SB Farms: Analyzing growth strategies for a row crop farming operation In Iowa

by

Kellen Suntken

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Allen Featherstone

ABSTRACT

SB Farms is a row crop farming operation located near Belmond, IA that focuses on corn and soybeans. The farming operation has two owner-decision makers. The brothers are fourth generation farmers who have been farming together since 2016. The father of SB Farms helps on the operation and provides some of the equipment at a custom rate. Currently, SB Farms consists of 1,500 acres of planted corn and soybean in rotation on a yearly basis.

The trend of consolidation in the farming industry has occurred over the years. As the total number of farming operations has decreased, the size of operations has increased. As margins have become thinner on a per acre basis, equipment and technology advancements have made farming on a larger scale more practical. SB Farms recognize that for the operation to be sustainable for future years, it must expand in size. When it comes to acquiring more acres of farmland, there are two ways that this can happen; the first is to rent ground from a landlord through crop share agreements or various cash rent leases, the second is to acquire more ground by purchasing land. The purchase of farmland takes significantly more capital up front and ties up funds that could be used to meet other needs such as equipment purchases. Owning land increases equity that has wealth-building benefits that renting land does not.

The objective of this thesis is to use financial and risk analysis to determine the avenue of growth that provides a more favorable long-term growth strategy for SB Farms. More specifically, an analysis was completed on a parcel of ground purchased by the operation with borrowed capital, and how it affects the operation's financial performance in

the long-term and short-term when compared to rented land. The analysis showed strong evidence that SB Farms' land purchase was a good decision on behalf of the operation. However, there were key tradeoffs to be considered in regard to purchases in the future.

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CHAPTER I: INTRODUCTION

1.1 Introduction

The two owner-operators of SB Farms started farming together in 2016 near their hometown of Belmond, IA. They began farming land that is owned by their immediate and extended family members. Since then, they have obtained other parcels of ground from local landlords but know that continual growth is necessary to have a sustainable operation in the long term. Currently, SB Farms consists of 1,500 acres of land that is rotated between corn and soybeans. Although the crop rotation can vary depending on the particular farm, the operation usually plants two years of corn before planting soybeans. SB Farms is a typical operation for the region. According to the USDA National Agricultural Statistics Service, the average farm size in the state of Iowa was 359 acres in 2021 (National Agricultural Statistics Service 2022). However, many of the farming operations in North Central Iowa are much larger, making SB Farms an average sized operation, if not slightly smaller than average.

A disadvantage that SB Farms faces relative to other operations in the area is its lack of farm real estate equity on the balance sheet. According to an article by Varble and Druschke (2015), the number of farming operations in Iowa that own all of the land they farm has significantly declined over the past forty years. In addition, farming operations that consist of a combination of rented and owned acres has increased in the ratio of rented to owned acres across the state (Varble and Druschke 2015). Despite this recent trend, there are still many farms within the region that own a substantial amount of the land that they farm. In particular, older farmers tend to carry more equity in farm real estate that provides more collateral. Additionally, owned acres that do not carry a loan balance provide cash

flow advantages. As a result, SB Farms has less room for error when making decisions about expansion and must analyze the financial impact of such decisions closely.

Wright County, Iowa is a favorable location to both farm and own farmland as its soil is some of the more productive within the state. Much of the land in the area has a corn suitability rating in the low to mid-eighties. The abundance of large-scale hog production in the area, paired with adequate rail access to outside markets support local cash corn and soybean prices on an annual basis. Generally, cash corn prices reflect a twenty-five to thirty cent under basis to the Chicago Board of Trade, and soybeans are priced sixty to eighty cents under the futures price (newcoop.com).

SB Farms wants to expand the size of their operation in terms of total acres. However, there are multiple variables to consider when determining a growth strategy for a row crop operation. The biggest decision is land acquisition. This could be through a purchase or through renting via cash leases or crop share agreements. Expansion opportunities may come in different forms and at different times. SB Farms has capitalized on opportunities over the past few years both by renting more acres and purchasing land. The rented acres vary in terms of quality and fertility of the soil. The terms of the leases differ. Some are a crop share agreement and others are an annual cash rental agreement.

A 60-acre tract of land was purchased by SB Farms in the spring of 2021 using a beginning farmer loan through the United States Department of Agriculture Farm Service Agency. Growth opportunities have different effects on the farming operation's net worth, and its capital needs. Similar to other operations, balancing long-term growth strategies with short-term capital needs is crucial to being successful in both the short-term and long-term. Expanding the number of acres that SB Farms farms requires attention to details

outside of capital needs to fulfil the rent, land payment, and tax obligations on a year-to-year basis. As the acres the operation farms increases, so does the scale of equipment and amount of labor needed to successfully plant, maintain, and harvest the crop. Additional capital is needed to purchase or lease larger equipment and pay the wages of employees. Understanding how to properly weigh and manage these factors is vital for SB Farms to grow and remain sustainable in the future.

Currently, the farm economy is very healthy after two consecutive years of above average yields paired with commodity prices that have reached highs not seen in the past decade. Government payments and COVID relief money amplified the influx of cash into the agricultural economy. This abundance in capital has created opportunity and financial relief to SB Farms and other operations across much of the corn belt. Equipment can be upgraded, and debt can be reduced. However, once immediate needs are fulfilled, operations begin to look into additional ways to use their newly found cash that often involves purchasing or renting more acres. Although the previous two crop years have generated large revenues, inflation of crop expenses and continual interest rate hikes during the previous year have added to the uncertainty of the future. This plays a crucial role in deciding how to use capital for short-term and long-term investments.

1.2 Objective and Motivation

The objective of this thesis is to analyze how SB Farms should approach growth opportunities in the future. Each situation must be evaluated individually for a correct decision to be made, because variables such as productivity of the land, crop prices, and interest rates are not always the same for each opportunity to buy or rent land.

For this project, the different growth methods are analyzed from a financial, risk management, and cash flow perspective to determine the options that provide greater long-term value to the operation. The farms that are analyzed may prove to have been valuable additions to SB Farms, but the primary objective of this thesis is to analyze a land purchase and its effect on the farms financial health and give insight on how the operation should model and develop its growth strategy for the future.

Some of the techniques used include net present value analysis, financial risk using sensitivity analysis, and an assessment of land equity on the balance sheet and how it relates to the ability to borrow capital. The methods and theory section examine the tradeoffs of owning versus renting ground. This determines the economics of implementing drainage tile to the land, as this provides significant agronomic and economic benefits. Much of the information used to complete the net present value analysis is from the actual production history of farmed land. Input costs and any information that is not obtainable at a parcel-specific level is obtained from Iowa State University's Ag Decision Maker Database at a county average level. Yearly income of land enrolled in government programs such as the Conservation Reserve Program is a known figure through the life of the contracts and thus, is used in the cash flow projections. However, crop prices have a major impact on farm income, and cannot be easily predicted. For this reason, historical corn and soybean prices are used to project annual revenue for the operation's cash flows. Sensitivity analysis is used to analyze the operation's risk to both crop and input price volatility.

CHAPTER II: LITERATURE REVIEW

Farm expansion is a complex subject when considering adding more acres to an operation. There is the option to buy or rent acres, and these opportunities often present themselves at different times, and in different formats. Both avenues of growth can provide long-term economic returns to an operation, but there are different variables that play a deciding factor. For example, the interest rates, purchase price or rental rate, and the productivity of the ground influence purchasing or renting ground on a farming operation. The question arises: what is the best method to determine and measure the economic and financial impact of these decisions?

