ECONOMIC OUTLOOK FOR FARM SURVIVAL IN THE CURRENT FARM ECONOMY DOWNTURN

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Abstract

Agricultural producers in the U.S. are currently struggling financially. Farms and ranches are losing money and some are going out of business. The farm economy downturn is not confined to the United States, based on the recent decreases in farmland values around the World. Many farmers and politicians are asking if the current downturn is going to be like the farm crisis of the 1980s. This paper reviews why the current conditions are not the same as the 1980s and projects the likely economic situation for representative commercial farms in the United States given sustained low prices.

Underlying economic conditions in the general economy do not suggest that a repeat of the Farm Crisis of the 1980s. However, just because economic conditions are not as bad as the 1980s does not mean things are not bad. Results from simulating 63 U.S. representative crop farms indicates that 30 will face high probabilities of liquidity and equity issues through 2025, to the extent that their overall ranking for economic viability will decrease one or two levels. Thirty-three of the 63 crop farms will be able to weather the crisis.

Introduction

Agricultural producers in the U.S. are currently struggling financially. Farms and ranches are losing money and some are going out of business. Those not going out of business are having to cut expenses, restructure debt, and look for additional sources of income to survive [Shaffer and Ray, 2018]. In 2013, U.S. net farm income reached an all-time high of $123.8 billion due to record prices for most agricultural commodities (Figure 1). Since that time, many commodity prices have fallen by more than one-half of their previous levels (Figure 2). As a result, U.S. net farm income fell each year until 2016

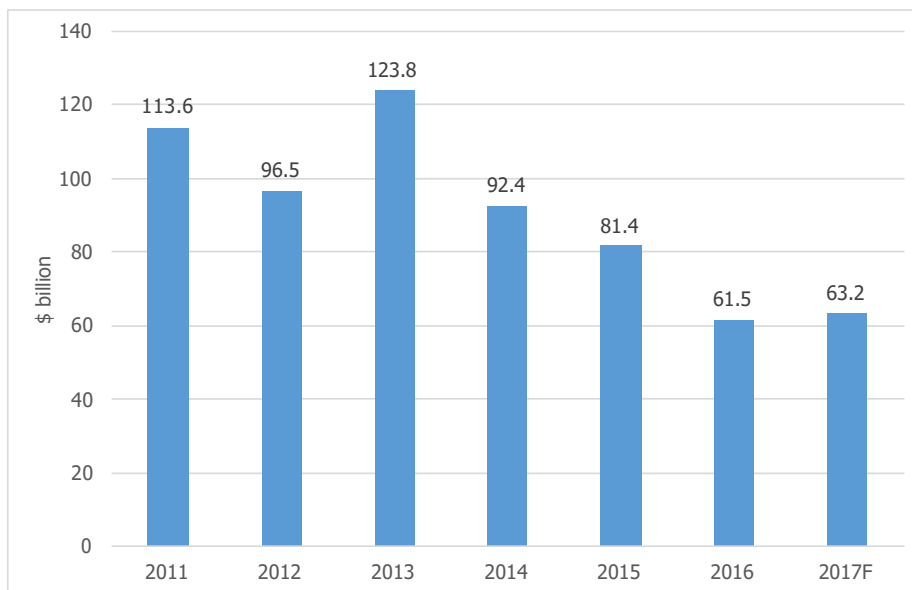bottoming out at $61.5 billion and resulting in a decline of more than 50 percent in only three years.

Figure 1. U.S. Net Farm Income, 2011 – 2017.
Source: U.S. Department of Agriculture. Farm Income and Wealth Statistics.

The farm economy downturn is not confined to the United States, based on the recent decreases in farmland values around the World (Figure 3). The global farmland index average reported by Savills [2018]shows significant downturns in land values for Western and Central Europe and smaller downturns for other regions. Most notably the Western Europe farmland index lost almost 200 points from 2012 to 2016.

The current downturn in the farm economy has led U.S. farmers and ranchers, politicians, and industry observers to ask if we are headed toward another 1980s farm financial crisis. The problems of the 1980s were preceded by such good conditions in the late 1970s that some refer to this period as "the golden age of agriculture." There are a number of similarities between the current downturn in farm financial health and the conditions in the 1980s but there are also some important differences. This paper briefly reviews why the current conditions are not the same as the 1980s and projects the likely economic situation for representative commercial farms in the United States given sustained low prices.
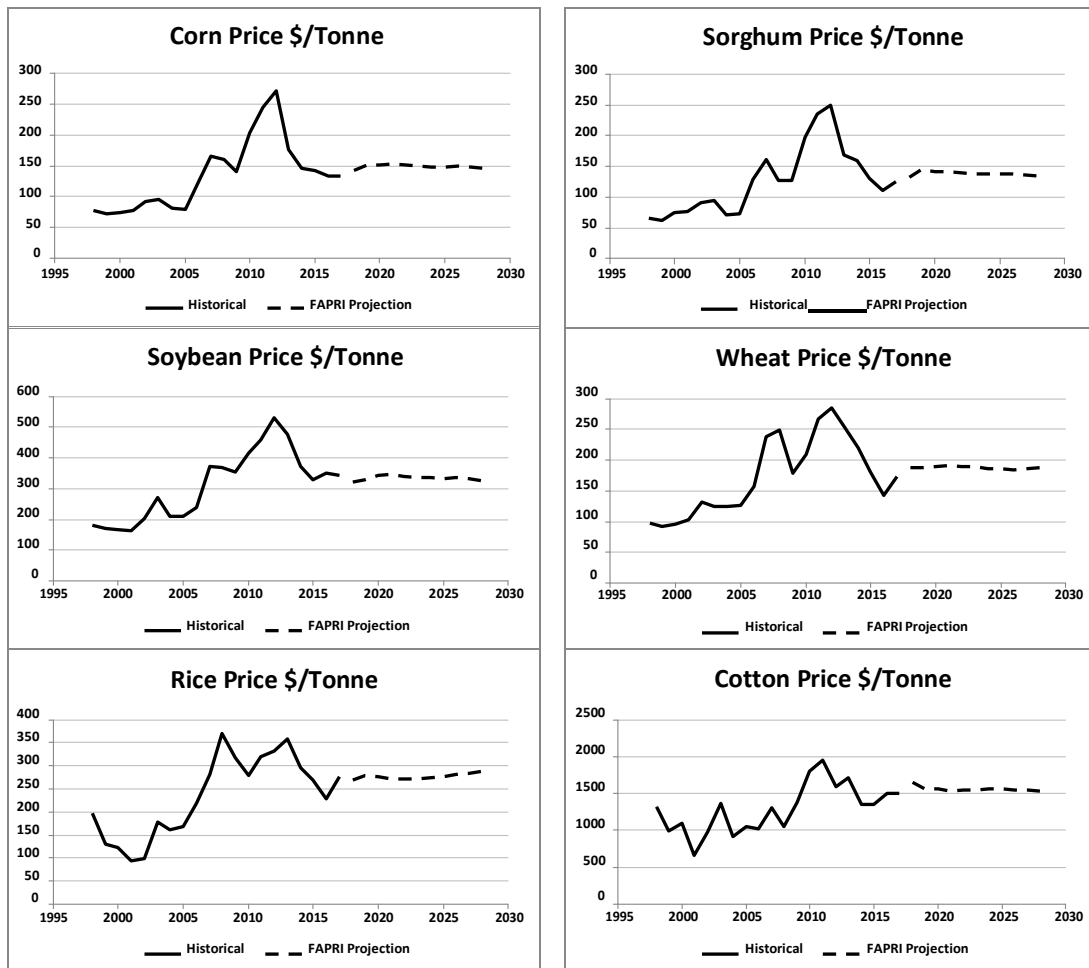
Figure 2. Historical and FAPRI Projected U.S. Prices for Grains and Cotton, 1998-2028.
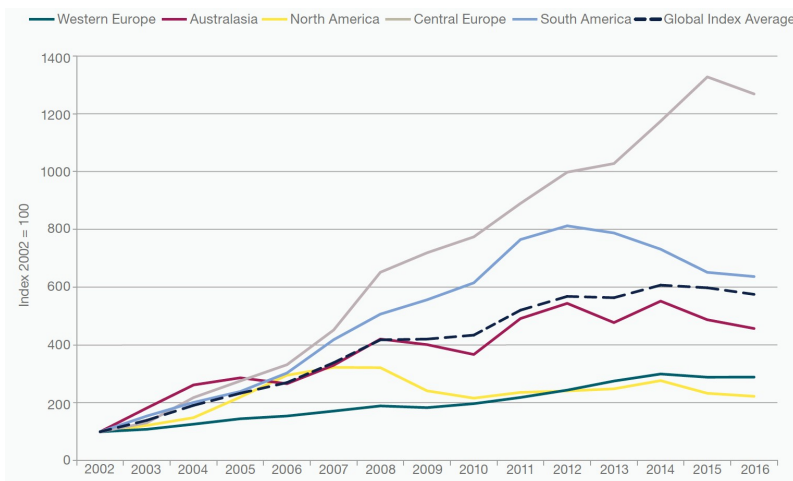Source: USDA [2017] and FAPRI [2018] August 2018 Baseline Projections.

