An Analysis of Sweat Equity Arrangements in Farm Succession Planning





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Abstract

How can a retiring farmer and returning heir set up an agreement to ensure that the heir's unpaid efforts will be compensated when the family farm transitions? In this study, three simulation farms were created using the Top Third Profit Category of Kansas Farm Management Association data. Then, three sweat equity arrangements were established and analyzed: a percentage agreement, a salary agreement, and an hourly agreement. Results found all three scenarios to be successful for each farm, with the percentage agreement being the most successful, the annual salary agreement being the next successful, and the hourly agreement being the least successful while still being a profitable option.

INTRODUCTION

Many farmers dream of passing their operation to their children someday. However, the farming landscape has changed significantly over the past several decades, and taking over the family operation is not as simple as it used to be. Many farmers rely on their farm equity for their retirement and may not be able to gift it to their heirs who may be interested in taking over the farm. These heirs can struggle in securing and later paying off loans if they must purchase the farm at a market value from the retiring generation at the time of transition. The on-farm heirs also may not be able to afford to purchase the assets from the off-farm heirs, should the off-farm heirs decide to sell their portion of an inheritance. With volatile commodity markets, farm income may not always support competitive wages on the farm in any given year. One way to address this is for the heir to work his or her way into ownership of the farm, a concept known as sweat equity.

As defined, "sweat equity arises in part when an on-farm heir is paid less than their true opportunity cost to work for the business," (Langemeier, 2017). This could result in the farm heirs receiving more assets in the form of land, equipment, animals, and/or buildings to compensate (Kirkpatrick, Schlesser, et al., 2021). A strategy such as this can ensure the success of the farm as it transitions to the next generation but also needs to be done in a way to ensure success for the family and the farm.

Farms will transfer with or without a plan. If the farm family does not have a plan documented, the farm may not transition in the desired manner. While there is plenty of research (and resources) available on farm estate and succession planning, there is not a lot of emphasis on sweat equity arrangements. How can a retiring farmer and heir set up an agreement to ensure that the heir's unpaid efforts will be compensated fairly when the family farm transitions?

The objective of this research is to determine the value of sweat equity based on arrangements made when the heir returns to the farm. It will be focused on providing resources for those at the beginning of their farming career to determine feasible strategies and determine a sweat equity value available at the time of anticipated farm transfer.

The research will consist of the following:

1. Develop three simulation farms based on typical Kansas agricultural operations.
2. Identify three different sweat equity strategies to apply to each simulation farm.
3. Use these results to compare which strategies work best with each farm type.

DATA AND METHODS

Data

This research used Kansas Farm Management Association (KFMA) data to run economic simulations analyzing sweat equity investments and returns. At the time of the research, data were readily available for years 2008 to 2020. Based on the average age of the American farmer in 2008 of 58 years old, this work was set up as a 12-year simulation to represent the beginning of a transition to the end, with the farmer scaling back to retirement at 70 years of age in 2020.

Summary of Simulation Farms

Data provided by the KFMA Top Third Profit Category of the Whole-Farm Analysis were used to develop simulation farms upon which to create the 12-year analysis. Three farms were developed for this simulation: a dairy farm, a crop farm, and a cow-calf operation with a cash-crop enterprise. All three farms were set up as sole proprietorships, with each scenario having a parent generation (owner) and a returning child (heir).

Assets and liabilities were considered using typical Kansas farm property and appreciation values. Using the 2008 net worth value for each respective farm, an annual asset appreciation of 7.6% was calculated based on National Agricultural Statistics Service (NASS) Quick Stats data analyzing Kansas farm property values from 2008-2012. Total liabilities in 2008 were used to determine a one-time loan created for each simulation, and an annual percentage rate of 7.5% for 12 years was factored into a monthly rate of 0.625% for 180 months. Current liabilities for each year were determined by the sum of principal payments for the given year, and non-current liabilities were determined by the remaining balance on December 31st of the prior year.