The Iowa State University Ag Decision Maker website contains many articles and information about the long-term economic analysis of purchasing farmland as well as the financial cash flow perspective of a purchase. The article that covers the long-term economic analysis of a farm-land purchase explains the present value formula to understand a land parcel's true economic value (Edwards 2015, 5). Edwards explains the method for calculating the rate of return for both owners who wish to rent land on a cash per acre basis as well as operator-owners who choose to farm the land themselves. Edwards describes how the owner-operators determine their net income by taking gross revenues on a per acre basis and subtracting total production costs. Multiplying this number by the total acres on that farm results in a net income estimate for that parcel. A non-operating owner, on the other hand, would estimate net income using total income received as cash rent payment minus any costs associated with owning the land such as property taxes or maintenance of the property including fencing, tiling, and terrace repairs. The rate of return is important in the present value formula. For owner-operators, cash funds or other equity is

used to purchase the farm and the expected rate of return that capital could generate in another investment of similar risk is used as the rate of return (Edwards 2015).

Edwards (2015a) also explains the second piece in discovering the economic return of farmland by considering the appreciation of the asset, which must be included in the rate of return. This is done by looking at the long-term appreciation rate of farmland. Edwards describes the different economic factors such as competition for land from non-agricultural industries, or changes in farm income due to commodity prices that influence land values independently from the rest of the economy. For this reason, it is important to look at appreciation from both a real and nominal rate of return perspective.

Edwards describes the financial analysis portion of making a farmland purchase (Edwards 2015) and discusses the structure of equity sources that are available to purchasers that do not have the equity on hand, before explaining the key variables that determine the purchaser's ability to pay back a loan. Loan payment terms, interest rates, and the purchase price affect the financial feasibility of a land purchase. Often, farmland purchased for corn and soybean production will not cashflow itself on an annual basis. For payments to be made, funds outside of those generated from the land parcel may need to be used. This may include profits made from the rest of the operation or from off-farm income. When deciding whether it is financially feasible to purchase farmland, it is important to not only look at the long-term economic impact it will have on an operation or a balance sheet, but also how it will affect the financial capabilities of the operation in the short term as well.

Farm management elaborates on some of the benefits and disadvantages of both owning and renting farmland (Kay, Edwards and Duffy 2015). Owning land reduces risk to

a farming operation as it has more control over keeping owned acres for the long term. The total number of acres a farm controls is an important variable for a farm manager when they make decisions on resources needed to run the operation such as labor, equipment, and capital. The total number of acres an operation controls are also used in cash flows when deciding to use credit to make purchases. Losing acres unexpectedly can put an operation at severe financial risk from a loss of income. Furthermore, a farming operation may have sunk costs in assets such as grain storage facilities that were designed for the current size of the operation causing a lower return if the size of the operation decreased.

Equity in owned farm ground also is a great source of collateral. This provides benefits to an operation when it desires to use borrowed capital to invest back into the operation. One of the larger benefits of ownership however may be the ability to make changes and improvements to a specific parcel without having to receive permission from a landlord or farm manager, and with the confidence of knowing that the operation will reap benefits of improvements on a long-term scale. Examples include the installation of drainage tile or terraces, tearing down or putting up buildings or structures, and improving fence lines.

Edwards explains that the disadvantages of owning farm ground are centered around the capital restraints that such a purchase can present to farm operations. This is true of operations that have limited capital and equity. This is important for SB Farms, as the two owner operators are younger farmers that have a lower net worth than many of the neighboring farming operations. Using a large amount of capital for down payment on a piece of land as well as the obligation to make annual payments consumes capital that could be used in other ways to add value to the operation such as purchasing equipment or

investing in new technologies that may lead to increased yields. Having too much capital tied up in a land purchase may also inhibit an operation from pursuing other growth opportunities if they require additional labor or equipment resources due to limited funds (Kay, Edwards and Duffy 2015).

Leasing land from another landowner offers benefits that owning land does not. Renting land takes significantly less capital on a yearly basis, leaving it for other uses. The other primary benefit leasing provides is flexibility. There are several different ways and term lengths that can be used to set up a land lease. Most leases expire on a year-to-year basis, allowing for the tenant to negotiate lease terms to a profitable level based on economic conditions. A land purchase, in contrast, is a fixed expense, and the payment schedule doesn't change based on economic or agronomic conditions. This can cause strain on cash flow on years if farm profitability is lower. The disadvantages associated with leasing are slower equity growth, the inability to make long term improvements to the ground, and the lack of security of controlling leased acres for future years.

An article published by Weber and Key studies the affect equity in farmland has on a farming operation's ability to borrow capital and expand its acres (Weber and Key 2015). The study focuses on operations' growth and expansion patterns over two separate time periods; one time-period where land appreciation is steady and another time-period experiencing rapid land appreciation. Weber and Key studied multiple operations comparing those that owned a large portion of the land they farmed to operations that owned a smaller percentage of the land that they farmed. They observed how equity appreciation in land that was owned by the operations affected their land buying habits because of their increased wealth. The study found that while farm operations with a larger

wealth increase due to land appreciation didn't show an advantage in expansion of total acres, they did show a larger increase in purchased land in the years to follow. Collateral-backed borrowing also increased, particularly among young farmers following periods of rapid appreciation. The study states that for every $10,000 increase in wealth among this group, they secured an additional $4,900 in real estate secured debt (Weber and Key 2015). Weber and Key's findings support the idea that building equity in land provides long-term benefits. Additionally, having earned equity in land will enable future borrowing power and the ability to expand an operation.

CHAPTER III: DATA AND METHODS

The objective of this thesis is to analyze the impact of VS Farm, a land purchase on SB Farms financial statements. Data were collected to estimate average yearly cash flows of the farming operation as a whole. Net Present Value and year on year profits were used to analyze both the short-term affect the farm purchase had on the operation's capital as well as the long-term affect it will have on equity and net worth.

3.1 Cash Flow

Data were gathered from both SB Farm records as well as Iowa State University data to construct cash flows that are representative over an extended period. SB Farms uses a two-year corn and one year soybean crop rotation. Crop input data were collected from the previous 10 years for corn following corn, corn following soybeans, and soybeans following corn from Iowa State University. Cash rent and crop share compensation are based off actual lease terms of the individual farms that SB Farms operates. The cash flow data were gathered in a similar fashion. Average yields from farm records were used to determine the cash flow. Several of the individual farms currently being rented by SB Farms have only been part of the operation for two years or less, leaving inadequate data for accurate yield variability considerations. Therefore, the operation's average yield was used across all farms for each crop rotation. Crop price data were derived from Iowa State University data using the average price for the previous ten marketing years. The final income component is revenue from ground enrolled in the Conservation Reserve Program (CRP) through the United States Department of Agriculture.

Total proceeds minus the cash rent paid on those acres are reflected in the cash flow. Additional government subsidies often play a role in farm profitability, but are

difficult to account for in a cash flow because they are not guaranteed, and total government program payments are inconsistent. The data gathered represents a conservative approach and does not include potential government payments to SB Farms. The projected cash flows would likely reflect a more profitable outcome for SB Farms and should be taken into consideration.

Commodity prices vary quickly and can be very different from one crop year to the next. Because of this, it is important to look at prices over a range of time when determining an output price to use in the cash flow. Table 3.1 and Figure 3.1 report the average corn and soybean price received by farmers from 2012 to 2021 according to Iowa State University survey data (Johanns 2022). The average corn price received over the 10-year period was $4.31, and the average soybean price received was $10.64.