Figure 3. Global Farmland Index.
Source: Savills World Research, Global Farmland, savills.co.uk/research [2018].

Current Conditions vs. the 1980s

During the 1970s, lower trade barriers, bad weather around the world and large grain purchases by the Soviet Union led to record (at the time) prices and farm incomes [Manning, 2018]. These conditions led Secretary of Agriculture Earl Butz to proclaim that farmers should "plant fence row to fence row" and "get big or get out." This means that U.S. farmers were encouraged to plant all available acres and look to add land to their farm operations. The implication was that the good times would last indefinitely. Farmers responded to these conditions just as the Secretary asked, they got bigger by borrowing money and taking on debt. Land prices soared as farmers were bidding for land they needed to expand and take advantage of the high commodity prices. By the 1980s, the "fence row to fence row" production caused commodity prices to decrease substantially causing land prices to fall. Many farms and banks failed [Stam and Dixon, 2004]. Some farmers and lenders committed suicide [Farkas, 2014]. The 1980s will be remembered as a terrible time for agriculture [Bovard, 1989].

In a summary of recent ag reports from the Chicago, Dallas, Kansas City, and Minneapolis Federal Reserve Districts, Shaffer and Ray reported that the banks were seeing increased loan demand and decreases in loans being repaid across all banks. The DTN/Progressive Farmer Ag Confidence Index reports on a quarterly survey conducted by DTN/Progressive Farmer that measures producer confidence. During 2016, the index decreased 27 points indicating producers were very pessimistic about their future [DTN/Progressive Farmer, 2016]. These results, while bad, could be considered mild if the current downturn turns into a farm financial crisis.

To determine whether current conditions are trending toward those in the 1980s, six factors are compared for the current decade versus the 1980s. The analysis will use published data for each of six economic categories from the Economic Research Service (ERS) of the U.S. Department of Agriculture.

The six categories are:

- Farm Income – as farm income declines, producers are worse off. Thus far farm income is not as low as it was during the decade of the 1980s (Figure 4).

- Inflation Rates – as inflation rates increase, inputs become more expensive. Presently annual rates of inflation for the CPI are lower than the decade of the 1980s (Figure 5).

- Interest Rates – as interest rates increase, the cost of borrowing money increases. Real interest rates are much lower than the decade of the 1980s although recent announcements indicate that interest rates will be increasing slightly (Figure 6).

- Exchange Rates – as exchange rates increase, U.S. products become relatively more expensive so it costs more for foreign customers to purchase U.S. products and results in decreased demand for U.S. products. Agricultural trade-weighted exchange rates are higher than the decade of the 1980s which is a negative indicator for exports of U.S. agricultural commodities (Figure 7).

- Land Values – higher land values increase borrowing capacity. The most recent data on dollars invested in agricultural land suggest that farmers have significantly increased their collateral values since the 1980s (Figure 8).

- Debt-To-Asset Ratio – as debt-to-asset ratios increase, farmers own less of their assets indicating financial weakness. The agricultural debt to asset ratio is substantially lower than during the decade of the 1980s but it is trending up (Figure 9).

Only Exchange Rates indicate a worse situation relative to the 1980s. The other five measures Farm Income, Inflation Rates, Interest Rates, Exchange Rates, Land Values, Debt-To-Asset Ratio are all currently improved relative to the 1980s. However, Farm Income, Inflation Rates, and Debt-To-Asset Ratio are all currently trending in a bad direction. These results lead to the conclusion that while there is significant financial pressure on U.S. farming operations, conditions are currently not as bad as the farm financial crisis experienced during the 1980s.