Regarding income and expenses, the Top Third report of each respective simulation farm type was used to focus on farms that are currently successful and most likely to survive into transition. These values were then used to calculate gross income, expenses, interest, and depreciation. The data were also used to prepare a loan schedule for the farm during the transition. Once the farm financials were analyzed, family living expenses and tax values for each of the heir and owner generations were determined by the simulation farm's family size and age using KFMA Family Living Expense reports. Off-farm employment for the heir was also considered as all heirs start the simulation with an off-farm job. All heirs in the salary arrangement scenario left their off-farm employment at the beginning of the simulation. For the percentage and hourly arrangements, a sliding scale was assessed to determine if the heir was working off the farm full-time (<1,399 hours), three-quarters time (1,400-1,799 hours), or half-time (1,800-1,999 hours). Once the heir reaches 2,000 labor hours in a year on the farm, the assumption was that the heir will leave their job to work on the farm full time.

Once the net farm income was determined and family living expenses and taxes were deducted, the remaining income needed to be delegated: 20% went into savings once all farm and family living expenses were paid, with an interest rate of 5% used for anything saved during this 12-year simulation, including savings, money market, and stock market accounts. If expenses exceeded income, this negative amount was represented in the annual savings and deducted from the total savings for this simulation. The remainder was invested back into the farm.

Sweat Equity Arrangements

Three sweat equity arrangements were studied in this research: a percentage agreement, a salary agreement, and an hourly agreement. The three sweat equity farm

scenarios were built and compared against the KFMA Whole-Farm Analysis historical data from 2008 to 2020 to see how proposed sweat equity arrangements would have resulted. When assessing pay rates, competency levels described by Roehl and Herbel with KFMA were used (2009).

Percentage Agreement

The percentage agreement begins in 2008, with the owner being responsible for 75% of the income and expenses while the heir is responsible for the remaining 25%. This initial 25% will be put toward living expenses and savings as well as the opportunity to invest back into the farm with the purchase of assets, such as replacement calves, equipment, or land. This percentage will grow over time for the returning generation as skills and contributions increase and result in the retiring farmer being responsible for 25% of the income and expenses in 2020 while the heir has moved up to 75%.

Salary Agreement

The salary agreement will be an arrangement between the owner and the heir to provide a compensation package competitive to the heir's current corporate salary for the heir to join the farm full time. As it can be difficult for a farm to pay a returning heir a full salary in cash only each year, assets can sometimes be provided to compensate. In this simulation, the remaining portion of the compensation will come from housing expenses based on the KFMA Whole-Farm Summary of Family Living Expenses.

Hourly Agreement

The hourly agreement will be an arrangement between the owner and the heir to provide training and management experience on an hourly basis. This hourly wage will be based on KFMA data for part-time and full-time employees. Like the percentage agreement, this portion will start with the heir at 25% responsibility for the operation and grow during the transition period to show the increase in management decisions and farm operation responsibility. Instead of basing compensation on the overall net income, pay will be based on the hours dedicated to the operation.

Simulation Farms

Once each farm was built, a representative family was created to use for the narrative of each simulation. These narratives introduce the families, discuss the background of the farm, and the decisions being made when bringing the next generation back to the farm, exemplifying what many farms may face when discussing family farm transitions and the role sweat equity plays.

Dairy Farm

A typical Kansas dairy farm in 2008 consists of a 58-year-old farmer with a 56-year-old spouse. There is a 31-year-old heir and spouse who have an interest in taking over the farm when the parents retire. There is also a 29-year-old off-farm heir who is not involved in the farm. The farm consists of 120 cows and 790 acres for a net worth of $819,903. There is a current loan of $310,253. Both parents work on the farm, and one spouse also has off-farm employment. The heir and spouse have regularly helped on the farm during these busy times while each maintaining full-time off-farm employment, with a total nonfarm income of $72,339 after taxes.

With record-high milk prices in 2007, this appears to be a great time for the heir to take a larger role on the farm while scaling back on off-farm employment. They begin contributing to daily chores and take over all calf management decisions. Over time, the responsibilities and contributions grow. At the end of 2020, the farm's net worth is $2,629,442.

Crop Farm

A typical Kansas crop farm in 2008 consists of a 58-year-old farmer with a 56-year-old spouse. They have an heir and spouse who are interested in taking over the farm when the parents retire. There is also an off-farm heir who is not involved on the farm. The farm consists of 1,600 acres total, half of which are owned. The farm rotates between corn, soybeans, and wheat and is worth $843,782, with a total outstanding loan balance of $367,285. One owner is fully employed by the farm, while the other has a full-time job off the farm. They have a nonfarm income of $53,610. The returning heir and spouse each have off-farm jobs with a total nonfarm income is $72,339 after taxes. The recent ethanol boom appears to be a great time for the heir to take a larger role on the farm in 2008 and begin scaling back off-farm employment. At the end of 2020, the farm's net worth has grown to $2,807,306.