Table 3.1 Average Corn and Soybean Prices Received by Farmers ($/bushel)

Year	Corn	Soybeans
2012	$6.92	$14.40
2013	$4.49	$13.10
2014	$3.71	$9.96
2015	$3.52	$8.91
2016	$3.30	$9.34
2017	$3.31	$9.25
2018	$3.59	$8.46
2019	$3.50	$8.48
2020	$4.64	$11.10
2021	$6.10	$13.40
10-Year Average	$4.31	$10.64
Standard Deviation	$1.20	$2.11
Coefficient of Variation	27.29%	19.83%

Figure 3.1 Average Corn and Soybean Prices Received by Iowa Farmers ($/bushel)

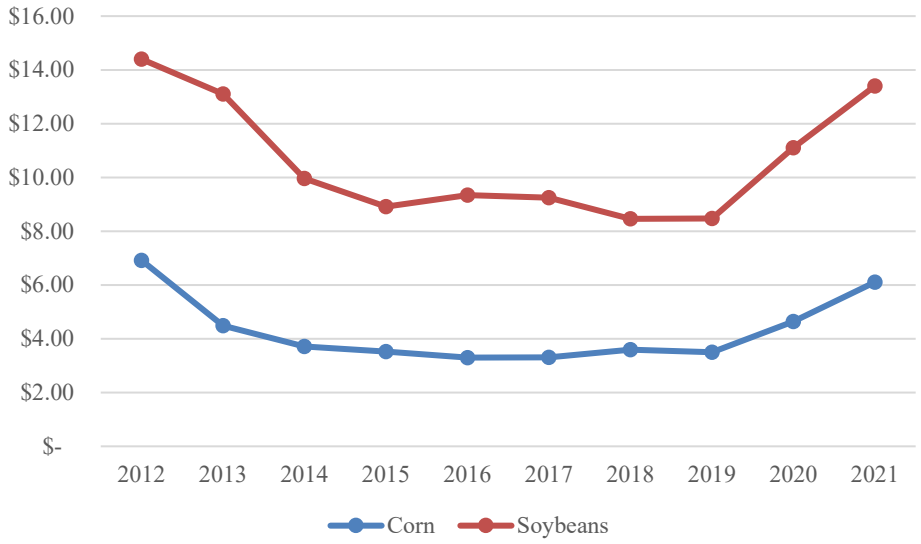


Figure 3.1 illustrates the volatility of the corn and soybean markets on a 10-year basis. This may result in years where the VS Farm will cash flow a larger percentage if not all its payment and tax obligations, and years where it will not cover all expenses. Using the average over the 10-year period may be an expectation of revenue across the SB Farms operation. Corn and soybean prices will not only help determine how well the VS Farm cash flows itself, but also the entire operation. Generally, input prices also rise and fall as well. It is important to understand the role that crop prices play in SB Farm's annual cash flow, but another key point from Table 3.1 and Figure 3.1 is that land prices are also heavily influenced by crop prices. When commodity prices are at a peak, land prices are likely near a high as well. The purchase price of a parcel of land is permanent, however. If land is bought at the high end of a price cycle, it could become very tough to cash flow during times of lower output prices and lower profitability. Purchasing land on the lower end of a price cycle may reduce financial stress for the operation.

It's important to recognize that yield variability has a significant impact on the profitability of the operation. SB Farms does not have data on all parcels that it farms, but yield variability was considered on the farms that had adequate yield history information. Table 3.2 illustrates the yield variability on five different parcels in the SB Farms operation over the past ten years.

Table 3.2 Standard Deviation of 10 Year Crop Yields in Bushels Per Acre

	Home North	Home South	Larry's	Les East	Les West
Corn	52.78	52.78	31.1	23.1	23.1
Soybeans	11.58	11.58	7.81	8.36	8.36

In the cash flow used for SB Farms, average yields are used for standardization, but Table 3.2 clearly shows the variability that occurs. The effect this will have on profitability is important to consider when analyzing cash flow risk. Yield performance is a product of both farming practices and weather conditions. Weather conditions are out of the farm operators' hands and can result in years of poor yields. Low yields may pair with high commodity prices in scenarios such as widespread drought or flooding, that could help maintain profitable levels of revenue, but this is never a guarantee. As seen in Table 3.2 the Home North and Home South farms have a standard deviation of nearly 53 bushels per acre on corn and 11.58 bushels on soybeans. Even when using the lowest price figures from Table 3.1 of $3.30 for corn and $8.46 for soybeans this equates to a revenue difference of $174.17 per acre on corn and $97.97 per acre on soybeans. Higher commodity prices would only amplify these revenue margins thus illustrating how the variability in yields should be taken into careful consideration especially when looking at worst case scenarios.

Figure 3.2 illustrates SB Farms cash flow for all farms on a corn-following-corn year. Figures 3.3 and 3.4 illustrate the same for corn following soybeans and soybeans following corn, respectively. While the cash flows are very similar, input needs vary slightly depending on the rotation of the crop ultimately affecting profitability. This is illustrated in Tables 3.3, 3.4, and 3.5. Corn-following-corn for instance has a higher input cost than corn-following-soybeans primarily because more nitrogen is needed and seed traits for underground pests such as corn root worm are also necessary. Corn-following-soybeans generally outyields corn -following-corn as well creating a higher profitability for corn-following-soybeans. The soybean cash flow has the lowest production cost of all three crop rotations as soybeans produce their own nitrogen significantly reducing fertilizer costs. Soybean seed is also much cheaper than seed corn, and there are no drying costs for soybeans. Seeing the variance between all three cash flows illustrates how much farm profitability could change on an annual basis depending on the crop rotation across the operation. This also supports the need to take all three crop rotation cash flows into consideration.