The next section reports the results of Monte Carlo simulation analyses of representative commercial size farms in major production regions in the United States. The representative farms are simulated using recent projections of crop, milk, and cattle prices. The question being addressed is, "What is the economic survivability of commercial size crop, dairy, and beef cattle farms in the current farm economy downturn?"
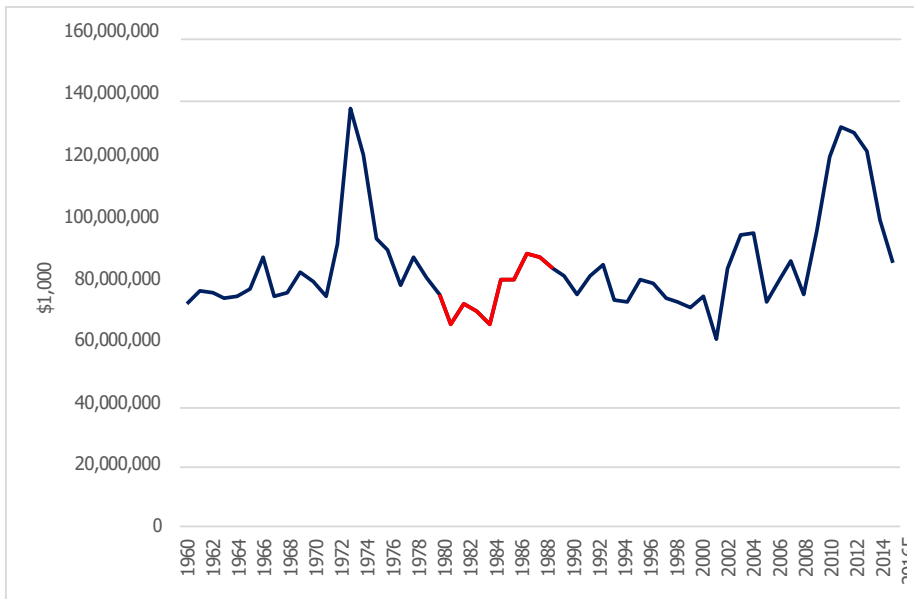
Figure 4. U.S. Net Cash Farm Income, 1960 – 2016.
Source: U.S. Department of Agriculture. Farm Income and Wealth Statistics.
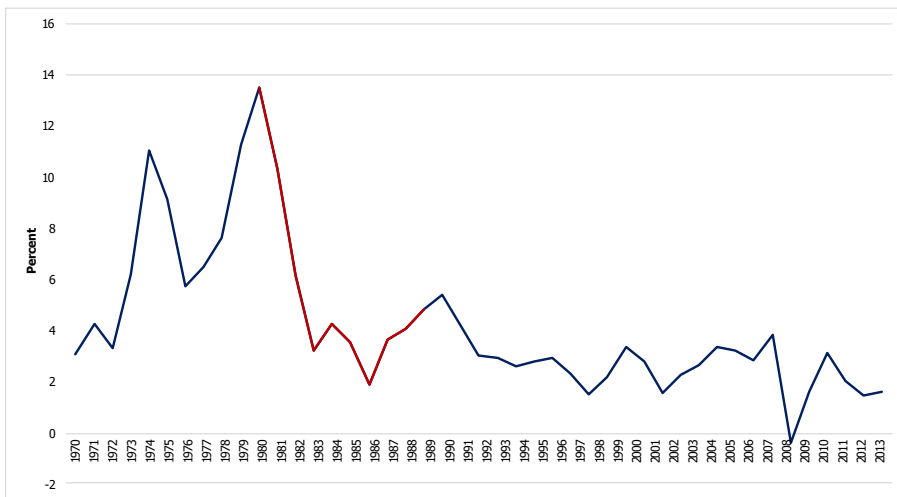
Figure 5. Annual Change in Consumer Price Index 1970 to 2014.
Source: U.S. Department of Agriculture. Farm Income and Wealth Statistics.
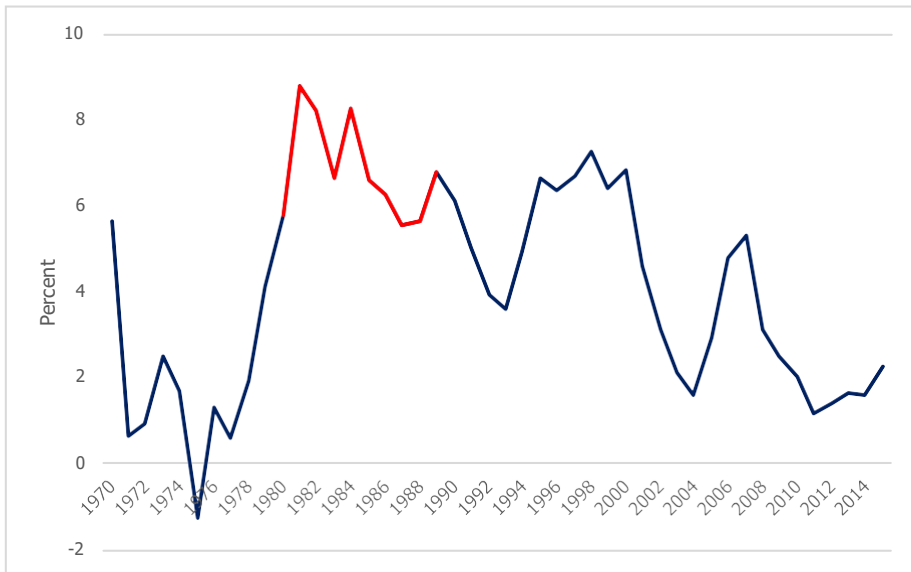
Figure 6. Real Interest Rates in U.S., 1970 – 2015.
Source: U.S. Department of Agriculture. Farm Income and Wealth Statistics.
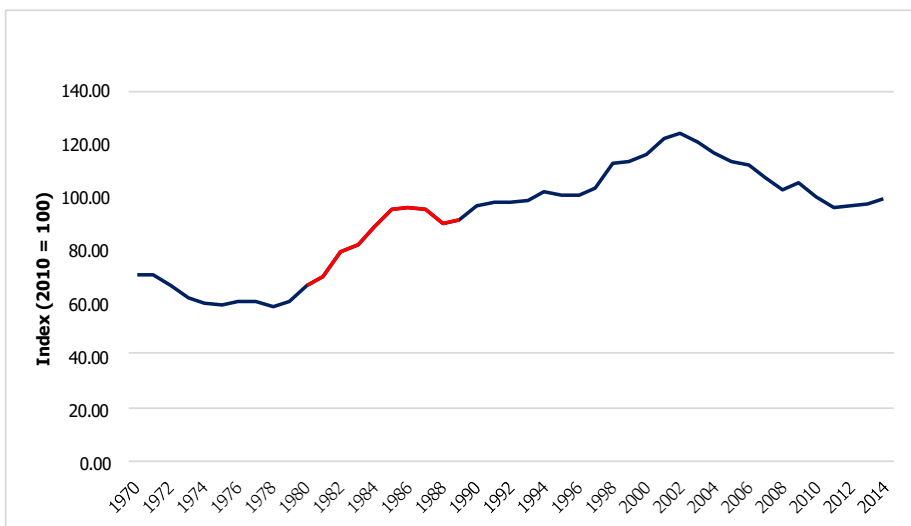
Figure 7. U.S. Agricultural Trade-Weighted Exchange Rate, 1970 to 2014.Source: U.S. Department of Agriculture. Farm Income and Wealth Statistics.