Beef Operation

A typical Kansas beef operation in 2008 consists of a 58-year-old farmer with a 56-year-old spouse. They have an heir and spouse who are interested in taking over the farm when the parents retire. Two other adult children are not involved on the farm. The farm consists of 144 beef cows and 1,041 acres total, half of which are owned. The farm rotates between corn, soybeans, and wheat, with a loan of $86,783. The farm

is worth $437,887. One owner is fully employed by the farm, while the other works off-farm with a nonfarm income of $53,610. Both the returning heir and spouse are employed off the farm with a total nonfarm income of $72,339 after taxes. By 2020, the farm's net worth has grown to $1,238,917.

Assessment of Sweat Equity Agreements

The final analysis of the success of each arrangement on each farm was determined by a sum of the total savings, total reinvestment, and total sweat equity for the heir. The arrangement with the highest value will be deemed the best arrangement for each farm while the arrangement with the lowest value will be deemed the least successful. The arrangement that is determined to be the best for most farms will be considered the best overall arrangement in this simulation.

Results

Dairy Farm Percentage Agreement

At the end of 2008, the returning heir puts $5,091 in savings and reinvests $20,363 into the farm. The off-farm job has allowed the heir to make great investments in the farm, but it's time to focus all their time on the operation. As the heir leaves the off-farm job and switches to full-time employment on the farm at the end of 2013, they save $13,872 and reinvest an impressive $55,489 throughout 2014.

By the end of 2020, the returning heir has saved a total of $94,374 and reinvested a total of $324,862 during the transition period. The total farm net worth started at $819,903 and is now $2,629,442. During this 12-year simulation, the farm's net worth increases by $1,809,540, of which $908,389 is attributed to the heir's contributions. Given the investment of $324,862, the sweat equity is worth $583,527. Adding in the total reinvestment and total savings, the total value of the percentage arrangement for the dairy farm is $1,002,763.

Crop Farm Percentage Agreement

At the end of 2008, the returning heir has put $13,602 in savings and reinvested $54,406. Despite changes in the market over the next 10 years, it's time for the returning heir to leave the off-farm job and commit to the farm as it's taking more time and attention in 2017. By the end of 2020, the returning heir has saved a total of $159,725 and reinvested a total of $481,045 during the transition period. The total farm net worth started at $843,782 and is now $2,807,306. During this 12-year simulation, the farm's net worth increases by $1,963.524, of which $985,689 is attributed to the returning heir's contributions. Given the investment of $481,405, the sweat equity ends up being $504,644. Adding in the total reinvestment and total savings, the total value of the percentage arrangement for the crop farm is $1,145,414.

Beef Operation Percentage Agreement

At the end of 2008, the returning heir sets aside $7,757 in savings and reinvests $31,030. As the returning heir leaves their off-farm job and switches to full-time employment on the farm at the end of 2018, they are only able to reinvest $5,267 as expenses continue to increase.

By the end of 2020, the returning heir has saved a total of $120,968 and reinvested a total of $367,678 during this transition period. The total farm net worth started at $437,887 and is now $1,238,917. During this 12-year simulation, the farm's net worth increases by $801,030, of which $400,515 is attributed to the returning heir's contributions. Given their investment of $367,678, their sweat equity is $32,837. Adding in the total reinvestment and total savings, the total value of the percentage arrangement for the beef operation is $521,483.

Dairy Farm Salary Agreement

At the end of 2008, the returning heir has set aside $3,965 for savings and reinvested $15,860. By the end of 2020, the returning heir has saved a total of $100,795 and reinvested a total of $300,778 during this transition period. The total farm net worth started at $819,903 and is now $2,629,442. During this 12-year simulation, the farm's net worth increased by $1,809,540, half of which, $904,770, is attributed to the returning heir's contributions. Given the investment of $300,778, their sweat equity is worth $603,992. Adding in the total reinvestment and total savings, the total value of the salary arrangement for the dairy farm is $1,005,565.

