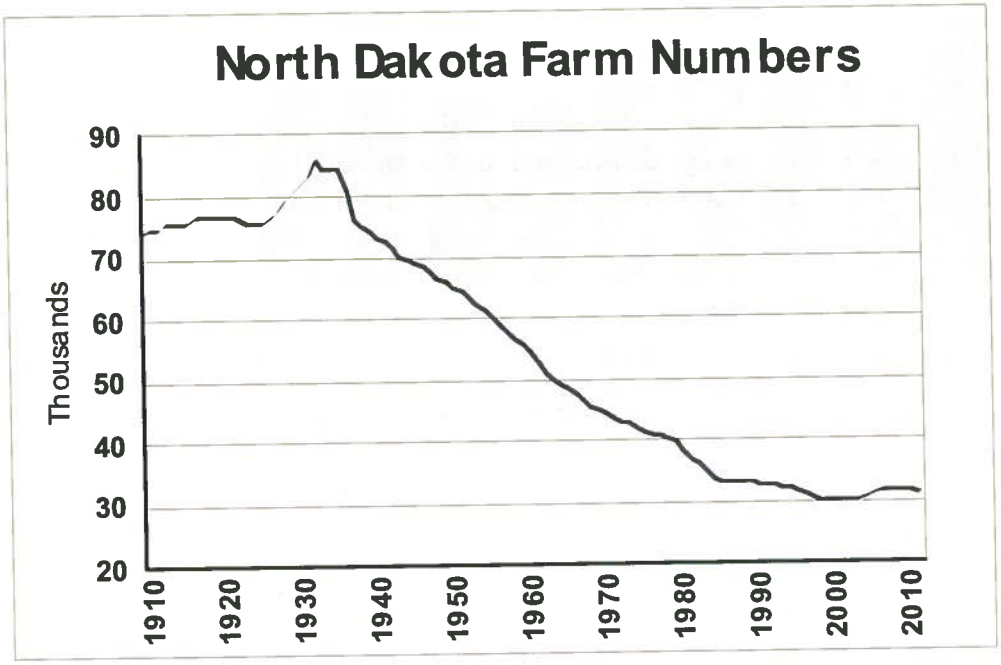

Figure 2. Number of Farms in North Dakota
Source: USDA-ERS

The data appear to indicate that the reduction in farm numbers is over. Farm numbers in 2010 were similar to the number in 1985, both in the United States and North Dakota, which should indicate that beginning farmer are replacing exiting farmers. However, that is not necessarily true. Figures 3 through 7 show the farm number by size between 1964 and 2007. In the United States small farms, less than 174 acres have increased in number from 1.2 million in 1992 to 1.5 million in 2008 (Figure 3). These farms are typically retirement or lifestyle farms where the operator does not plan on making a living from the farm. Farms between 175 acres and 500 acre fell in number from 800,000 in 1964 to 370,000 in 2008 (Figure 4), a loss of 54% of the farms during the 44-year time period. Farms between 500 acres and 1,000 acres fell in number from 210,000 in 1978 to 150,000 in 2008 (Figure 5), a loss of 29% during the 30 years. Farms between 1,000 acres and 2,000 acres increased in numbers from 85,000 in 1964 to 105,000 in 1987 before falling to 93,000 in 2008 (Figure 6). Farms over 2,000 acres have increased in number from 60,000 in 1964 to 81,000 in 2008. Two size categories of farm are increasing in number, the very small and the very large. If those two groups were removed from the series, the farm numbers for the middle size farms fell from 1.1 million in 1996 to 610,000 in 2008, a reduction of 45% in 44 years. These are farms that beginning farmers would typically operate.