Table 3.3 Corn Following Corn Production Cash Flow

	Farm(s)	Home N.	Home S.	Les East	Vanness North	Vanness South	Larry's	Tyrrel	Les West	Hospital South	Hospital North	HospitalEast	Bell 120	Bell 30
Data	Share in Crop	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	Crop Type	Corn on Corn	Corn on Corn	Corn on Corn	Corn on Corn	Corn on Corn	Corn on Corn	Corn on Corn	Corn on Corn	Corn on Corn	Corn on Corn	Corn on Corn	Corn on Corn	Corn on Corn
	Commercial or Seed	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l
Production Estimates	Tillable Acres	83.28	99.19	30.80	94.25	37.62	121.40	482.90	34.84	238.57	76.49	27.54	111.50	24.80
	Yield bu/acre	191	191	191	191	191	191	191	191	191	191	191	191	191
	Sale Price/bu	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31
	CRP Income-Rent Paid	$ -	$ -	$ 1,666.97	$ -	$ 7,178.28	$ 518.28	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Total Bushels	$ 15,882.19	$ 18,916.36	$ 5,873.82	$ 8,987.13	$ 7,174.45	$ 23,151.99	$ 92,093.05	$ 6,644.28	$ 45,497.29	$ 14,587.28	$ 5,252.11	$ 21,263.98	$ 4,729.57
Cost per Acre	Herbicide	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42
	Insecticide	$ 20.41	$ 20.41	$ 20.41	$ 20.41	$ 20.41	$ 20.41	$ 20.41	$ 20.41	$ 20.41	$ 20.41	$ 20.41	$ 20.41	$ 20.41
	Custom Cultivation	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72
	Planting	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28
	Spraying	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86
	Custom Combine	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15
	Grain Cart	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68
	Custom V-Ripping	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57
	Phosphate and Application	$ 33.68	$ 33.68	$ 33.68	$ 33.68	$ 33.68	$ 33.68	$ 33.68	$ 33.68	$ 33.68	$ 33.68	$ 33.68	$ 33.68	$ 33.68
	Potash and Application	$ 23.84	$ 23.84	$ 23.84	$ 23.84	$ 23.84	$ 23.84	$ 23.84	$ 23.84	$ 23.84	$ 23.84	$ 23.84	$ 23.84	$ 23.84
	Lime and Application	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52
	Nitrogen & Application (NH3)	$ 91.88	$ 91.88	$ 91.88	$ 91.88	$ 91.88	$ 91.88	$ 91.88	$ 91.88	$ 91.88	$ 91.88	$ 91.88	$ 91.88	$ 91.88
	Insurance - MPC	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67
	Rent/Farm Payment	$ 220.00	$ 220.00	$ 220.00	$ -	$ 525.66	$ 220.00	$ 250.00	$ 220.00	$ 290.00	$ 290.00	$ 290.00	$ 220.00	$ 220.00
	Interest on Preharvest	$ 13.17	$ 13.17	$ 13.17	$ 13.17	$ 13.17	$ 13.17	$ 13.17	$ 13.17	$ 13.17	$ 13.17	$ 13.17	$ 13.17	$ 13.17
	Miscellaneous	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01
	Seed	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22
	Labor	$ 19.66	$ 19.66	$ 19.66	$ 19.66	$ 19.66	$ 19.66	$ 19.66	$ 19.66	$ 19.66	$ 19.66	$ 19.66	$ 19.66	$ 19.66
Cost per Bushel	Drying LP	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22
	Freight & Trucking	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08
	Handling	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04
Totals	**Total Cost/Acre**	$ 784.94	$ 784.94	$ 784.94	$ 282.47	$ 1,090.60	$ 784.94	$ 814.94	$ 784.94	$ 854.94	$ 854.94	$ 854.94	$ 784.94	$ 784.94
	Total Cost	$ 65,370.00	$ 77,858.44	$ 24,176.23	$ 26,622.91	$ 41,028.46	$ 95,292.01	$ 393,535.69	$ 27,347.39	$ 203,963.61	$ 65,394.54	$ 23,545.11	$ 87,521.08	$ 19,466.57
	Total Revenue/Acre	$ 821.95	$ 821.95	$ 821.95	$ 410.98	$ 821.95	$ 821.95	$ 821.95	$ 821.95	$ 821.95	$ 821.95	$ 821.95	$ 821.95	$ 821.95
	Total Revenue	$ 68,452.24	$ 81,529.51	$ 26,983.12	$ 38,734.53	$ 38,100.15	$ 100,303.36	$ 396,921.06	$ 28,636.84	$ 196,093.31	$ 62,871.18	$ 22,636.58	$ 91,647.75	$ 20,384.43
	Profit/Acre Minus Taxes	$ 37.01	$ 37.01	$ 37.01	$ 128.51	$ (268.65)	$ 37.01	$ 7.01	$ 37.01	$ (32.99)	$ (32.99)	$ (32.99)	$ 37.01	$ 37.01
	Total Profit Minus Taxes	$ 3,082.24	$ 3,671.07	$ 2,806.89	$ 12,111.62	$ (2,928.31)	$ 5,011.36	$ 3,385.38	$ 1,289.45	$ (7,870.30)	$ (2,523.37)	$ (908.53)	$ 4,126.67	$ 917.86

Table 3.4 Corn following Soybeans Production Cash Flow

	Farm(s)	Home N.	Home S.	Les East	Vanness North	Vanness South	Larry's	Tyrrel	Les West	Hospital South	Hospital North	HospitalEast	Bell 120	Bell 30
Data	Share in Crop	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	Crop Type	Corn on Beans	Corn on Beans	Corn on Beans	Corn on Beans	Corn on Beans	Corn on Beans	Corn on Beans	Corn on Beans	Corn on Beans	Corn on Beans	Corn on Beans	Corn on Beans	Corn on Beans
	Commercial or Seed	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l
Production Estimates	Tillable Acres	83.28	99.19	30.80	94.25	37.62	121.40	482.90	34.84	238.57	76.49	27.54	111.50	24.80
	Yield bu/acre	207	207	207	207	207	207	207	207	207	207	207	207	207
	Sale Price/bu	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31	$ 4.31
	CRP Income-Rent Paid	$ -	$ -	$ 1,666.97	$ -	$ 7,178.28	$ 518.28	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Total Bushels	$ 17,263.25	$ 20,561.26	$ 6,384.58	$ 9,768.62	$ 7,798.31	$ 25,165.21	$ 100,101.15	$ 7,222.04	$ 49,453.57	$ 15,855.74	$ 5,708.81	$ 23,113.02	$ 5,140.83
Cost per Acre	Herbicide	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42	$ 34.42
	Insecticide	$ 20.56	$ 20.56	$ 20.56	$ 20.56	$ 20.56	$ 20.56	$ 20.56	$ 20.56	$ 20.56	$ 20.56	$ 20.56	$ 20.56	$ 20.56
	Custom Cultivation	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72
	Planting	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28
	Spraying	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86
	Custom Combine	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15	$ 35.15
	Grain Cart	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68
	Custom V-Ripping	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Phosphate and Application	$ 36.53	$ 36.53	$ 36.53	$ 36.53	$ 36.53	$ 36.53	$ 36.53	$ 36.53	$ 36.53	$ 36.53	$ 36.53	$ 36.53	$ 36.53
	Potash and Application	$ 25.27	$ 25.27	$ 25.27	$ 25.27	$ 25.27	$ 25.27	$ 25.27	$ 25.27	$ 25.27	$ 25.27	$ 25.27	$ 25.27	$ 25.27
	Lime and Application	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52
	Nitrogen & Application (NH3)	$ 69.29	$ 69.29	$ 69.29	$ 69.29	$ 69.29	$ 69.29	$ 69.29	$ 69.29	$ 69.29	$ 69.29	$ 69.29	$ 69.29	$ 69.29
	Insurance - MPC	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67	$ 14.67
	Rent/Farm Payment	$ 220.00	$ 220.00	$ 220.00	$ -	$ 525.66	$ 220.00	$ 250.00	$ 220.00	$ 290.00	$ 290.00	$ 290.00	$ 220.00	$ 220.00
	Interest on Preharvest	$ 11.67	$ 11.67	$ 11.67	$ 11.67	$ 11.67	$ 11.67	$ 11.67	$ 11.67	$ 11.67	$ 11.67	$ 11.67	$ 11.67	$ 11.67
	Miscellaneous	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01
	Seed	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22	$ 122.22
	Labor	$ 18.23	$ 18.23	$ 18.23	$ 18.23	$ 18.23	$ 18.23	$ 18.23	$ 18.23	$ 18.23	$ 18.23	$ 18.23	$ 18.23	$ 18.23
Cost per Bushel	Drying LP	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22
	Freight & Trucking	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08
	Handling	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04
Totals	**Total Cost/Acre**	$ 747.95	$ 747.95	$ 747.95	$ 263.97	$ 1,053.61	$ 747.95	$ 777.95	$ 747.95	$ 817.95	$ 817.95	$ 817.95	$ 747.95	$ 747.95
	Total Cost	$ 62,289.21	$ 74,189.09	$ 23,036.84	$ 24,879.61	$ 39,636.78	$ 90,801.04	$ 375,671.69	$ 26,058.55	$ 195,138.15	$ 62,564.94	$ 22,526.32	$ 83,396.34	$ 18,549.14
	Total Revenue/Acre	$ 893.43	$ 893.43	$ 893.43	$ 446.71	$ 893.43	$ 893.43	$ 893.43	$ 893.43	$ 893.43	$ 893.43	$ 893.43	$ 893.43	$ 893.43
	Total Revenue	$ 74,404.61	$ 88,619.03	$ 29,184.52	$ 42,102.75	$ 40,789.01	$ 108,980.33	$ 431,435.94	$ 31,127.00	$ 213,144.90	$ 68,338.24	$ 24,604.98	$ 99,617.12	$ 22,156.99
	Profit/Acre Minus Taxes	$ 145.48	$ 145.48	$ 145.48	$ 182.74	$ (160.18)	$ 145.48	$ 115.48	$ 145.48	$ 75.48	$ 75.48	$ 75.48	$ 145.48	$ 145.48
	Total Profit Minus Taxes	$ 12,115.39	$ 14,429.95	$ 6,147.69	$ 17,223.14	$ 1,152.23	$ 18,179.29	$ 55,764.25	$ 5,068.45	$ 18,006.75	$ 5,773.30	$ 2,078.66	$ 16,220.78	$ 3,607.85