Crop Farm Salary Agreement

At the end of 2008, the returning heir sets aside $7,135 for savings and reinvests $29,260. By the end of 2020, the returning heir has saved $123,385 and reinvested $368,820 during this transition period. The total farm net worth started at $843,782 and is now $2,807,306. During this 12-year simulation, the farm's net worth increased by $1,963,524, half of which, $985,689, is attributed to the returning heir's contributions. Given the investment of $368,820, the sweat equity is worth $612,942. Adding in the total reinvestment and total

savings, the total value of the salary arrangement for the crop farm is $1,105,147.

Beef Operation Salary Agreement

At the end of 2008, the returning heir has set aside $3,965 in savings and reinvested $15,860. The salary arrangement provides value already in the second year as the ag economy goes into a downturn. By the end of 2020, the returning heir has saved $111,041 and reinvested $342,521 during this transition period. The total farm net worth started at $437,887 and is now $1,238,917. During this 12-year simulation, the farm's net worth increased by $801,030, half of which, $400,515, is attributed to the returning heir's contributions. Given their investment of $342,521, their sweat equity is worth $57,995. Adding in the total reinvestment and total savings, the total value of the salary arrangement for the beef operation is $511,557.

Dairy Farm Hourly Agreement

At the end of 2008, the returning heir puts $8,299 in savings and reinvests $33,195 into the farm. The next year proves to be tough for the dairy economy, but this wage agreement helps support the heir as they are just beginning their dairy career. By the end of 2020, the returning heir has saved a total of $69,246 and reinvested a total of $195,449 during this transition period. The total farm net worth started at $819,903 and is now $2,629,442. During this 12-year simulation, the farm's net worth increases by $1,809,540, of which $908,389 is attributed to the returning heir's contributions. Given the investment of $195,449, the sweat equity is worth $709,321. Adding in the total reinvestment and total savings, the total value of the hourly wage arrangement for the dairy farm is $974,016.

Crop Farm Hourly Wage Agreement

At the end of 2008, the returning heir puts $7,386 in savings and reinvests $29,546 into the farm. The next year proves to be tough for the ag economy, but this wage agreement helps support the heir as they are just beginning their career on the farm. By the end of 2020, the returning heir has saved a total of $84,182 and reinvested a total of $250,874 during this transition period. During this 12-year simulation, the farm's net worth increases by $1,809,540, of which $908,389 is attributed to the returning heir's contributions. Given their investment of $250,874, the sweat equity is worth $730,888. Adding in the total reinvestment and total savings, the total value of the hourly wage arrangement for the crop farm is $1,065,944.

Beef Operation Hourly Wage Agreement

At the end of 2008, the returning heir puts $3,361 in savings and reinvests $13,442 into the farm. The next year proves to be tough for the ag economy, but this wage agreement helps support them as they are just beginning their career on the farm. By the end of 2020, the returning heir has saved a total of $77,709 and reinvested a total of $230,524 during this transition period. The total farm net worth started at $437,887 and is now $1,238,917. During this 12-year simulation, the farm's net worth increased by $801,030, of which $400,515 is attributed to the returning heir's contributions. Given the investment of $230,524, the sweat equity is worth $169,991. Adding in the total reinvestment and total savings, the total value of the hourly wage arrangement for the beef operation is $478,224.

Comparisons

Figure 1 shows a condensed summary of the findings. Each farm was analyzed using each arrangement type, with the total savings, total reinvestment, and sweat equity were added to determine the total result. Sweat equity was calculated using the farm's change in net worth during the 12-year simulation and subtracting the heir's reinvestment from the portion of the net worth change attributed to the heir, which was approximately 50% for each simulation.

Dairy Farm

For the dairy farm, the salary arrangement was the best but by a slim margin. When comparing the full value received, the salary agreement proved to be the best option, with a total value of $1,005,565. The total value of the percentage agreement was $1,002,762, a difference of $2,803 when compared to the total value of the salary agreement. The hourly agreement was $974,016, which lagged the percentage agreement by $28,746.

Crop Farm

The crop farm benefited the most when using the percentage agreement, which resulted in $1,145,414. When comparing the percentage agreement to the salary agreement in the overall sweat equity calculation, the salary agreement's total value was $1,105,147, showing the percentage agreement was better by $40,267. The hourly agreement's total value was $1,065,944, behind the salary agreement by $39,203.