Figure 8. Value of U.S. Farmland Adjusted for Inflation in Billions, 1960 -2016.
Source: U.S. Department of Agriculture. Farm Income and Wealth Statistics.
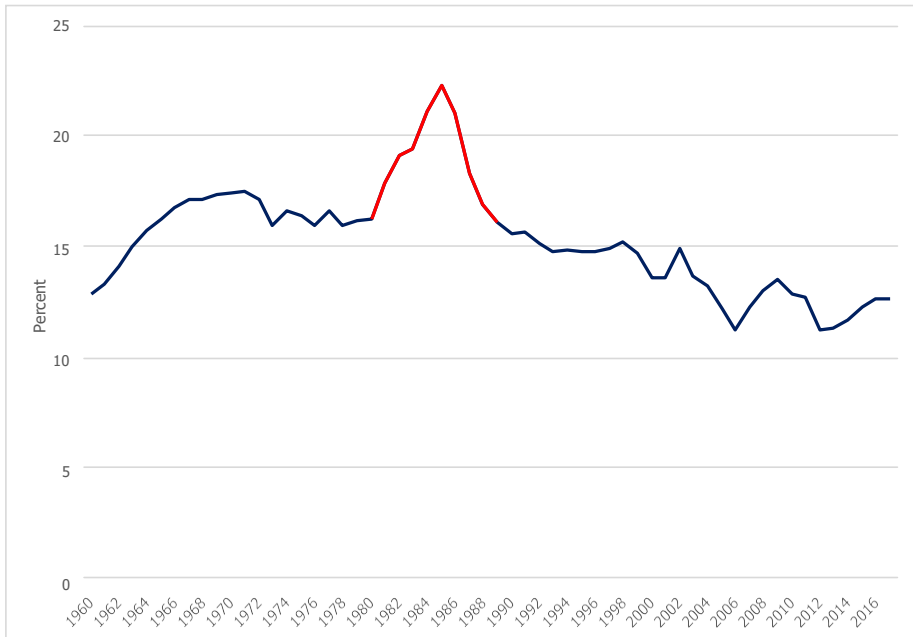
Figure 9. U.S. Farm Debt-To-Asset Ratio in Percent, 1960 – 2016.
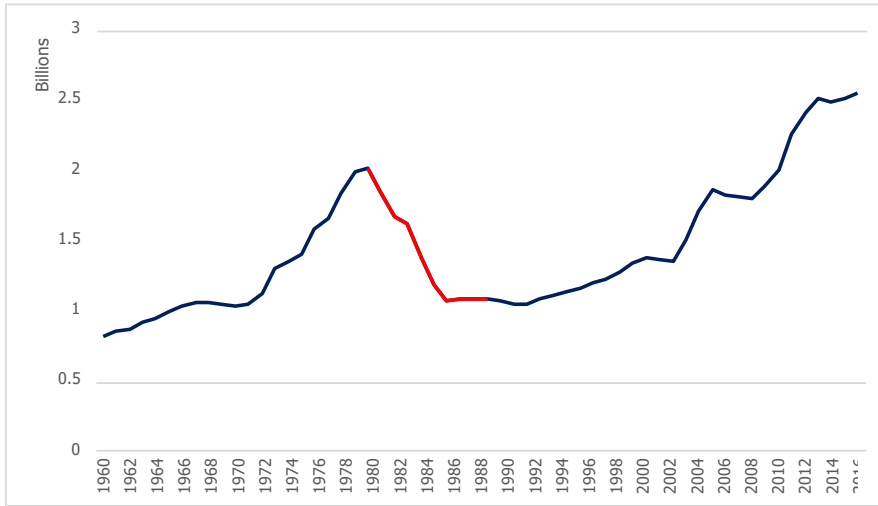Source: U.S. Department of Agriculture. Farm Income and Wealth Statistics.

Material Studied, Data, and Methods

The second objective is to project the economic viability of representative commercial size farms in the U.S. given the current downturn. The Agricultural and Food Policy Center at Texas A&M University maintains a data base of 94 representative farms developed through a focus group interview process refined over the past 30 years. Figure 10 indicates the location for the representative farms. Every two years a panel of farmers in a county is interviewed to obtain data to simulate a representative farm based on information and records for the farmers in the panel. The panels consist of four to six full-time farmers who use similar technology, size (acres farmed), and crops produced. Most of the panels have been in place for more than 20 years. The farmers provide data for farm structure, land planted to each crop, number of cattle, variable and fixed costs, prices, yield histories, farm program participation, and a detailed machinery complement. The data are used in the Center's Farm Level Income and Policy Simulator (FLIPSIM) to simulate the farm and the results for the base year are returned to the farmers to validate that the model correctly simulated the representative farm and that the results were representative of farm costs and returns for the past two years. After the farm data are validated, the farm is added to the Center's data base for simulating alternative farm policies and farm management strategies. The model and the representative farms have been used to advise the U.S. Congress on probable impacts of farm policy changes for every farm bill since 1985.

Figure 10. Map of the Agricultural and Food Policy Center Representative Farms.

FLIPSIM is a whole farm simulation model developed by Richardson and Nixon [1986] that simulates a farm for ten years using a multivariate empirical distribution for crop yields and livestock production variables. Stochastic prices for crops and livestock developed by the FAPRI [2018] sector model are used in the model which is run for 500 iterations to 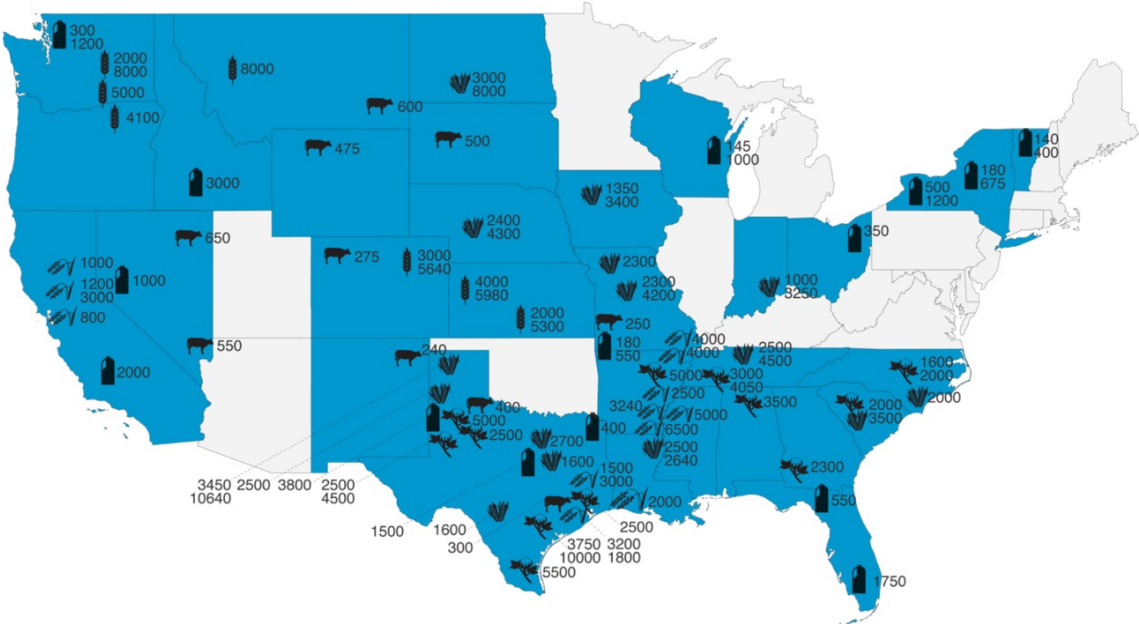estimate the probability of economic sustainability (liquidity and equity). The model includes the current farm policies and income tax provisions. Variable and fixed costs are inflated annually using inflation rates implicit in the FAPRI sector model. The farmers' crop mix, acreage, and number of dairy or beef cows is held constant for the 10 year planning horizon. Machinery is replaced based on the farmers' prescribed replacement schedule.

For the present study the representative farms have all been updated within the past two years. The August 2018 FAPRI [2018] baseline projections of prices and inflation rates are used for the analysis. The projected average annual prices for the major crops and for livestock are summarized in Table 1. The crop farms are assumed to participate in the acreage revenue [3] program (ARC) or the price loss coverage (PLC) program for covered commodities based on the farm panels' information. After 2018 all grain crops are assumed to switch to the PLC program as it is expected to provide greater benefits than the ARC program. Annual rates of inflation, interest rates, and annual average land inflation rates for farmland are presented in Table 1.