Table 3.5 Soybeans Following Corn Production Cash Flow

	Farm(s)	Home N.	Home S.	Les East	Vanness North	Vanness South	Larry's	Tyrrel	Les West	Hospital South	Hospital North	Hospital East	Bell 120	Bell 30
Data	Share in Crop	100%	100%	100%	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%
	Crop Type	Soybeans	Soybeans	Soybeans	Soybeans	Soybeans	Soybeans	Soybeans	Soybeans	Soybeans	Soybeans	Soybeans	Soybeans	Soybeans
	Commercial or Seed	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l	Comm'l
Production Estimates	Tillable Acres	83.28	99.19	30.80	94.25	37.62	121.40	482.90	34.84	238.57	76.49	27.54	111.50	24.80
	Yield bu/acre	55	55	55	55	55	55	55	55	55	55	55	55	55
	Sale Price/bu	$ 10.64	$ 10.64	$ 10.64	$ 10.64	$ 10.64	$ 10.64	$ 10.64	$ 10.64	$ 10.64	$ 10.64	$ 10.64	$ 10.64	$ 10.64
	CRP Income-Rent Paid	$ -	$ -	$ 1,666.97	$ -	$ 7,178.28	$ 518.28	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Total Bushels	$ 4,580.40	$ 5,455.45	$ 1,694.00	$ 2,591.88	$ 2,069.10	$ 6,677.00	$ 26,559.50	$ 1,916.20	$ 13,121.35	$ 4,206.95	$ 1,514.70	$ 6,132.50	$ 1,364.00
Cost per Acre	Herbicide	$ 37.09	$ 37.09	$ 37.09	$ 37.09	$ 37.09	$ 37.09	$ 37.09	$ 37.09	$ 37.09	$ 37.09	$ 37.09	$ 37.09	$ 37.09
	Insecticide	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Custom Cultivation	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72	$ 13.72
	Planting	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28	$ 19.28
	Spraying	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86	$ 6.86
	Custom Combine	$ 34.46	$ 34.46	$ 34.46	$ 34.46	$ 34.46	$ 34.46	$ 34.46	$ 34.46	$ 34.46	$ 34.46	$ 34.46	$ 34.46	$ 34.46
	Grain Cart	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68	$ 8.68
	Custom V-Ripping	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57	$ 21.57
	Phosphate and Application	$ 22.61	$ 22.61	$ 22.61	$ 22.61	$ 22.61	$ 22.61	$ 22.61	$ 22.61	$ 22.61	$ 22.61	$ 22.61	$ 22.61	$ 22.61
	Potash and Application	$ 34.50	$ 34.50	$ 34.50	$ 34.50	$ 34.50	$ 34.50	$ 34.50	$ 34.50	$ 34.50	$ 34.50	$ 34.50	$ 34.50	$ 34.50
	Lime and Application	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52	$ 9.52
	Nitrogen & Application (NH3)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Insurance - MPC	$ 11.45	$ 11.45	$ 11.45	$ 11.45	$ 11.45	$ 11.45	$ 11.45	$ 11.45	$ 11.45	$ 11.45	$ 11.45	$ 11.45	$ 11.45
	Rent/Farm Payment	$ 220.00	$ 220.00	$ 220.00	$ -	$ 525.66	$ 220.00	$ 250.00	$ 220.00	$ 290.00	$ 290.00	$ 290.00	$ 220.00	$ 220.00
	Interest on Preharvest	$ 6.93	$ 6.93	$ 6.93	$ 6.93	$ 6.93	$ 6.93	$ 6.93	$ 6.93	$ 6.93	$ 6.93	$ 6.93	$ 6.93	$ 6.93
	Miscellaneous	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01	$ 11.01
	Seed	$ 51.99	$ 51.99	$ 51.99	$ 51.99	$ 51.99	$ 51.99	$ 51.99	$ 51.99	$ 51.99	$ 51.99	$ 51.99	$ 51.99	$ 51.99
	Labor	$ 16.23	$ 16.23	$ 16.23	$ 16.23	$ 16.23	$ 16.23	$ 16.23	$ 16.23	$ 16.23	$ 16.23	$ 16.23	$ 16.23	$ 16.23
Cost per Bushel	Drying LP	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Freight & Trucking	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08	$ 0.08
	Handling	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04
Totals	**Total Cost/Acre**	$ 532.59	$ 532.59	$ 532.59	$ 156.29	$ 838.25	$ 532.59	$ 562.59	$ 532.59	$ 602.59	$ 602.59	$ 602.59	$ 532.59	$ 532.59
	Total Cost	$ 44,354.02	$ 52,827.52	$ 16,403.75	$ 14,730.76	$ 31,534.93	$ 64,656.32	$ 271,674.30	$ 18,555.41	$ 143,759.69	$ 46,092.04	$ 16,595.31	$ 59,383.69	$ 13,208.21
	Total Revenue/Acre	$ 585.20	$ 585.20	$ 585.20	$ 292.60	$ 585.20	$ 585.20	$ 585.20	$ 585.20	$ 585.20	$ 585.20	$ 585.20	$ 585.20	$ 585.20
	Total Revenue	$ 48,735.46	$ 58,045.99	$ 19,691.13	$ 27,577.55	$ 29,193.50	$ 71,561.56	$ 282,593.08	$ 20,388.37	$ 139,611.16	$ 44,761.95	$ 16,116.41	$ 65,249.80	$ 14,512.96
	Profit/Acre Minus Taxes	$ 52.61	$ 52.61	$ 52.61	$ 136.31	$ (253.05)	$ 52.61	$ 22.61	$ 52.61	$ (17.39)	$ (17.39)	$ (17.39)	$ 52.61	$ 52.61
	Total Profit Minus Taxes	$ 4,381.43	$ 5,218.47	$ 3,287.38	$ 12,846.79	$ (2,341.43)	$ 6,905.24	$ 10,918.78	$ 1,832.96	$ (4,148.53)	$ (1,330.10)	$ (478.90)	$ 5,866.11	$ 1,304.75

Table 3.6 illustrates the average SB Farms whole farm cash flow when purchasing the VS Farm versus renting the VS Farm under a 50-50 crop share agreement.

Table 3.6 Whole Farm Profitability of Purchasing Versus Renting the Farm

	Purchasing Farm	Renting Farm
Total Cost/Acre	$774.79	$754.17
Total Cost	$1,133,660.21	$1,103,490.64
Total Revenue/Acre	$824.94	$809.16
Total Revenue	$1,207,031.18	$1,183,943.83
Profit/Acre Before Taxes	$478.93	$858.00
Total Profit Before Taxes	$73,370.97	$80,453.19

Table 3.6 illustrates the difference the land purchase will have on the cash flow for SB Farms over an extended period of time. The agricultural economy moves in cycles, and over the course of time, SB Farms will experience rises and falls in both commodity prices as well as input prices including land rent. This is documented in Table 3.1 and Figure 3.1. This variability will create years where cash flow is positive, but also in years where poor yields and/or low prices could cause cash flow to be negative. Because the land purchase is set under fixed terms, the yearly payment does not adjust with current market conditions like land rents. This means for years of lower farm income, the farm payment will remain the same, and property taxes will too. Table 3.7 shows the total farm profitability of SB Farms over a 10-year period with the purchase of the VS Farm which highlights the potential variability from one year to the next.