Beef Operation

The beef operation also saw the most success when using the percentage agreement, which saw a total value of $521,483. The salary arrangement was similarly effective, with a total value of $511,556, a difference of $9,927. The hourly agreement saw success but had the lowest total value of $478,224, which was $33,332 less than the salary agreement.

CONCLUSIONS

The percentage agreement was overall the most successful for all three farms in this simulation. Not only did it provide the most successful combined financial results, but it allowed the returning heir generation to slowly learn and take on more responsibilities each year while seeing the impact of their decision-making on the bottom line of the farm. When the farm was successful, both the heir and owner generations saw success. Conversely, challenges in farm profitability were felt by both generations, helping the returning generation understand the impacts of their own decisions as well as market factors beyond their control. This arrangement could be viable in a family that is looking to begin transferring the labor and management decisions right away to allow the retiring generation to guide the returning generation through various, and sometimes unexpected, market conditions.

The salary agreement was the second most successful arrangement in this simulation, allowing the owner generation to employ the returning heir full time to learn best practices for the farm while also earning a guaranteed living salary and receiving housing to compensate for cash that the farm may not be able to provide in any given year. Between this salary and the spouse's income, there was no need for additional off-farm employment to compete for the time and attention the farm requires. The owner generation, however, must cover these wages and housing expenses regardless of the success of the farm, with no cap on their financial risk. The heir generation will eventually see risk should the farm become unprofitable as the salary would need to be reduced. This is an arrangement that could be feasible for a family that has noncash assets available to offer a returning heir while also looking to provide a guaranteed salary during the first years of transition if the farm is profitable enough and/or the owner generation has enough savings to sustain this arrangement.

The hourly agreement was the least successful in this simulation. The returning heir didn't necessarily see their impacts directly on the farm's financials, their time on the farm competed for wages that could be earned off-farm, and as with the salary agreement, the owner generation needed to pay the heir whether there was farm income or not. Moreover, not only did it have the lowest return of the methods studied, but off-farm employment could prove to be more profitable than farming for the heir. On the other hand, this arrangement can provide flexibility should there be concerns over a farm's financial viability to support another generation as the returning heir can potentially put more hours in off-farm employment while continuing involvement on the farm during times of market volatility.

This research relied on second-hand data, which can have limitations. While KFMA data are compiled consistently by analysts to prevent bias, the purposes behind the data collection would not necessarily be the same as the objectives in this research. There is always the opportunity for some assumptions and biases to be made from reading second-hand data.

These simulations were built in the interest of using the fewest number of variables possible to reduce fluctuations and bias. Because of this, they might not represent certain farm situations as no two farms are alike, and the factors studied may not apply to some reading this research to make decisions for their own operations. Using figures from a diverse dataset can result in averages that aren't representative of any of the individuals studied.

When setting up a simulation, decisions need to be made, which can lead to assumptions being necessary. In this simulation, all farms were successful to the end of the 12-year model. All family members on each farm remained on the farm, eliminating the risk of death, divorce, or departure of any members of either generation. Also, there were no external factors impacting the financial success of the farm, such as medical bills, legal action, or external debts. Since the research was focused on the impacts of the transition arrangements, respective farm sizes did not change throughout the simulation. To ensure financial stability for each household, at least one family member of each generation maintained off-farm employment.

As with any research, many questions arose that didn't fit the simulation but are excellent opportunities for further research. The proposals for sweat equity agreements are up to the discretion of the researcher, with countless strategies to study. Since this research

was looking at a broad view of various arrangements, only one proposal of each type was used. However, there are plenty of opportunities to compare different proposals within one arrangement type. With this research focusing on the impact of different arrangements, the families were set up to be rather similar. Additional research and sensitivity analyses could be done on other factors, such as age and number of heirs, proportions assigned to owner and heir generations, and investment decisions, both on and off the farm.

One of the few constants in life is change. Proper sweat equity valuations in succession planning can ensure the interests of the farm, as well as all stakeholders, are protected. Since no two farms are alike, no two transition plans can be the same. Despite the multitude of factors involved, Grahame, et al. (2018) provide two goals for successful transitioning that will apply to every farm: "Secure the farm's financial viability and transition the farm in such a way to make everyone happy." While all arrangements were viable in this simulation, any given farm is going to have its own financial obligations and management needs. There's not one single way that will work for all farms, but there are multiple strategies to successfully transition many farms to accommodate the needs of each generation of a given family.