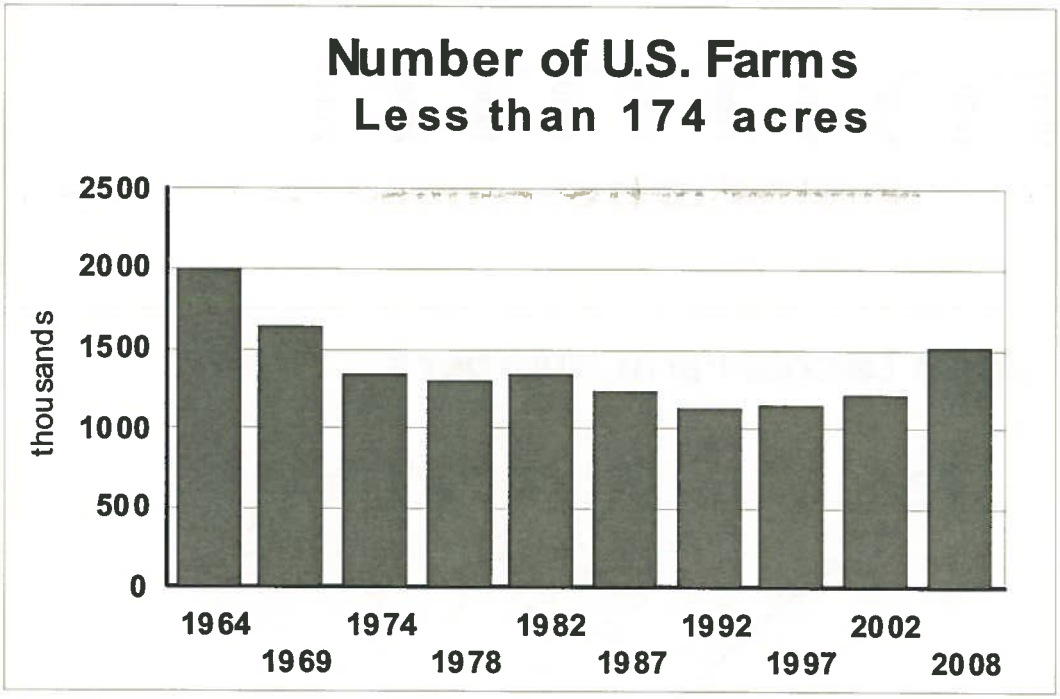

Figure 3. Number of Farms by Year and Size, Less Than 174 Acres
Source: USDA-NASS

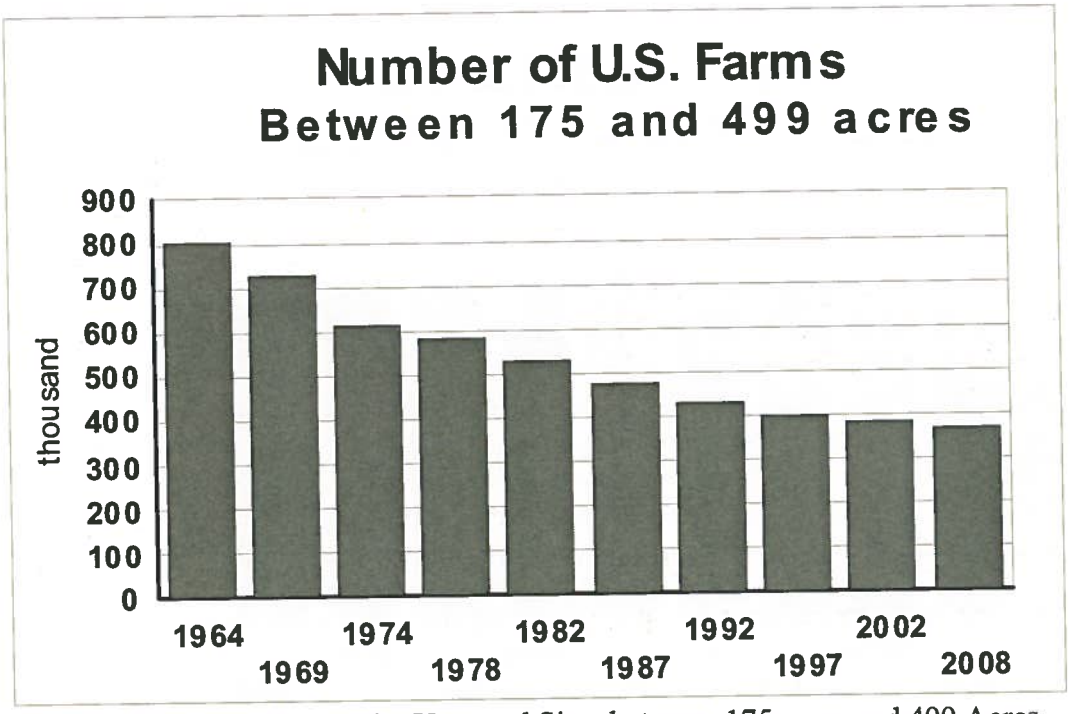

Figure 4. Number of Farms by Year and Size, between 175 acres and 499 Acres
Source: USDA-NASS