Results

The results from simulating the AFPC representative farms are summarized in Tables 2-7. Additional details for the farms are provided in Appendix Tables A1-A6. The simulation results are summarized using a StopLight scale with alternative colors indicating viability (green good, yellow moderate, red bad) for liquidity and equity measures. The probabilities of negative ending cash reserves in 2018 and 2025 are reported for each farm to project farms liquidity. Farms equity position is reported as the probability that real net worth declines from its 2016 starting value. The color scale for both variables are set as follows: (1) green if the probability is less than 25 percent, (2) red if the probability is greater than 50 percent, and (3) yellow if the probability is between 25 and 50 percent. The overall financial ranking is based on weighting the probabilities in 2025. The numbers in the table indicate the probability for the variable in 2018 and in 2025. The naming convention for a crop farm is the first two letters indicate the state, the third or fourth letter indicates the primary crop (G – feedgrains, W –

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[3] Analyses using the FLIPSIM model forecasted the 1985 farm crisis two years in advance. The model and the authors have accurately forecasted several economic downturns and recoveries for different sectors of the US farm economy over the past 30+ years.

wheat, C – cotton, R – rice) and for livestock D for dairy and B for beef cattle. The number in the farm name indicates the acres farmed or the number of cows.

Table 1. Projected Crop and Livestock Prices and Annual Rates of Inflation, 2018-2025.

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Crop Prices ($/tonne)										
Corn	132.28	133.85	142.51	150.78	151.57	152.35	151.57	149.20	148.02	147.63
Wheat	142.93	173.80	188.13	187.76	189.60	191.43	189.60	189.60	185.55	184.82
Cotton	1499.13	1499.13	1656.98	1569.68	1566.15	1539.47	1547.41	1542.78	1558.87	1556.01
Sorghum	109.84	125.98	131.49	144.87	141.72	140.94	139.76	138.18	137.39	137.00
Soybeans	347.96	343.55	320.77	328.85	341.35	345.02	339.14	335.83	334.00	332.89
Rice	229.28	275.58	270.06	278.66	276.68	271.61	272.49	272.05	272.93	276.90
Peanuts	434.31	512.57	487.76	460.94	467.01	486.48	486.63	485.61	484.15	484.05
Livestock Prices ($/kg)										
Feeder Cattle	3.38	3.44	3.49	3.22	3.11	3.18	3.36	3.57	3.68	3.69
Culled Cows	1.58	1.47	1.39	1.35	1.33	1.36	1.43	1.51	1.55	1.56
All Milk Price	0.36	0.39	0.36	0.36	0.38	0.39	0.40	0.40	0.41	0.41
Annual Rates of Inflation (%)										
Seed Price		-0.09	-1.25	2.17	1.93	2.03	1.85	1.54	1.28	1.19
Fertilizer Price		-7.12	-0.34	2.38	-3.97	1.67	1.50	1.19	2.04	2.40
Herbicides Price		-3.74	0.48	2.90	2.30	2.59	2.24	1.97	1.87	1.91
Insecticide Pric		-5.01	0.23	2.72	2.45	2.52	2.27	2.09	2.00	2.00
Fuel and Lube Pr		13.67	10.14	-0.49	-2.45	-1.01	1.51	2.40	3.05	4.13
Machinery Prices		1.99	0.48	3.04	1.62	1.75	1.66	1.69	1.57	1.56
Wages		2.76	3.36	3.51	3.69	3.97	4.06	4.02	3.93	3.82
Supplies		1.22	2.90	2.16	2.31	2.04	1.88	1.93	1.88	1.80
Repairs		1.98	2.43	2.83	2.87	2.68	2.85	3.05	2.99	2.86
Services		-2.77	1.58	3.10	2.71	3.05	2.82	2.63	2.54	2.54
Taxes		1.39	1.00	4.27	4.05	2.23	2.78	2.73	2.69	2.67
Prices Paid Index		0.38	2.03	1.91	1.55	2.02	2.08	2.01	1.90	1.80
Consumer Price Index		2.14	2.58	2.09	2.30	2.20	2.33	2.44	2.48	2.45
Annual Interest Rates (%)										
Long-Term		8.97	9.47	9.93	10.3	10.53	10.75	10.93	11.09	11.27
Intermediate-Term		7.26	7.67	8.04	8.33	8.53	8.7	8.85	8.97	9.12
Annual Rate of Change for Land Prices (%)										
Land Prices	-0.0033	0.0233	-0.0101	-0.0226	-0.0112	0.0033	0.0048	0.0040	0.0030	0.002603

Source: Food and Agricultural Policy Research Institute [FAPRI, 2018]. University of Missouri-Columbia.

The results for feedgrain and oilseed farms indicate that nine of the 23 farms are classified in a poor financial condition due to high probabilities of cash flow deficits that contribute to losses in real net worth. The Iowa, Nebraska, and moderate North Dakota, Northern Louisiana, Southern North Carolina, and two farms in Texas are projected to face severe cash flow problems through 2025 (probability of cash flow deficits exceeding 50 percent) (Table 2). Fourteen of the 23 feedgrain farms are projected to overcome current cash flow deficits and by 2025 have low probabilities of cash flow deficits. By 2025 only seven of the 23 farms are projected to not experience real losses in net worth. Ten of the 23 feedgrain farms will experience a decrease in their economic viability ranking.

Six of the eleven representative wheat farms will face severe cash flow and equity problems through 2025 to the extent that their economic ranking is degraded from good to moderate or moderate to poor (Table 3). The Colorado (COW3000 and COW6000), Central Kansas (KSW2000 and KSW5300), Oregon (ORW4100), and Central Washington (WAAW5000) wheat farms will be under significant financial stress given current projections for wheat prices. Eight of the 14 cotton farms are projected to weather the current downturn by maintaining low probabilities of cash flow deficits. However, four of the cotton farms will face severe economic hardships. The hardest hit of the crop farms will be rice with 10 of the 15 representative farms facing severe liquidity and equity problems. Ten of the 15 rice farms will likely experience a one or two step decrease in their overall economic viability ranking.

Lower prices for feedgrains and oilseeds benefit the dairy sector as 11 of the 20 representative dairies are classified in good financial condition by 2025. The high cost dairy farms in Florida, Vermont, Washington, Texas, and New York are likely to see low probabilities of cash flow deficits that lead to losses in real net worth. Six of the farms will experience a decrease in viability, falling from good to poor or moderate to poor. Cattle ranches will likely suffer continued cash flow deficits and equity issues. Six of the 11 representative farms are classified in poor financial condition by 2025 and none are classified in good condition. Five of the 11 ranches will see a degradation in their overall ranking for economic viability.

Discussion and Conclusion

U.S. farmers are experiencing cash flow problems due to significant decreases in crop and beef cattle prices. Underlying economic conditions in the general economy do not suggest that a repeat of the Farm Crisis of the 1980s is upon us. However, just because economic conditions are not as bad as the 1980s does not mean things are not bad. Many farms will be forced to reorganize, seek other options to cash flow and survive the current economic downturn in agriculture.