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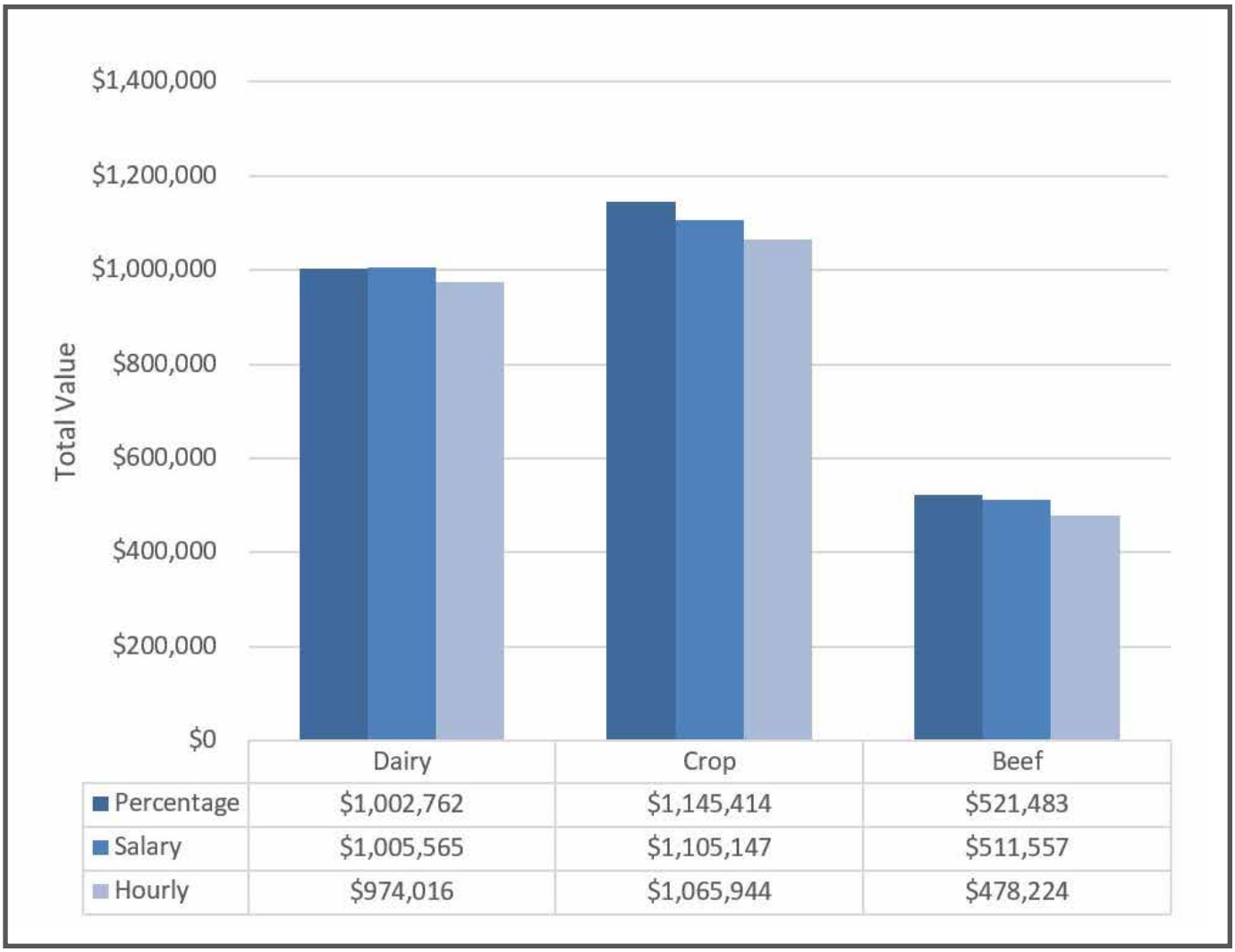

	Dairy	Crop	Beef
Percentage	$1,002,762	$1,145,414	$521,483
Salary	$1,005,565	$1,105,147	$511,557
Hourly	$974,016	$1,065,944	$478,224

Figure 1. Sweat equity agreement total value by simulation farm type