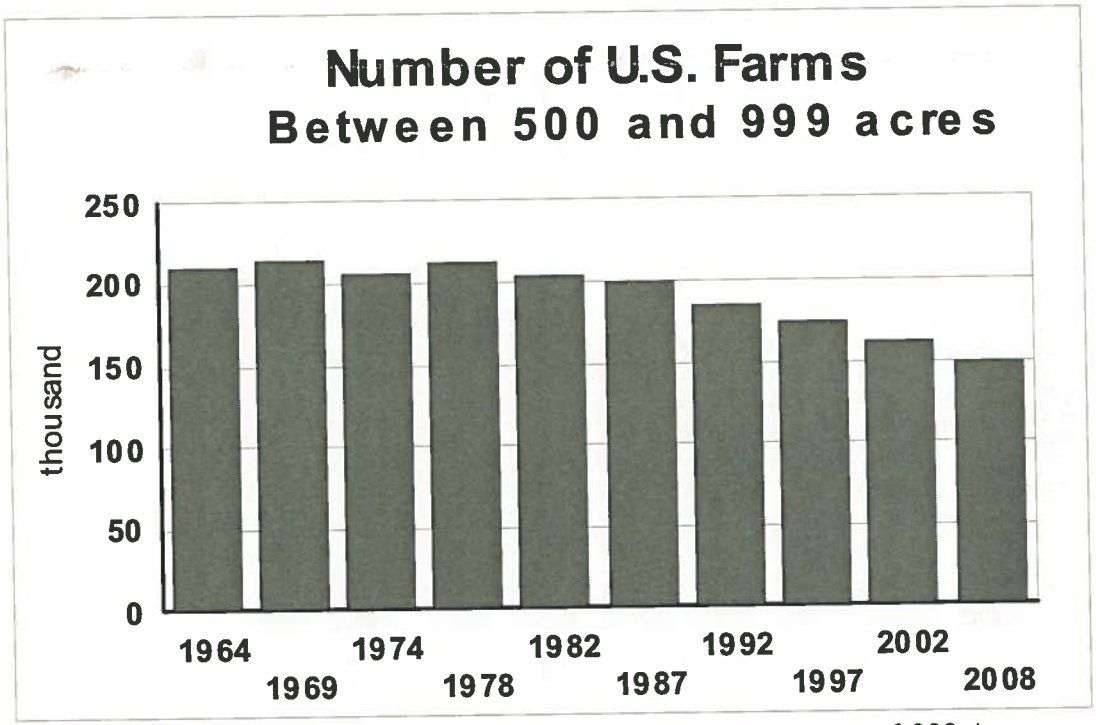

Figure 5. Number of Farms by Year and Size, between 500 acres and 999 Acres
Source: USDA-NASS