Results from simulating 63 representative crop farms indicates that 30 will face high probabilities of liquidity and equity issues through 2025, to the extent that their overall ranking for economic viability will decrease one or two levels. Thirty-three of the 63 crop farms will be able to weather the crisis. Dairy farms tend to fair better with 11 of 20 farms show less than 25 percent chance of cash flow deficits and equal equity losses. However, six of the 20 dairy farms are likely going to experience a decrease in their overall economic viability ranking. The benefit of low feed costs enjoyed by dairy farms does not transfer to cattle ranches with nine of 11 representative ranches being classified as marginal or poor in terms

of financial survival. Five of the representative ranches will likely see a decrease in their overall economic viability ranking.

Table 2. Representative Feedgrain and Oilseed Farms.

Economic Viability of Representative Farms over the 2018-2025 Period				
Farm Name	Overall Ranking		P(Negative Ending Cash)	P(Real Net Worth Declines)
7/7/9	2018	2025	2018-2025	2018-2025
IAG1350	red	red	99-99	1-99
IAG3400	yellow	red	93-60	1-99
NEG2400	yellow	red	90-75	1-99
NEG4300	yellow	red	97-84	1-99
NDG3000	red	red	98-77	1-99
NDG8000	yellow	yellow	78-23	1-99
ING1000	green	yellow	34-14	1-99
ING3250	green	yellow	30-4	1-99
MOCG2300	green	yellow	1-1	1-99
MOCG4200	green	yellow	1-1	1-99
MONG2300	green	yellow	1-1	1-99
LA NG2500	red	red	99-96	1-98
TNG2500	yellow	red	72-30	1-90
TNG4500	green	green	1-1	1-1
NCSP2000	red	red	99-97	1-99
NCC2030	green	green	1-1	1-1
SCC2000	green	green	29-1	1-1
SCG3500	green	green	10-1	1-1
TXNP3450	green	green	1-1	1-1
TXNP8000	green	green	1-1	1-1
TXPG2500	green	green	36-2	1-2
TXHG2700	red	red	99-99	1-99
TXWG1600	yellow	red	99-99	1-99

1 Viability is classified as good (green), moderate (yellow), and poor (red) based on the probabilities:
| <25 (green) | 25-50 (yellow) | >50 (red) |

2 P(NegativeEnding Cash) is the probability that the farm will have a cash flow deficit. Reported values represent the probabilities for 2018 and 2025.

3 P(Real Net Worth Decline) is the probability that the farm will have a loss in real net worth relative to the beginning net worth. Reported values represent the probabilities for losing real net worth from 2016 to 2018 and from 2016 to 2025.

Table 3. Representative Wheat Farms.

Economic Viability of Representative Farms over the 2018-2025 Period				
Farm Name	Overall Ranking		P(Negative Ending Cash)	P(Real Net Worth Declines)
2/3/6	2018	2025	2018-2025	2018-2025
WA W2000	green	yellow	1-1	1-89
WA W8000	yellow	yellow	86-32	1-99
WAAW5000	red	red	99-99	1-99
MTW8000	red	yellow	1-1	1-86
ORW4100	green	red	99-99	1-99
KSCW2000	green	green	1-1	1-1
KSCW5300	green	green	1-1	1-4
KSNW4000	yellow	red	99-95	1-99
KSNW7000	yellow	red	88-73	1-99
COW3000	yellow	red	99-98	1-99
COW6000	red	red	99-99	1-99

1 Viability is classified as good (green), moderate (yellow), and poor (red) based on the probabilities:
| <25 (green) | 25-50 (yellow) | >50 (red) |

2 P(NegativeEnding Cash) is the probability that the farm will have a cash flow deficit. Reported values represent the probabilities for 2018 and 2025.

3 P(Real Net Worth Decline) is the probability that the farm will have a loss in real net worth relative to the beginning net worth. Reported values represent the probabilities for losing real net worth from 2016 to 2018 and from 2016 to 2025.

Table 4. Representative Cotton Farms.

Economic Viability of Representative Farms over the 2018-2025 Period				
Farm Name	Overall Ranking		P(Negative Ending Cash)	P(Real Net Worth Declines)
8/2/4	2018	2025	2018-2025	2018-2025
TXSP2500			35-41	1-5
TXSP4500			1-1	1-1
TXEC5000			1-1	1-1
TXRP2500			1-97	1-97
TXMC1800			84-95	1-94
TXCB3000			56-39	1-39
TXCB9200			74-70	1-72
TXVC5500			1-1	1-1
ARNC5000			1-1	1-1
TNC3000			1-1	1-1
TNC4050			1-1	1-1
ALC3500			1-1	1-1
GAC2500			1-1	1-1
NCNP1600			99-94	1-91

1 Viability is classified as good (green), moderate (yellow), and poor (red) based on the probabilities:

<25	25-50	>50

2 P(NegativeEnding Cash) is the probability that the farm will have a cash flow deficit. Reported values represent the probabilities for 2018 and 2025.

3 P(Real Net Worth Decline) is the probability that the farm will have a loss in real net worth relative to the beginning net worth. Reported values represent the probabilities for losing real net worth from 2016 to 2018 and from 2016 to 2025.

Table 5. Representative Rice Farms.

Economic Viability of Representative Farms over the 2018-2025 Period				
Farm Name	Overall Ranking		P(Negative Ending Cash)	P(Real Net Worth Declines)
0/5/10	2018	2025	2018-2025	2018-2025
CAR1200			63-84	1-99
CAR3000			99-99	1-99
CABR1000			98-99	1-99
CA CR800			99-99	1-99
TXR1500			31-14	1-85
TXR3000			26-53	1-13
TXBR1800			88-98	1-87
TXER3200			98-99	1-99
LASR2000			97-99	1-99
ARMR6500			58-27	1-36
ARSR3240			65-37	1-98
ARWR2500			92-74	1-99
ARHR4000			82-81	1-99
MSDR5000			43-12	1-99
MOBR4000			99-98	1-99

1 Viability is classified as good (green), moderate (yellow), and poor (red) based on the probabilities:

<25	25-50	>50

2 P(NegativeEnding Cash) is the probability that the farm will have a cash flow deficit. Reported values represent the probabilities for 2018 and 2025.

3 P(Real Net Worth Decline) is the probability that the farm will have a loss in real net worth relative to the beginning net worth. Reported values represent the probabilities for losing real net worth from 2016 to 2018 and from 2016 to 2025.

Table 6. Representative Dairy Farms.

Economic Viability of Representative Farms over the 2018-2025 Period				
Farm Name	**Overall Ranking**		**P(Negative Ending Cash)**	**P(Real Net Worth Declines)**
6/5/9	**2018**	**2025**	**2018-2025**	**2018-2025**
CAD2000			23-1	1-38
WAD300			99-96	1-99
WAD1200			38-4	1-50
IDD3000			58-17	1-52
NVD1000			31-6	1-8
TXND3800			55-51	1-38
TXCD1500			94-98	1-99
TXED400			99-99	1-99
WID145			87-42	1-99
WID1000			62-5	1-35
NYWD500			7-1	1-6
NYWD1200			36-15	1-55
NYCD180			99-82	1-99
NYCD675			75-12	1-90
VTD160			99-99	1-99
VTD400			64-46	1-93
MOGD550			87-17	1-55
MOGD400			32-2	1-17
FLND550			91-97	1-99
FLSD1750			94-92	1-92

1 Viability is classified as good (green), moderate (yellow), and poor (red) based on the probabilities:

<25	25-50	>50

2 P(NegativeEnding Cash) is the probability that the farm will have a cash flow deficit. Reported values represent the probabilities for 2018 and 2025.