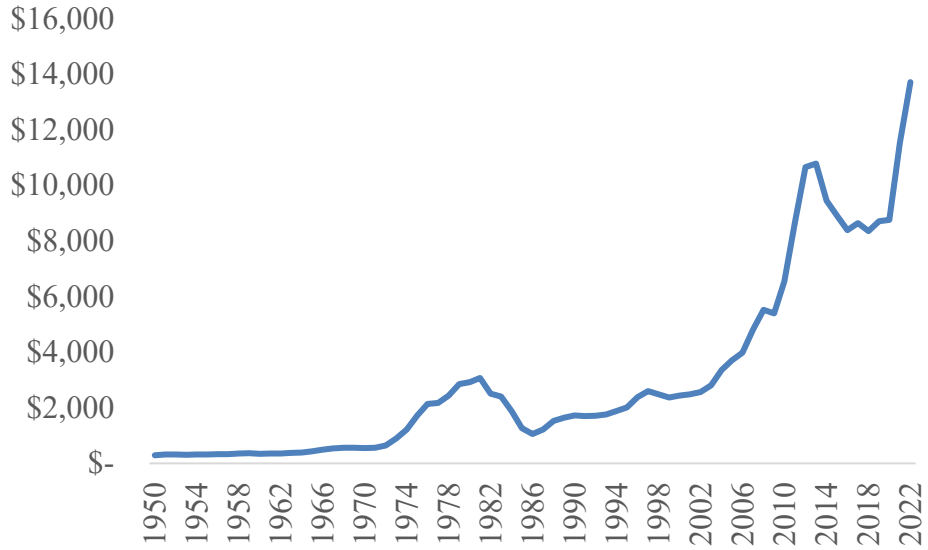
Table 3.7 Ten Year Cash Flow Model for SB Farms

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total Cost/ Acre	$9,879.09	$9,517.03	$9,372.59	$8,764.50	$8,441.21	$8,445.78	$2,902.69	$8,763.99	$9,093.30	$9,893.97
Total Cost	1,101,679.73	$1,064,103.79	$1,043,289.32	$972,506.96	$936,047.46	$936,318.38	$312,113.22	$972,146.60	$1,010,331.79	$1,104,002.81
Total Revenue/ Acre	$10,448.00	$8,434.92	$7,879.21	$7,612.92	$7,608.88	$7,892.17	$2,630.72	$10,238.42	$13,186.67	$14,621.29
Total Revenue	1,192,958.94	$964,908.00	$901,954.92	$871,788.23	$871,330.37	$903,422.90	$343,361.18	$1,169,216.42	$1,503,207.15	$1,665,727.78
Profit/Acre Before Taxes	$568.92	$(1,082.11)	$(1,493.38)	$(1,151.59)	$(832.33)	$(553.61)	$(149.20)	$1,474.43	$4,093.37	$4,727.32
Total Profit Before Taxes	$91,279.21	$(99,195.78)	$(141,334.40)	$(100,718.74)	$(64,717.09)	$(32,895.49)	$(10,965.16)	$197,069.82	$492,875.36	$561,724.98

Crop years 2014 through 2018 would pose significant risk for the operation based on history, not only from the basis of the farm purchase, but for the operation as a whole. It is important to remember that the data used to build the model was derived from Iowa State University data and does not represent actual data from the history of the farm but does give a representative outlook at the variability of profits for SB Farms during those years. Crop years 2020, 2021, and 2022 yielded exceptional profits and as result provided an influx of cash onto SB Farms balance sheet. The added liquidity from these years provides a cushion for future years when profits like years 2014 through 2018 may occur. Understanding how much available cash is on hand to cover years of financial shortfalls is an important consideration to make before making a farm purchase. Most farmland purchases in North Central Iowa do not entirely cash flow themselves, even with desirable interest rates. Outside funds such as profits from the rest of the operation or off-farm income may be needed to meet payment obligations for most years.

From a cash flow analysis, the economic analysis of a farmland purchase analyses the long-term effects of the transaction such as net worth change and the ability to borrow capital rather than the year-to-year financial requirements and constraints. Not only does this method consider the annual returns from farm ground on a yearly basis, but it also looks at the appreciation of land over time. Figure 3.2 shows the historical prices of farm ground in Wright County Iowa since 1950.

Figure 3.2 Historical Land Values Per Acre in Wright County Iowa



Source: Iowa State University

Land appreciation in Wright County has experienced uptrends and downtrends over the past seventy-two years but reflects a steady upward climb long term. This is highlighted by the rapid inflation of land prices throughout the mid-2000s as ethanol production created additional demand for corn as an energy source. While land values tend to fluctuate over short time periods, SB Farms is looking to retain the VS Farm and any other farmland purchases for generations focusing on the long-term appreciation of the asset. Farmland in Wright County Iowa appreciated at an average rate of 3.53% per year nominally from 1950 to 2022. To analyze the long-term economic effect that the VS Farm purchase will have on SB Farms, a net present value calculation was completed using the data from the 10-year average cash flow used to generate Table 3.2. Considering two years of corn and one year of soybeans rotation, the VS Farm would return $16,628.66 to the farm annually on average. The purchase price of the farm was $375,000. A 50-year cash flow built using the average cash flow return to the farm on an annual basis with the sale of the farm on the

fiftieth year. A 3.53% annual appreciation was assumed on the VS farm, and the selling price of the farm in year 50 of $2,141,545.65 reflected this growth rate. Table 3.8 shows the assumptions used in the NPV calculation using three different discount rates.

Table 3.8 Net Present Value of Farm Purchase

Farm Purchase Price	Land Appreciation Rate	Discount Rate	Annual Farm Return without Payment	Net Present Value
$375,000.00	3.530%	3.250%	$16,628.66	$462,640.19
$375,000.00	3.530%	8.000%	$16,628.66	($126,267.64)
$375,000.00	3.530%	6.027%	$16,628.66	$0.00

A discount rate of 3.25% was used as this is the interest rate that the capital to finance the farm is set at through the Farm Service Agency. The annual farm return in the fourth column represents the average profit the VS Farm would generate on an annual basis in the scenario where it was purchased. However, the annual land payment is excluded from the cash flow when figuring this return. As seen in table 3.8 having this low interest rate creates a favorable NPV of $462,640.19. However, it is important to understand how vulnerable the NPV is to different rates of return. SB Farms may be unable to get a government subsidized loan and may need to borrow at a higher rate. Also, it is important to look at the investment from an opportunity cost standpoint. What if the farm were paid for with available cash rather than borrowed capital. What might the rate of return be on other investments that could have been made with that available capital such as the stock market. To take a closer look, sensitivity analysis was done on the discount rate to determine how it affected the NPV of the VS Farm investment. Table 3.8 shows the NPV after the discount rate widens to 8% reflecting a rate of return that may be considered reasonable in the stock market.

This change had a drastic impact on the NPV, resulting in a $126,267.64 loss on the investment compared to the opportunity cost. Looking at how sensitive the NPV of the farm purchase is to the discount rate gives insight into how important the variable is. This raises the question as to what the discount rate is where the NPV is equivalent to zero. When the NPV is equal to zero, this would indicate the point where the return on purchasing the farm and the return of the alternative investment or opportunity cost would be the same. This value is also in Table 3.8. At a discount rate of 6.027%, the purchase of the VS Farm would have the same return as putting the money in another investment with that annual return or borrowing the money at that interest rate. If the discount rate were any value lower than 6.027% the purchase of the VS Farm would prove to be a sound financial decision in terms of gaining long-term wealth. Any value higher than this number would indicate the investment should not be made as capital could be used more wisely elsewhere.