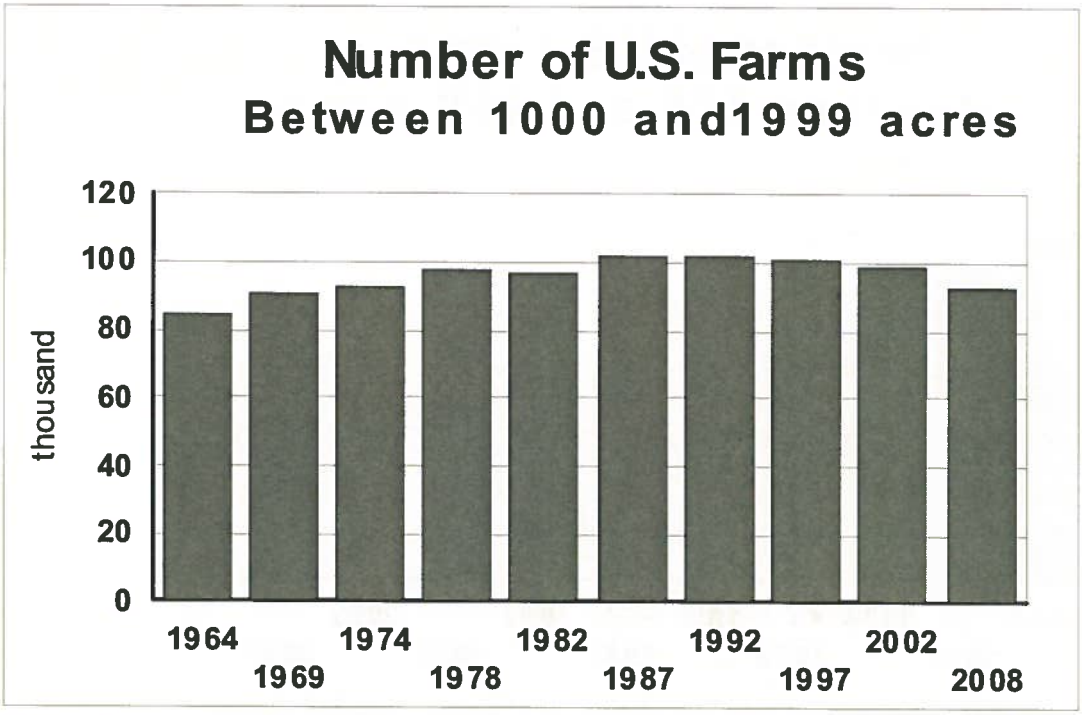

Figure 6. Number of Farms by Year and Size, between 1,000 acres and 1,999 Acres
Source: USDA-NASS

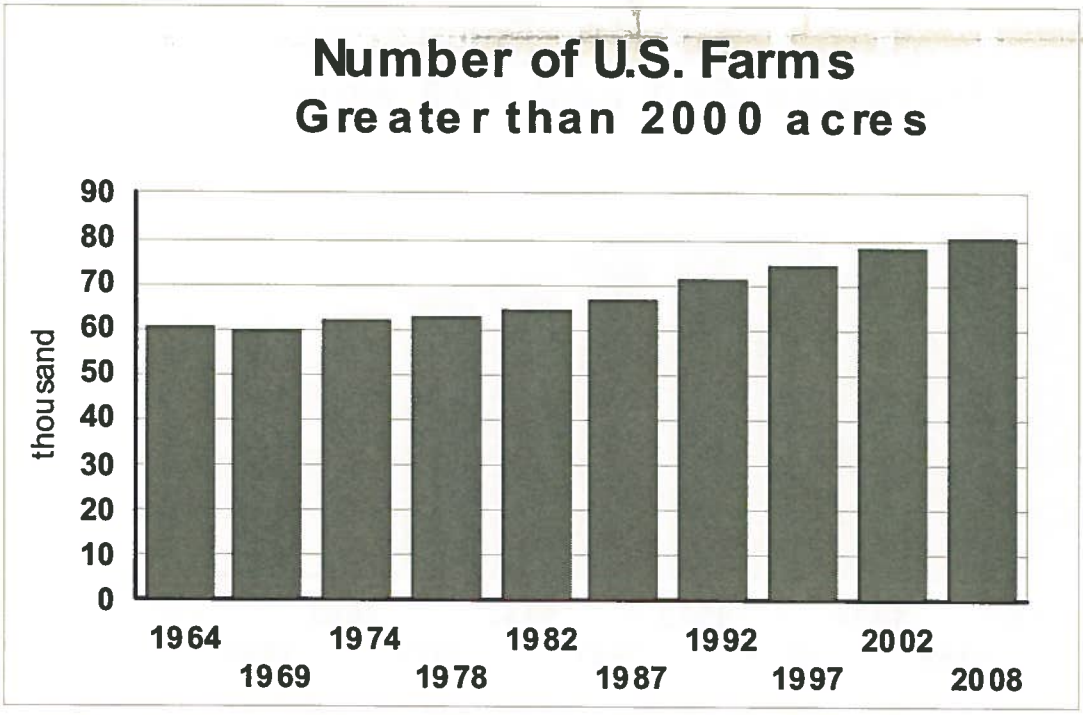

Figure 7. Number of Farms by Year and Size, Greater Than 2,000 Acres
Source: USDA-NASS

Figure 8 shows the change in age distribution of U.S. farmers (Census of Agriculture). In 1978, 3% of the U.S. farmers were under 25 and almost 13% were between 25 and 34. These would be the replacement farmers for the generation of farmers retiring in the next 5 to 10 years. In 2008, ½ of one percent of the farmers were under 25 and about 5% were between 25 and 34 years old, about 1/3 as many as in 1978. Farmers over 65 years old accounted for 16% of all farmers in 1978 and 30% in 2008. The number of farmers under 35 years of age is not enough to replace the retiring farmers in the next few years.