3 P(Real Net Worth Decline) is the probability that the farm will have a loss in real net worth relative to the beginning net worth. Reported values represent the probabilities for losing real net worth from 2016 to 2018 and from 2016 to 2025.

Table 7. Representative Cattle Ranches.

Economic Viability of Representative Farms over the 2018-2025 Period				
Farm Name	**Overall Ranking**		**P(Negative Ending Cash)**	**P(Real Net Worth Declines)**
0/5/6	**2018**	**2025**	**2018-2025**	**2018-2025**
NVB650			1-32	1-99
NVSB550			1-1	1-67
MTB600			58-79	1-99
WYB475			99-99	1-99
COB275			7-68	1-99
NMB240			4-23	1-99
SDB500			99-99	1-99
MOB250			1-1	1-99
TXRB400			1-21	1-99
TXSB300			37-82	1-99
FLB1155			1-1	1-99

1 Viability is classified as good (green), moderate (yellow), and poor (red) based on the probabilities:

<25	25-50	>50

2 P(NegativeEnding Cash) is the probability that the farm will have a cash flow deficit. Reported values represent the probabilities for 2018 and 2025.

3 P(Real Net Worth Decline) is the probability that the farm will have a loss in real net worth relative to the beginning net worth. Reported values represent the probabilities for losing real net worth from 2016 to 2018 and from 2016 to 2025.

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Table A1. Details for Representative Feed Grain Farms.

	Receipts	Payments	NCFI	Reserve 2025	Net Worth 2025	CRNW
	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	(%)
AG1350	944.62	32.31	24.89	(1,219.16)	1,586.72	(3.89)
IAG3400	2,075.86	72.19	496.75	(656.84)	10,123.32	4.08
NEG2400	2,042.52	55.62	345.27	103.46	4,952.11	4.39
NEG4300	3,416.44	85.32	310.26	(2,575.15)	13,527.78	1.50
NDG3000	1,177.15	45.70	194.91	(564.45)	2,584.46	1.37
NDG8000	3,524.18	118.86	978.17	1,753.31	21,936.52	5.33
ING1000	638.43	22.39	228.35	261.86	2,518.86	5.14
ING3250	2,235.05	68.38	548.34	758.15	8,954.61	4.75
MOCG2300	1,305.43	43.38	484.05	615.99	9,941.23	3.93
MOCG4200	2,368.35	58.27	976.43	2,475.48	15,102.62	5.41
MONG2300	1,589.52	51.97	565.97	548.24	10,130.58	4.97
LANG2500	1,770.95	122.30	157.92	(714.88)	2,199.53	0.16
TNG2500	1,286.10	39.14	264.98	148.19	2,921.10	4.78
TNG4500	3,085.49	75.54	800.04	1,971.83	9,529.10	7.38
NCSP2000	1,481.43	85.75	65.95	(1,440.13)	2,268.06	(3.30)
NCC2030	1,310.31	66.61	511.66	1,449.45	3,445.61	12.25
SCC2000	1,620.25	89.15	460.32	1,221.67	3,821.31	8.33
SCG3500	3,118.67	130.40	829.65	2,596.68	7,265.41	9.21
TXNP3450	2,212.02	104.39	804.92	2,226.81	9,294.27	8.07
TXNP10640	6,853.52	231.01	1,603.10	6,020.33	17,691.87	9.24
TXPG2500	1,897.52	103.42	402.68	598.71	5,503.86	5.77
TXHG2700	825.60	67.15	114.96	(424.17)	1,081.81	1.15
TXWG1600	609.51	46.48	102.85	(325.93)	1,097.83	2.57

1 Receipts are average annual total cash receipts including government payments, 2018-2025 ($1,000)
2 Payments are average annual total government payments, 2018-2025 ($1,000)
3 NCFI is average annual net cash farm income, 2018-2025 ($1,000)
4 Reserve 2025 is average ending cash reserves, 2025 ($1,000)
5 Net Worth 2025 is average nominal ending net worth, 2025 ($1,000)
6 CRNW is average percentage change in real net worth over 2018-2025 period, (%)

Table A2. Details for Representative Wheat Farms.

	Receipts	Payments	NCFI	Reserve 2025	Net Worth 2025	CRNW
	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	(%)
AW2000	851.26	63.65	361.57	922.92	2,791.28	9.67
WAW8000	3,594.01	241.68	829.94	506.75	10,802.35	5.73
WAAW5000	616.32	46.90	117.01	(372.76)	1,618.98	0.39
ORW4100	497.24	32.33	123.90	(489.98)	833.70	(0.05)
MTW8000	1,524.64	138.00	778.21	2,110.26	7,410.75	8.86
KSCW2000	846.78	29.39	279.11	722.65	2,783.60	5.86
KSCW5300	2,066.05	78.56	621.12	1,804.17	6,344.46	7.61
KSNW4000	886.48	52.19	252.38	31.08	3,418.72	3.91
KSNW7000	1,918.63	69.50	500.06	709.83	6,878.79	5.09
COW3000	405.70	24.30	145.41	(132.58)	3,162.67	3.14
COW6000	890.04	53.03	68.45	(1,864.17)	3,621.71	(1.63)

1 Receipts are average annual total cash receipts including government payments, 2018-2025 ($1,000)
2 Payments are average annual total government payments, 2018-2025 ($1,000)
3 NCFI is average annual net cash farm income, 2018-2025 ($1,000)
4 Reserve 2025 is average ending cash reserves, 2025 ($1,000)
5 Net Worth 2025 is average nominal ending net worth, 2025 ($1,000)
6 CRNW is average percentage change in real net worth over 2018-2025 period, (%)

Table A3. Details for Representative Cotton Farms.