CHAPTER IV: RESULTS

To understand whether the choice to purchase the VS Farm was a wise business decision for SB Farms, two primary financial categories are considered. The first is the financial analysis of cash flow constraints that highlights the ability for the operation to meet payment obligations on an annual basis. The second is the long-term economic effect the purchase has on the operation's balance sheet.

4.1 Financial Analysis

Table 4.1 reflects a side-by-side comparison of the profitability of SB Farms over a ten-year period with the purchase of the VS Farm and a 50-50 crop share agreement on the VS Farm.

Table 4.1 Total Profit Comparison of Renting Versus Purchasing the VS Farm

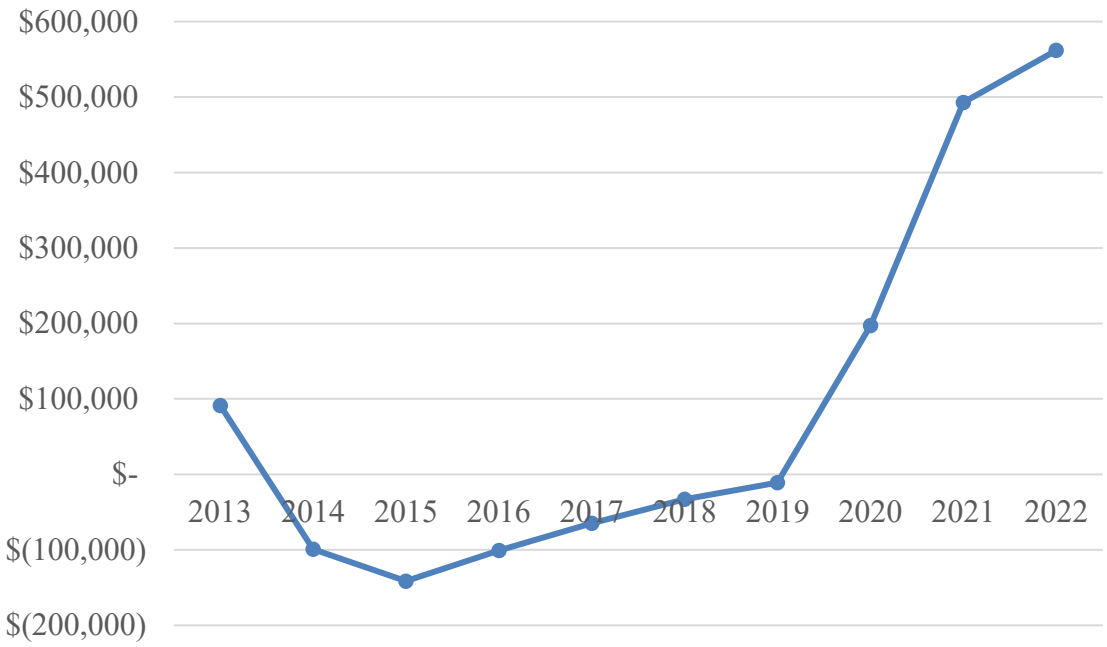
Purchasing Farm	$73,370.97
Renting Farm	$80,453.19
Net Difference	$7,082.22
Percentage Difference	8.8%

The annual profit of the operation excluding any government subsidies is $73,370.97 with the farm purchase and $80,453.19 with the crop share agreement. This creates an average difference of $7,082.22 in the cash flow or an 8.8% reduction in available cash annually. While SB Farms would remain profitable with the purchase of the VS Farm, it is important to consider investments that may be necessary for the operation in the future aside from basic yearly inputs. Currently SB Farms owns some of the farm equipment used in the operation and pays a custom farming rate on equipment that it does not own. Liquidity could be used to work towards purchasing a complete line of equipment or building farm grain storage. Unforeseen growth opportunities such as the opportunity to

rent additional land may also present themselves. This could require additional equipment or labor. It is important for SB Farms to have access to the capital necessary in a scenario such as this. Considering the data in Table 4.1, it does not appear that the farm purchase puts a significant strain on the operation long-term. A $7,082.22 difference is a marginal amount on a year-to-year basis considering that modern day equipment and capital projects require much more capital even when financed on a five- or ten-year schedule.

The largest foreseeable risk of the farm purchase is the ability to meet payment obligations in years of low profitability where cash flow shortfalls occur. In this event, cash reserves or off farm income may have to be used to make payments. This makes the case that it is important for SB Farms to have a strong balance sheet with adequate equity and liquid capital to cover these cash shortfalls. Figure 4.1 illustrates the variability that SB Farms experienced over a ten-year period.

Figure 4.1 Ten Year Cash Flow Projections for SB Farms



It is important to remember that Figure 4.1 does not account for any government payments except for CRP payments. For years of low profitability across the Corn Belt, relief payments from the federal government are common. However, even with government subsidies, it is evident that there will continue to be several years where cash flow is tight. In these years, it may mean that even crop revenues from the entire farm will not be enough to make the farm payment after input, equipment, and labor costs are accounted for. This stresses the importance of carrying surplus cash on hand to cover short falls. Crop farming yields are inconsistent and often cause unpredictable profitability levels on an annual basis. Because of this downside, risk is an important factor for farm operators to manage. Figure 4.1 gives a visualization of how exposed SB Farms is to downside risk with potentially seeing five or six years of returns that barely or fail to meet breakeven levels. In these instances, it is possible that earned equity or cash on hand will have to be used to meet debt obligations. SB Farms' balance sheet figures were not discussed in this

thesis, but it is important to point out that it is necessary for the operation's managers to do an analysis of the current financial state of the farm to determine its ability to handle times of financial crisis. This will provide an understanding of current debt obligations as well as assets and cash that are available to be used as reserves in years of financial loss. This information should be used in comparison with the values in Table 4.1 when making a large purchase such as a tract of land.

Considering that, on average, the difference in the whole farm profitability between purchasing and renting the VS Farm is a relatively small difference, it does not appear that purchasing the farm will create a cash flow issue for SB Farms. It is important to make this analysis on a case-by-case basis because making a farm purchase consisting of more acres, a higher price per acre, or a higher borrowing rate could be more taxing on SB Farms' cash flow. SB Farms purchased the VS Farm at a relatively opportune time, as interest rates were at a historically low rate. According to the Federal Reserve Bank of St. Louis, 30-year fixed mortgage rates were at 3.18% in April of 2021when SB Farms closed on the VS Farm (St. Louis Federal Reserve Bank 2023). SB Farms was also able to take advantage of a beginning farmer program through the Farm Service Agency that allowed for more favorable financing terms than would have been offered through a commercial bank. Currently just two years after the farm purchase, much has changed in the economy that would have greatly impacted the operation's ability to cash flow such a purchase today. Table 4.2 below illustrates the change in tillable land market values from the spring of 2021 to the spring of 2023 in North Central Iowa according to the Realtors Land Institute.