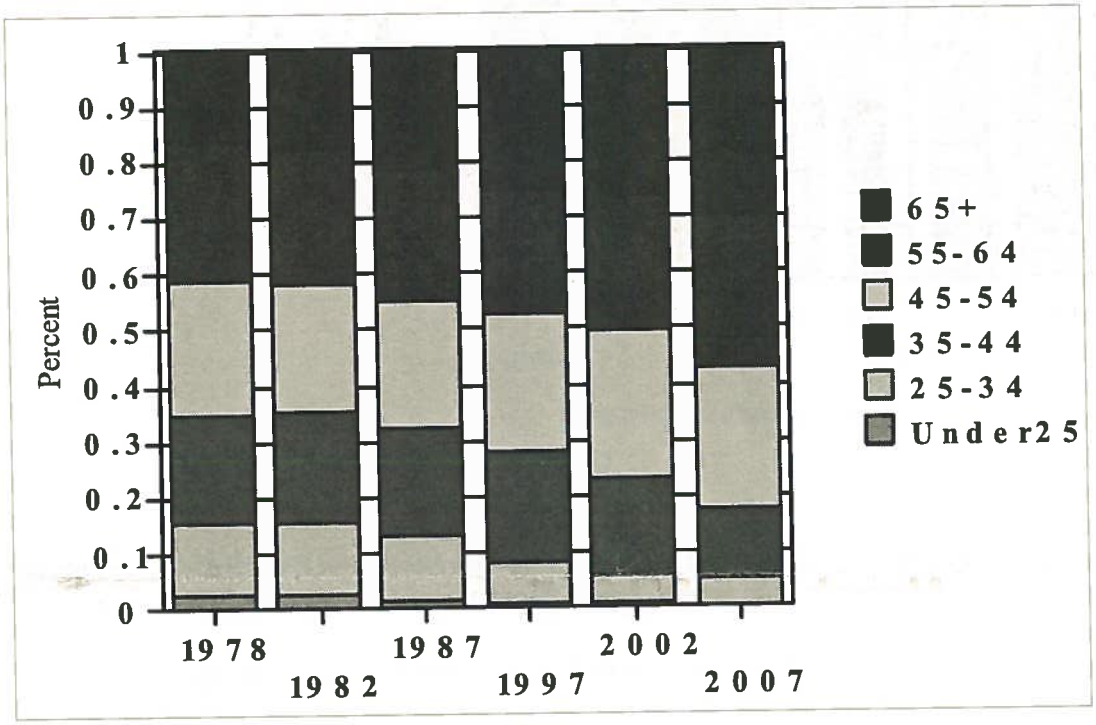

Figure 8. Age Distribution of U.S. Farmers
Source: USDA-NASS

The situation for North Dakota is similar (Figure 9). In 1978, about 22% of the farmers were under 35 years of age; by 2008, it had dropped to less than 8%. Eleven percent of the farmers were over 65 years old in 1978. That increased to 29% by 2008. In the next 5-10 years, almost 30% of North Dakota farmers will be retiring, and currently the state does not have enough young farmers to replace them. This will result in fewer and larger farms.