	Receipts	Payments	NCFI	Reserve 2025	Net Worth 2025	CRNW
	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	(%)
XSP2500	805.67	62.24	138.82	(151.46)	1,170.68	2.33
TXSP4500	2,031.49	105.70	527.61	1,018.59	3,834.56	8.75
TXEC5000	2,334.68	154.28	610.05	1,662.95	4,569.71	9.07
TXRP2500	588.57	34.24	63.18	5.68	1,177.27	0.69
TXMC2500	1,489.67	68.29	196.67	(896.68)	889.31	0.54
TXCB3750	1,539.64	98.54	6.05	(1,015.63)	1,228.32	(7.75)
TXCB10000	4,366.56	282.41	365.76	466.12	6,729.27	1.52
TXVC5500	3,262.89	184.92	708.39	2,161.45	7,668.03	7.91
ARNC5000	4,328.77	214.67	1,311.45	3,555.71	12,014.01	8.75
TNC3000	1,932.76	114.28	527.98	1,697.08	3,305.61	12.86
TNC4050	2,707.94	169.92	582.78	1,162.90	6,241.95	6.12
ALC3500	2,686.31	131.16	845.75	2,791.40	6,012.54	12.37
GAC2500	3,155.99	260.49	846.13	2,749.57	10,689.36	6.88
NCNP1600	1,157.33	100.23	101.85	(1,036.85)	2,314.32	(0.38)

1 Receipts are average annual total cash receipts including government payments, 2018-2025 ($1,000)
2 Payments are average annual total government payments, 2018-2025 ($1,000)
3 NCFI is average annual net cash farm income, 2018-2025 ($1,000)
4 Reserve 2025 is average ending cash reserves, 2025 ($1,000)
5 Net Worth 2025 is average nominal ending net worth, 2025 ($1,000)
6 CRNW is average percentage change in real net worth over 2018-2025 period, (%)

Table A4. Details for Representative Rice Farms.

	Receipts	Payments	NCFI	Reserve 2025	Net Worth 2025	CRNW
	($1,000)	($1,000)	($1,000)	($1,000)	($1,000)	(%)
AR1200	1,727.33	232.29	418.70	655.74	3,688.30	5.17
CAR3000	4,574.13	431.83	287.06	(2,442.61)	9,478.02	0.75
CABR1000	1,533.79	196.24	299.92	(7.90)	4,933.82	3.40
CACR800	1,220.13	162.61	32.65	(897.03)	1,918.71	(2.49)
TXR1500	853.69	85.58	100.56	(588.19)	1,338.56	(1.41)
TXR3000	1,860.05	150.92	242.38	(356.29)	854.40	5.08
TXBR1800	1,060.41	97.37	175.21	(44.96)	675.53	3.12
TXER3200	1,500.88	136.45	(59.40)	(1,810.97)	289.44	(21.64)
LASR2000	1,435.58	108.45	216.68	181.49	1,583.21	4.61
ARMR6500	4,703.20	256.58	627.30	(18.44)	7,020.46	4.71
ARSR3240	2,409.39	172.46	333.95	70.16	4,268.47	3.67
ARWR2500	1,694.23	135.68	261.73	(1,093.35)	5,953.21	2.55
ARHR4000	2,825.92	210.35	210.99	(969.46)	4,548.72	0.75
MSDR5000	3,373.88	168.36	824.09	713.34	15,046.79	3.66
MOBR4000	2,325.07	128.98	224.87	(1,172.48)	6,751.95	1.53

1 Receipts are average annual total cash receipts including government payments, 2018-2025 ($1,000)
2 Payments are average annual total government payments, 2018-2025 ($1,000)
3 NCFI is average annual net cash farm income, 2018-2025 ($1,000)
4 Reserve 2025 is average ending cash reserves, 2025 ($1,000)
5 Net Worth 2025 is average nominal ending net worth, 2025 ($1,000)
6 CRNW is average percentage change in real net worth over 2018-2025 period, (%)

Table A5. Details for Representative Dairy Farms.

	Receipts ($1,000)	Payments ($1,000)	NCFI ($1,000)	Reserve 2025 ($1,000)	Net Worth 2025 ($1,000)	CRNW (%)
CAD2000	10,171.38	45.49	1,765.04	4,328.64	24,991.99	3.55
WAD300	1,340.63	2.84	45.23	(1,252.66)	2,751.94	(1.88)
WAD1200	6,540.61	11.06	1,341.85	3,882.72	14,263.23	6.75
IDD3000	15,524.53	17.68	1,873.98	2,926.38	30,016.86	2.81
NVD1000	4,835.22	0.00	690.99	1,757.65	8,396.77	4.67
TXND3800	18,421.51	55.27	2,036.18	747.28	26,859.41	3.22
TXCD1500	6,696.05	0.00	(645.37)	(6,800.15)	2,743.37	(9.66)
TXED400	1,258.71	0.00	(27.08)	(1,518.65)	979.18	(6.73)
WID145	853.72	2.79	189.27	(24.88)	2,933.70	1.08
WID1000	6,041.33	33.92	1,136.25	3,480.26	12,736.74	6.18
NYWD500	2,879.18	17.05	727.94	2,777.93	7,127.53	7.34
NYWD1200	6,511.92	25.61	1,139.40	3,161.99	15,159.38	4.24
NYCD180	879.77	5.88	149.17	(331.58)	2,837.44	(0.46)
NYCD675	3,504.71	19.18	791.16	1,431.89	11,933.93	2.93
VTD160	773.39	2.51	(9.22)	(924.89)	781.01	(6.11)
VTD400	2,441.42	8.41	371.98	336.99	5,556.40	2.22
MOGD550	1,136.28	0.00	276.93	331.89	3,226.36	3.03
MOGD400	1,106.20	0.00	319.99	790.55	2,742.30	6.28
FLND550	2,899.26	0.00	368.63	582.78	3,883.46	3.96
FLSD1750	8,976.08	0.00	1,052.08	2,745.54	13,321.21	5.67

1 Receipts are average annual total cash receipts including government payments, 2018-2025 ($1,000)
2 Payments are average annual total government payments, 2018-2025 ($1,000)
3 NCFI is average annual net cash farm income, 2018-2025 ($1,000)
4 Reserve 2025 is average ending cash reserves, 2025 ($1,000)
5 Net Worth 2025 is average nominal ending net worth, 2025 ($1,000)
6 CRNW is average percentage change in real net worth over 2018-2025 period, (%)

Table A6. Details for Representative Beef Cattle Ranches.

	Receipts ($1,000)	Payments ($1,000)	NCFI ($1,000)	Reserve 2025 ($1,000)	Net Worth 2025 ($1,000)	CRNW (%)
NVB650	575.86	0.00	145.27	117.14	8,068.06	(0.41)
NVSB550	534.07	0.00	202.26	527.49	2,894.19	2.41
MTB600	434.39	0.00	56.80	(429.51)	7,319.34	(1.07)
WYB475	438.29	0.00	(36.89)	(1,149.28)	1,443.41	(5.76)
COB275	257.63	0.00	59.38	(132.40)	13,464.96	(0.71)
NMB240	244.66	0.00	92.46	(193.16)	6,604.07	(0.82)
SDB500	340.58	0.00	(51.10)	(1,349.85)	6,415.02	(2.35)
MOB250	363.17	5.63	175.70	189.40	3,144.47	0.30
TXRB400	442.85	0.00	83.22	(220.67)	7,805.78	(0.89)
TXSB300	237.37	0.00	44.70	(186.82)	5,374.60	(0.68)
FLB1155	815.44	0.00	245.57	718.95	24,032.51	(0.21)

1 Receipts are average annual total cash receipts including government payments, 2018-2025 ($1,000)
2 Payments are average annual total government payments, 2018-2025 ($1,000)
3 NCFI is average annual net cash farm income, 2018-2025 ($1,000)
4 Reserve 2025 is average ending cash reserves, 2025 ($1,000)
5 Net Worth 2025 is average nominal ending net worth, 2025 ($1,000)
6 CRNW is average percentage change in real net worth over 2018-2025 period, (%)