Table 4.2 Average Medium Quality Crop Land Values in North Central Iowa

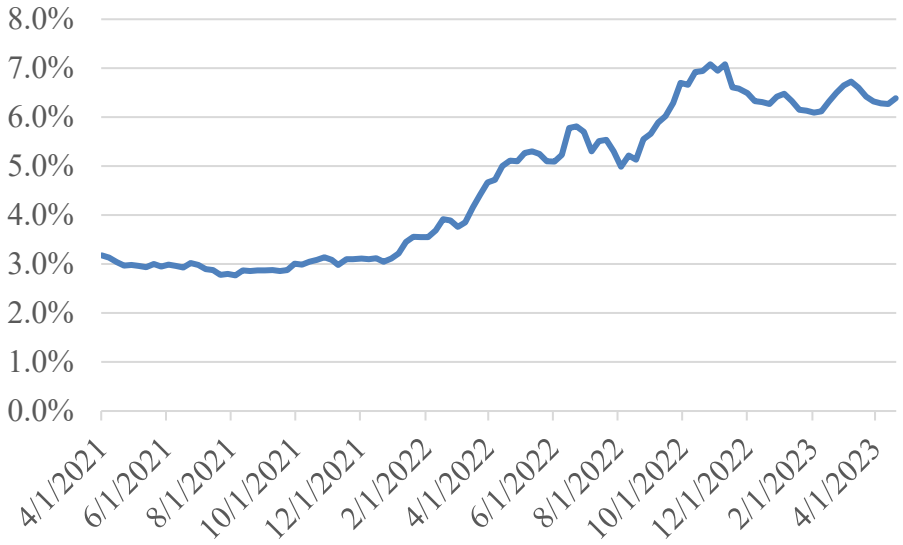
Spring 2021	$8,106.00
Spring 2023	$11,734.00
$ Change	$3,628.00
% Change	44.8%

Source: Realtors Land Institute

Medium quality crop land in North Central Iowa increased in value by $3,628 per acre, a 44.8% increase since the purchase of the VS Farm (Vegter 2023). This would have made the purchase significantly more expensive and harder to cash flow in today's land market.

Interest rates have also doubled since the purchase of the VS Farm. According to the Federal Reserve Bank of St. Louis, 30-year fixed mortgage rates are at 6.39% at the writing of this thesis compared to the 3.18% rate at the time of the farm purchase (St. Louis Federal Reserve Bank 2023). Figure 4.2 below illustrates the increase of interest rates throughout the last two years.

Figure 4.2 30-Year Mortgage Rates from April 2021 to April 2023 in the U.S.



Locking in a lower interest rate further supports the idea that the purchase of the VS Farm was an ex-post wise decision on the part of SB Farms. Not only does a lower interest

rate lower the annual payment obligation on the farm loan to help cash flow, but it also increases the NPV of the investment as well.

4.2 Economic Analysis

The purchase of VS Farm enables SB Farms to build equity and accumulate borrowing power. As the value of the VS Farm increases, the operation gains wealth on the balance sheet even without an increase in cash inflow. As mentioned in Section 4.1, the timing of the farm purchase was very opportune in hindsight. Table 4.3 illustrates how the appreciation of the asset has created equity for SB Farms.

Table 4.3 VS Farm Value Compared to Purchase Price

Purchase Price	Current Value Based on Trendline Appreciation	Current Value Based on Today's Market
$375,000.00	$401,942.28	$543,000.00

The VS Farm was purchased in the spring of 2021 for $375,000. Table 3.5 in Chapter 3 shows that historically over time, farm ground in Wright County Iowa appreciates at an average rate of 3.53% annually on a nominal basis. Table 4.3 reflects this trendline growth rate over the past two years and shows that the VS Farm would be worth $401,942.28 today. However, when considering that the actual appreciation of farmland in the same region over the same period, there is a 44.8% increase in value making the present value of the VS Farm $543,000. This unusual increase in farmland prices was primarily a result of a sharp increase in commodity prices, particularly corn and soybeans. This price increase paired with favorable yields across much of the corn belt created historically high profit margins. While the rapid appreciation of farmland following the purchase of the VS Farm was unanticipated, its timing certainly benefited SB Farms. The current value of the farm based on regional appreciation trends over the past two years is $141,057.72 greater

than the value would be if the land appreciated at the historical average rate of 3.53% for the past two years. Not only did purchasing the VS Farm make it easier for SB Farms to cash flow the parcel, but it also created a great deal of equity without using the operation's liquid capital. This helps build cushion for years of lower profitability, and it enhances the ability to borrow capital. The purchase of the VS Farm came at an opportune time for SB Farms as land prices and interest rates were relatively ideal for a buyer, considering how both values have shifted upwards over the past two years. This further supports the argument that purchasing the farm was the correct decision. Of course, when having to make such a decision hindsight does not lend itself as a resource, and careful consideration has to be taken to identify current economic conditions relative to historical cycles.

4.3 Implications

While purchasing farmland may pose more risks and unknowns than does renting it, it also provides advantages that leasing a farm does not. Owning a parcel of land provides the operation with the confidence that those acres will continue to be part of the farm as they cannot be sold or rented away. This allows SB Farms to make decisions around variables such as equipment, labor, and grain storage, without having the uncertainty of whether these acres will continue to be controlled by the operation.

Owning the VS Farm enables SB Farms to make improvements to the farm such as fix fence lines or add drainage tile. It also gives SB Farms the ability to put part of the farm into government programs such as the Conservation Reserve Program or remove current contracts if it wishes to. When renting a farm, it is hard to make investments in longer term improvements that may pay favorable dividends because of the uncertainty of being able to reap those benefits down the road. Drainage tile, for example, has a high return on investment in North Central Iowa. However, making such an investment in land that is

rented and not owned could result in losing the value of the investment in the future. By purchasing the VS Farm, SB Farms can make these improvements and become the beneficiary of them for the entirety of the project's return on investment. There are also tax benefits that come with owning land. SB Farms will be able to depreciate items such as fences and new or existing tile in the farm. It appears that SB Farms made a beneficial investment in the VS Farm considering the relatively low average cash flow difference and rapid appreciation of the asset since the time of purchase. SB Farms can leverage the earned equity to help further expand the farm, and make beneficial improvements to the tract of land as it sees necessary.

CHAPTER V: CONCLUSIONS

The objective of this thesis was to analyze SB Farms purchase of the VS Farm. The purchase was analyzed from both a cash flow standpoint and the long-term economic impact it would have on SB Farms.

To first understand how the purchase of the VS Farm would affect SB Farms' cash flow annually, university data were collected on average input and production costs over a ten-year period, and combined with historical yield and crop price data that was derived both from SB Farms historical performance records as well as Iowa State University data. From this data, a yearly cash flow model was created to depict a representation of what SB Farms cash flow would look like going forward with the purchase of the VS Farm, as well as without purchasing the farm and continuing to rent it on a crop share basis. The cash flow was analyzed both on a long-term average scope and on a year-by-year basis to identify any difficulties or challenges that SB Farms may encounter.

It was determined that SB Farms would be able to successfully cash flow the farm purchase going forward, as the VS Farm is a relatively small tract of land that had a lower purchase price than what was common in the current land market. Additionally, SB Farms secured a government-assisted beginning farmer loan through the Farm Service Agency that created a more favorable interest rate and borrowing terms. However, it was discovered in the analysis that SB Farms would face years where they may experience cash flow shortfalls and must rely on available cash or equity, or outside income to meet farm payment obligations.

The long-term economic impact of the VS Farm purchase also proved to be a beneficial transaction to SB Farms. The purchase of the farm enabled SB Farms to make necessary changes and improvements to the farm that it wishes for such as drainage tile.

Owning the VS Farm provides long-term stability for the operation when making other business planning decisions such as equipment and labor needs as well as farm grain storage. The farmland market in the region where the VS Farm is located has increased nearly 45% since the purchase of the farm in 2021. The added equity has strengthened SB Farms' balance sheet and increased the net worth. This has created more borrowing power for the operation and has helped decrease their borrowing rates. Additionally, the historical growth of the value of farmland has provided evidence that the VS Farm will continue to build equity for SB Farms for years to come.

While the primary focus was to analyze the purchase of the VS Farm specifically, it is important to consider that this analysis serves as a tool to SB Farms to use for future land purchase opportunities that may present themselves. Some of the observations made in the findings of this thesis lend themselves in hindsight and are not applicable for future land purchases. An example of one of these observations would be the rapid increase of land values since the time of purchase. However, going forward SB Farms can use these methods and models to make educated business decisions when considering land purchases and expansion.

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