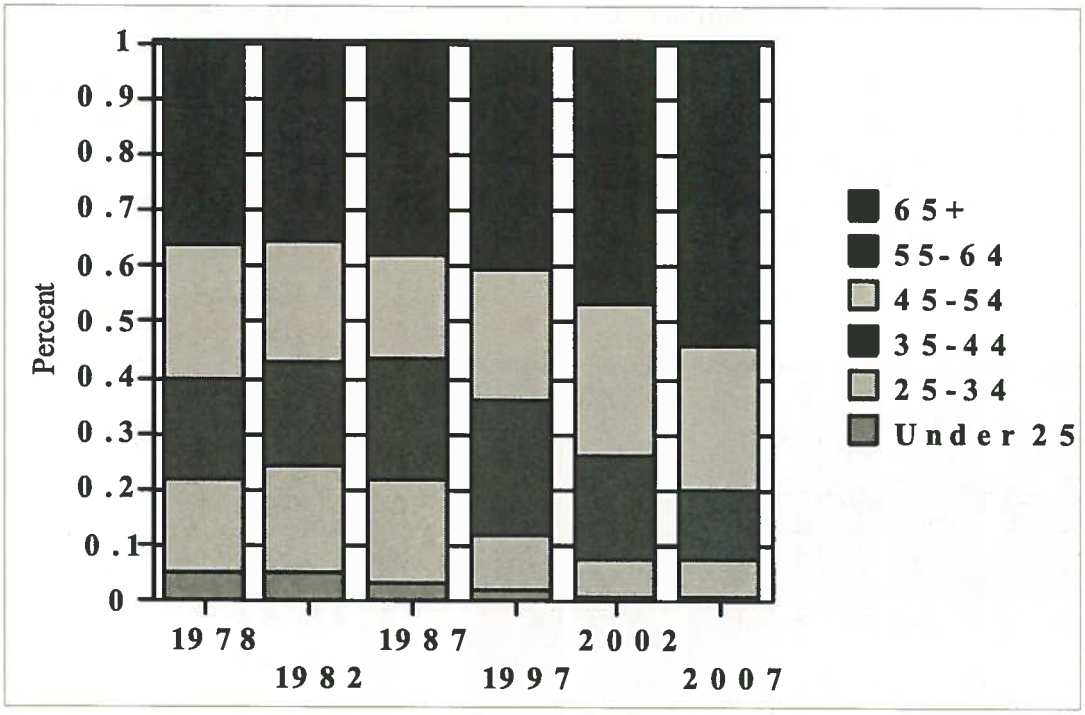

Figure 9. Age Distribution of North Dakota Farmers
Source: USDA-NASS

Young Farmers Characteristics Reported in the North Dakota Farm Business Management Education Program

Each year about 700 farms are enrolled in the North Dakota Farm Business Management Education program. About 500 farm records are considered usable for various annual reports. The farms enrolled in the program are not a cross section of North Dakota agriculture as they are much larger than the average farm in the state. Table 1 shows selective statistics that are provided in the reports. For this study, three years of data (2010, 2011 and 2012) were sorted by age to calculate differences in financial characteristics among the various age groups. The data were sorted into three age groups: "25 and under", "25 through 45", and "over 45".

Table 1 shows performance data from the North Dakota Farm Business Management Education program and table 2 shows wealth data for the same group. Total factor productivity (TFP) is calculated by dividing total gross returns by total expenses. Over the three year period, there is little difference among the age groups. The TFP for "25 and under" is 1.73 which means for each dollar spent, $1.73 is returned to the producer. The TFP for the "25 through 45" age group and "over 45" age group is 1.72 and 1.76, respectively. There seems to be very little difference among the three groups as far as the efficiency from expense dollars. There is, however, a substantial difference in net farm income (NFI) among the three groups. The "25 and under" group averaged $94,347 compared to $227,911 for the "25 through 45" age group and $308,878 for the "over 45" age group. Nonfarm income for the "25 and under" group averaged just over $25,000 during the three year period while nonfarm income averaged over $35,000 and $43,000 for the "25 through 45" and "over 45" groups, respectively. Government payments averaged $9,807 for the "25 and under" group and $30,000 for the "25 through 45" group. The "over 45" age group averaged over $43,000 in government payments. Most of these were direct payments as very few counter-cyclical payments were made.

The young producer had a lower return per acre as well as lower expense per acre. This may indicate that they are being subsidized by a parent or other family member in joint operations. The young farmer's rate of return is higher than the other groups. Whether young producers are more efficient or whether it is due to outside support is unknown.

Table 1. Performance Data for North Dakota Representative Farms by Age

	TFP	NFI	Nonfarm Income	Govt Payments	Return/ Acre	Expense/ Acre	Rate of Return
2012		----------dollars----------					%
25 and Under	1.47	113,506	29,318	7,326	244	197	0.20
26-45	1.35	286,832	34,856	23,374	363	296	0.21
Over 45	1.35	459,287	40,421	31,550	329	271	0.16
2011							
25 and Under	1.48	86,695	26,043	9,625	197	181	0.22
26-45	1.46	175,156	27,970	26,310	266	244	0.15
Over 45	1.62	237,737	44,401	31,671	253	223	0.11
2010							
25 and Under	2.24	82,841	19,714	12,470	248	182	0.22
26-45	2.36	221,744	28,959	41,436	294	223	0.18
Over 45	2.32	229,608	44,544	62,316	280	217	0.15
Average							
25 and Under	1.73	94,347	25,025	9,807	230	187	0.21
26-45	1.72	227,911	30,595	30,373	308	254	0.18
Over 45	1.76	308,878	43,122	41,846	287	237	0.14

The debt-to-asset ratio for the young producer is higher than either of the other groups; however, it is only slightly higher than the "25 through 45" age group (Table 2). The reduction in the debt-to-asset ratio does not occur until farmers reach 45 years old. Young farmers typically operate smaller farms. One of the difficulties for beginning farmers is obtaining land. The "25 and under" group averaged 1,015 acres compared to 2,228 acres for the 25 through 45" age group and 3,089 for the "over 45" age group. Also, land owned is much less for the beginning farmer. Young farmers in the North Dakota Farm Business Management Education program averaged 63 acres of owned land compared to 308 acres for the 25 through 45" age group and 707 acres for the "over 45" year age group. Young farmers own slightly over 6% of their land compared to almost 14% for the 25 through 45" age group and almost 23% for the "over 45" group. During rapidly changing times, older farmers should have better stability and resilience.

The second problem for young farmers is to obtain enough assets to become a viable producer. Table 2 shows that young farmers, "25 and under" averaged assets of $641 per acre compared to $756 per acre for the 25 through 45" age group and $897 for the "over 45" age group. Farmers in

the 25 through 45" age group averaged 18% more assets than younger farmers and the "over 45" age group average almost 40% more assets per acre than the younger group. The younger group, even though they had fewer assets per acre, had more liabilities than either of the older groups. This again places them in a situation where they do not have the ability to withstand difficult economic periods.

Table 2. Wealth Data for North Dakota Representative Farms by Age

	Debt/ Asset Ratio	Size	Owned Land	Asset/ Acre	Liability/ Acre
2012		----------Acres----------		----------dollar----------	
25 and Under	0.56	925	44	728	435
26-45	0.49	2,080	290	924	442
Over 45	0.33	3,146	740	1,050	314
2011					
25 and Under	0.58	1,042	87	637	387
26-45	0.51	2,327	313	687	328
Over 45	0.33	3,091	752	868	249
2010					
25 and Under	0.55	1,078	58	558	327
26-45	0.51	2,277	321	656	332
Over 45	0.33	3,031	628	773	265
Average					
25 and Under	0.56	1,015	63	641	383
26-45	0.50	2,228	308	756	367
Over 45	0.33	3,089	707	897	276

Summary and Concluding Remarks

A survey by the National Young Farmers' Coalition found that lack of capital, land access, health care and access to credit were the largest barriers to young and beginning farmers. Young farmers had a difficult time obtaining land in this rapidly rising market. The Federal Reserve Tenth District found that the banks in its district made fewer loans to young farmers, required higher levels of collateral relative to other farmers, and young farmers had difficulties obtaining needed capital.

There are numerous federal, state, organizational and privately sponsored programs to assist young and beginning farmers, however the nature of U.S. agriculture, "most efficient wins", makes it almost impossible for someone to start farming without tremendous financial support from someone, either a relative or an outsider (Higgins).

Because the main organizational structure of U.S. agriculture is sole proprietorships the transfer of assets from one generation to another is difficult. It is difficult for one generation who

depends on income from the farm to supply the needed support to the next generation. In addition, there are tax considerations when land is transferred and/or sold.

Farm numbers have been falling, both in the United States and North Dakota since the mid-1930s. The total number of farms has leveled out since the late 1980s. However, only two sizes of farms have increased in number, the very small and the very large. The number of farms in the remaining sizes has continued to fall. In 1982, farm less than 500 acres sold over 49% of all farm output; by 2007 that had dropped to 39%. On the other hand, farm over 1,000 acres sold 31% of all output in 1982 compared with 45% in 2007. Today those farms, over 1000 acres, account for 8% of all farmers but produce almost half of the total output. The large resources and financial strength of those farmers can present an obstacle to beginning farmers outside the family.

During the past 30 years, both U.S. and North Dakota agriculture has seen a dramatic reduction in the number of young farmers. In 1978, for U.S. farms, about 16% of all farmers were under 35; now that has fallen to about 5%. In North Dakota, in 1978, 22% of the farmers were under 35; now that number is less than 8%. The current agricultural systems, financial, legal, and public programs, lending policies, market structure and globalization have produced an agricultural structure where farmers are aging and young people are not pursuing a career in agriculture.

It has been stated that young and beginning farmers face numerous challenges in obtaining land and capital needed to run their operation. Data from the North Dakota Farm and Ranch Business Education program were used to determine if young farmers were different from middle-aged established farmers. While there was no difference in the production efficiency of young farmers as measured by total factor productivity, they did have much lower net farm income and received fewer government payments. Both of these measures are tied to the size of the farm. Non-farm income was not substantially lower for the young farmers. Their total return per acre was lower, however, so was their expense per acre indicating that they were being subsidized by other farmers, i.e. sharing expenses. The rate of return to assets was higher than other groups. However, the debt to asset ratio for the young farmers was higher than others. The young farmers operation was half as large as the "26 through 45" age group and 1/3 the size of the "over 45" age group. Their per-acre assets were lower than other farmers while their liabilities were higher.

Agriculture in the United States has not allowed young people to enter the industry. It is not a conscious decision by anyone; it is just the way the industry is structured. Many programs have been implemented trying to assist young people, but the data shows that those programs have been at best limited in their influence. The number of young people farming is continually dropping with no change in sight. Young people who start farming tend to be smaller is size, have less financial resilience, and fewer assets to weather difficult times. The long term result will be fewer and larger farms as retiring farmers operations are absorbed by other farm businesses.

While it is not impossible to start farming today, the likelihood of success is small without tremendous support from outside. The problem is that people with enough resources to provide the needed support typically are very large farms. Agriculture is dynamic; it will change; and it has changed to address the past, current, and future conditions. Farms will continue to enlarge,

fewer young farmers will start in the industry, and the current trends will continue until the agricultural industry changes.

That change will not come about with new programs, subsidies, whether public or private, and other ideas motivating young people to return to agriculture. From the studies of populations, there are three reasons to live in an area: you like it there, you have many relatives living in the area, or you can make a living. Young and beginning farmers have a difficult time making a living in agriculture during difficult times which occur every few years.

References

Chang, Kuo-Liang, George L. Langelett, and Andrew W. Waugh. Health, Health Insurance, and Decision to Exit From Farming. Journal of Family and Economic Issues. 32:356-372. 2011.

Federal Reserve Bank of Kansas City. Financing Young and Beginning Farmers. Nathan Kauffman. The Main Street Economist, Agricultural and Rural Analysis. Issue 2, 2013.

Higgins, Ty. Young and Beginning Farmers Face Many Hurdles. Ohio Ag Net. Ohio's Country Journal. April 2012.

Kohn, David and Alex White, "The Challenges of Family Business Transition" Virginia's Rural Economic Analysis Program. Horizons, Vol 13. No. 5 September/October 2001.

National Young Farmers' Coalition. Building a Future With Farmers: Challenges Faced by Young, American Farmers and a National Strategy to Help Them Succeed. November 2011.

North Dakota Farm and Ranch Business Management Education program data, 2010, 2011, and 2012. Personal communication with Andrew Swenson. Farm and Family Resource Management Specialist. North Dakota State University.

United States Department of Agriculture, Census of Agriculture. 1999 Agricultural Economics and Land Ownership Survey. www.agensus.usda.gov/agricultural_economics_and_land_ownership.

United States Department of Agriculture, Economic Research Service. Beginning Farmers and Ranchers At A Glance:2013. Economic Brief Number 22. January 2013.

United States Department of Agriculture, Economic Research Service. www.ers.usda.gov/data-products/farm-income-and-wealth-statistics.

United States Department of Agriculture, National Agricultural Statistics Service. www.agcensus.gov.usda/publications.

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